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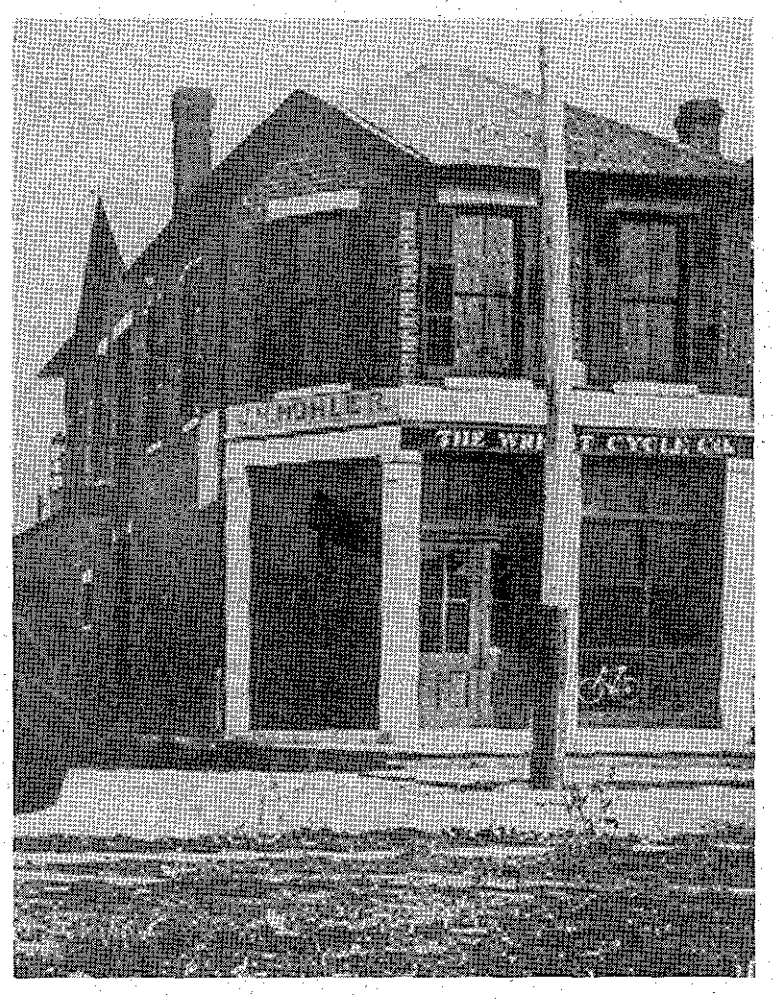
HISTORIC STRUCTURE REPORT
The Wright Cycle Company Building
(HS - 01)

Dayton Aviation Heritage National Historical Park
Dayton, Ohio



March 31, 1999
Final Submission

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HISTORIC STRUCTURE REPORT

The Wright Cycle Company Building

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Prepared by

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Ann Arbor, Michigan 48104

Recommended: _____ Date: 4-23-99
Superintendent, Dayton Aviation Heritage National Historical Park

Concurred: _____ Date: 4-27-99
Superintendent, Midwest Support Office

Approved: _____ Date: 4/27/99
Regional Director, Midwest Regional Office

Dayton Aviation Heritage National Historical Park
Dayton, Ohio

National Park Service

United States Department of the Interior

May 1999

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Part A

Introduction

Part A: Introduction

General Property Description

The Dayton Aviation Heritage National Historical Park comprises four noncontiguous sites in Dayton, Ohio. The park was established to "commemorate the legacy of three exceptional men — Wilbur Wright, Orville Wright, and Paul Laurence Dunbar — and their lives and works in the Miami Valley; recognize the national significance of the contributions made by the Wright brothers and Paul Laurence Dunbar and the city of Dayton's role in their contributions; [and, to] promote preservation and interpretation of resources related to the lives of these three men and the invention of flight through a management framework based on cooperation among the diverse groups that share an interest in aviation history and Paul Laurence Dunbar."[1] One of the four sites is The Wright Cycle Company building. Located at 22 South Williams Street on the west side of Dayton, The Wright Cycle Company building is a two-story detached, red brick, commercial structure with a full basement. Built in 1886, the building has been described as a typical neighborhood grocery store type of the period.

The Wright Cycle Company building's significance stems from the fact that it was in this building that the Wright's printing and bicycle businesses were brought together under the same roof. During their occupancy, the Wright brothers began manufacturing their own brand of bicycles. It was also in this building that the Wright brothers began to consider the problems of powered flight. The Wright Cycle Company building is listed in the 1989 National Register of Historic Places Nomination Form as a contributing structure in the West Third Street Historic District, and was also designated a National Historic Landmark on June 21, 1990.

Project Team Members

Following the objectives of the Dayton Aviation Heritage National Historical Park, the National Park Service, Great Lakes Systems Office, engaged the professional services of Quinn Evans/Architects, an architectural firm specializing in historic preservation, to prepare this Historic Structure Report. Team members providing support to Quinn Evans/Architects included: Fitzpatrick Structural Engineering, P.C., for structural engineering; SWS Engineering, Inc. for mechanical and electrical engineering; Seebohm, Ltd. for historic paint analysis; and, ATC Environmental, Inc. for lead based paint inspection services. The project team has gathered information, in addition to that which had been previously researched and collected, and conducted on-site physical investigations, to formulate strategies for the repair, and maintenance of The Wright Cycle Company building. The results of this investigative research and documentation are contained in this Historic Structure Report, which is arranged in the following manner:

Part A: Introduction

This section includes a general description of the property and documents the project team members, the scope of the project, and the investigation methodology.

Part B: Historic Documentation

This section documents and analyzes historic information as it relates to the chronology of the property. It also includes summarizations and references to historic documentation previously completed by the U.S. Government, as well as original information gathered by Quinn Evans/Architects. In addition, an architectural analysis of historic graphic information including photographs, drawings, and maps is included in this section.

Part C: Archeological Analysis

This section summarizes the archeological investigations that have been conducted at the property, as well as any other pertinent information that has been ascertained as it relates to the historic chronology of the building and historic outbuildings.

Part D: Comparable Structure Analysis

This section includes an analysis of the historic turn-of-the-century buildings in the neighborhood of The Wright Cycle Company building.

Part E: Architectural Analysis

This section presents and analyzes historic building chronology information that has been gleaned from the physical investigation, and addresses variations in construction techniques, technology, materials, and design.

Part F: Existing Conditions Analysis

This section evaluates and documents the existing conditions of the property. It includes an exterior fabric analysis, interior fabric analysis, structural, mechanical and electrical systems analyses, historic paint analysis, and an analysis of the existence of lead based paint.

Part G: Building Chronology

This section presents both written and graphic analyses of the building's chronology based on known historical, archeological, and physical investigatory information, with an emphasis on building configuration, the location of door and window openings, and building materials. The section also presents an analysis of each building episode that the building has undergone.

Part H: Building Recommendations

This section outlines maintenance needs for both the exterior and interior of the building.

Part I: Research Recommendations

This section provides recommendations for further research and investigation of the building that are outside the scope of this report.

Investigation Methodology

The project team conducted an in-depth study of previously researched documentary materials related to the property. These materials included: the *General Management Plan/Interpretive Plan* and the *Draft General Management Plan/Environmental Assessment* prepared by the Denver Service Center of the National Park Service; Ann Deines' September 1996 draft report entitled, *Dayton Aviation Heritage National Historical Park Historic Resource Study*; the *Interpretive Plan [for the] Dayton Aviation Heritage National Historical Park* prepared by the Division of Interpretive Planning at Harpers Ferry Center; Mary Ann Johnson's book entitled, *A Field Guide to Flight: On the Aviation Trail in Dayton, Ohio;* Fred C. Fisk's and Marlin W. Todd's book entitled, *The Wright Brothers from Bicycle to Biplane*; Fred C. Kelly's book entitled, *The Wright Brothers: A Biography*; National Register of Historic Places Nomination Forms; National Historic Landmark Nomination Forms; and, historical photographs, drawings, Sanborn Insurance maps, and newspaper clippings.

This report is based on documentary evidence collected to date, limited physical probing and destructive testing, and architectural inspection. Of necessity, the research is not concluded with the completion of this report. Rather, it will be supplemented in the future by further information gathered through archeological investigation, and by subsequent documents and information as they are discovered.

1 U.S. Department of the Interior, National Park Service, Denver Service Center, *General Management Plan/Interpretive Plan: Dayton Aviation Heritage National Historical Park • Ohio* (Denver, CO: November 1997), 2.

Historic Documentation Summary

Part B: Historic Documentation Summary

History of the Site

Located at 22 South Williams Street on the west side of Dayton, Ohio, The Wright Cycle Company building was constructed by two brothers, Abraham and Joseph Nicholas, in 1886. The brothers operated a grocery store on the first floor of the two-story brick building for two years before selling it to Joseph H. Hohler for $3,500 in 1888. Hohler had a grocery store, then a feed store on the first floor, and lived with his family on the second floor until 1891. After that he rented the building first as a saloon and boarding house, then to Wilbur and Orville Wright, the Wright brothers of aviation fame. The Wrights paid $16 a month for the entire building, which they rented from 1895 to 1897.[1] It was while they were occupying this building that they took their first steps toward the invention of the airplane.

Before gaining fame as inventors of the airplane, however, the Wright brothers supported themselves with two businesses: a job-printing business and a bicycle showroom, repair, and manufacturing business. Orville had become interested in the printing business at a very young age. By the eighth grade he owned his own printing press and together with fellow classmate, Ed Sines, established a job-printing business. A disagreement about how to handle a payment from a customer led Orville to buy out Sines, although Sines stayed on as an employee of Orville's. A few years later, Orville built himself a bigger press. Ambitious to:

> be a really good printer, Orville took employment during two summer vacations with a printing establishment in Dayton, and worked there sixty hours a week. But he felt that the most fun and satisfaction in connection with printing had been from building his own press. Along in the spring of 1888, when he was nearly seventeen years old, he started to build another press.[2]

When the press was finished, it was big enough and fast enough to print a newspaper. The first documented work from the company is from 1888 and is credited to the Wright Bros., Job Printers, indicating that at least one of Orville's brothers was involved. In the spring of 1889, Orville began printing a neighborhood weekly called the *West Side News*. The paper quickly became a fairly profitable business. Occasionally, Wilbur, his brother, would help fill space in the paper by writing humorous essays. After publishing the paper for a few weeks, "[Wilbur's] name was added to the paper's masthead as 'editor,' along with Orville's as publisher."[3]

Paul Laurence Dunbar, a friend of Orville's since grade school, was a possible contributor to the West Side News. Several poems, written in his style but uncredited, appeared in the newspaper. Dunbar himself "was to become famous before the Wright brothers with his many books of poetry, his plays, words to many songs, and novels that he wrote."[4] In 1890, Dunbar, as editor and publisher, established the *Dayton Tattler* for African-American readers. Orville Wright printed the newspaper, but the *Dayton Tattler* ceased publication after three issues. By this time, Orville and Wilbur had moved to a larger space, renting a second floor suite in the front of a building known as the Hoover Block, located at 1042 West Third Street. Dunbar is reported to have written a short poetry verse about Orville and his printing business on one of Orville's office walls in the Hoover Block:

> "Orville Wright is out of sight
> In the printing business
> No other mind is half as bright
> As his'n is."[5]

In addition to printing their own newspaper as well as Dunbar's, the Wrights also did custom printing jobs for a variety of clients, and, in fact, job-printing appears to have been a major portion of the Wrights' business. Orders included the printing of minutes and reports of church conferences, constitutions and bylaws of various church-related or civic organizations, advertisements, holiday menus, letterheads, calling cards, directories, and annual reports. A considerable amount of business came from the Wrights' father, Bishop Milton Wright, who served as the publishing agent for the Old Constitution of the Church of the United Brethren in Christ, and as publisher for the *Christian Conservator*.

In April of 1890, Orville, with Wilbur as his partner, converted the *West Side News* from a weekly to a four-page, five-column daily called *The Evening Item*. After about four months, they suspended the paper. Although the paper was never in debt, the profits apparently did not justify the time and energy required. For a short time they then embarked on publishing a small two-column weekly called *Snapshots* which was devoted to vigorous comments on current local events. They began publishing the magazine on October 20, 1894 with publication continuing for about two years. In 1895, the Wrights moved their printing business from the Hoover Block to 22 South Williams Street, which was located directly south of the Hoover Block.

Two years prior to the first issue of *Snapshots* being published, the Wright brothers had developed a keen interest in bicycles, as did the rest of the nation, which was caught up in a bicycle craze. Although the Wrights' printing business was financially successful, they yearned "to get involved in another business enterprise to satisfy their pioneering temperaments and to challenge their mechanical minds."[6] As a result, they opened the Wright Cycle Exchange, their first bicycle shop, in December 1892. Located at 1005 West Third Street, the shop required they divide their time between the printing and bicycle businesses. The name of the bicycle shop was changed to The Wright Cycle Company in 1894. The shop moved to two other locations before being combined with the printing business in 1895 at the 22 South Williams Street building.

The 22 South Williams Street building, rented by the brothers from 1895-1897, was the first location in which their bicycle and printing businesses were brought together under the same roof. It was the fourth bicycle shop (out of an eventual five) operated by the Wright brothers, and is the only building that remains intact in its original location. Further, "two significant events occurred during the years [that] Wilbur and Orville occupied the 22 South Williams building: the death of Otto Lilienthal, a German aeronautics experimenter, and the expansion of their bicycle business from merely sales and repairs into the manufacture of their own brands."[7]

Anxious to put their own mechanical skills to better use, and to expand their business, the Wright brothers decided to begin manufacturing their own line of bicycles in late 1895. In order to do this, however, they had to transform their sales and repair shop into a well-equipped light machine shop. They designed and built their own one-cylinder gasoline engine to drive an overhead line shaft that provided power to the machine tools.

As the bicycle business continued to increase, and the production of the Wrights' own line of bicycles was underway, the importance of the printing business dwindled. The last issue of *Snapshots* was published April 17, 1896 and "carried an advertisement for the first bicycles manufactured under the Wright brothers' own brand names."[8] They released samples from which to order on April 24th, with full production beginning on May 15, 1896. The first model to be produced was the Van Cleve, named for the Wrights' great-great-grandmother, who was one of the original white settlers of Dayton. It is the production of the Wrights' bicycles that provided the brothers with the mechanical experience and financial resources necessary to later begin their airplane experiments.

In August of 1896, Orville contracted typhoid fever from the well at the rear of The Wright Cycle Company building. It was during his recuperation that he and Wilbur learned of the death of Otto Lilienthal in a glider crash. The Wrights had been aware of Lilienthal's glider experiments for some time and had included an article about him in their newspaper. Lilienthal's death sparked their earliest serious discussions on the subject of flight, and provided the "emotional impetus that set them on the path to manned flight, culminating in the invention of the airplane in 1903."[9] As Wilbur recounted:

> My own active interest in aeronautical problems dates back to the death of Lilienthal in 1896. The brief notice of his death which appeared in the telegraphic news at that time aroused a passive interest which had existed from my childhood... and as my brother soon became equally interested with myself, we soon passed from the reading to the thinking, and finally to the working stage.[10]

In late 1897, the Wright brothers once again moved their bicycle and printing businesses, selecting 1127 West Third Street. This new shop was to be the final location of both the bicycle and printing businesses. It was in this building that the brothers built their experimental gliders, their first airplane, and conducted much of their aeronautical research that launched them into a new career and business.

As their interest in bicycles grew, the brothers' involvement in their printing business decreased, leaving their friend Ed Sines solely responsible for the printing business. In late 1899, when Sines was injured and could no longer manage the business, they decided to give up the printing business entirely and concentrate on their bicycle business and the mechanics of flight. The experience they gained while manufacturing their bicycles proved invaluable to them as it eventually resulted in the invention of the first power-driven, heavier-than-air machine in which humans obtained free, controlled, and sustained flight.

Little is known about the tenants or owners of the 22 South Williams Street building after the Wrights moved out in 1897. Sometime prior to 1911 the building was transformed into a two-family residence.[11]

In November 1980, Fred C. Fisk, an antique bicycle aficionado and collector, published an article for *The Wheelmen* magazine. Fisk was assisted in his research by Marlin Todd, who had studied the Wrights brothers for most of his adult life. In the process, Todd revealed that he had "a very rare unpublished photo of the Wright Bicycle shop [at 22 South Williams]"[12] Entitled "The Wright Brothers Bicycles," Fisk's article featured Todd's photo for the first time. Around the same time that the article was published, Mary Ann Johnson discovered that the building at 22 S. Williams was still standing. She had been researching aviation heritage sites in the Dayton region for Aviation Trail, Inc., a nonprofit organization she helped found, when she came across the building. The mission of the group was to preserve and promote Dayton's aviation heritage by mapping key historical sites in the Miami Valley to form an "Aviation Trail" for tourists to follow. By including the Hoover Block and The Wright Cycle Company building on the Aviation Trail, Johnson brought recognition to the forgotten structures. Aviation Trial, Inc. had "just finished a project of printing thousands of brochures on aviation sights in the Dayton area. They jumped at the chance to save and restore this shop and the Hoover Block."[13]

Dr. Jerry Meyer, a retired doctor and authority on aviation purchased The Wright Cycle Company building at 22 South Williams Street with $11,500 of his own money to save it from demolition by the city. In 1982, after raising enough money to pay Dr. Meyer back, Aviation Trail, Inc. became the new official owners of the building, with the intention of restoring it to its 1895 appearance. Johnson and Aviation Trail, Inc. began a drive to raise federal, state, local, and private money for the building's restoration. In mid-1985, the restoration work began, and on June 25, 1988, a grand opening of the shop celebrating the completed work took place. With the restoration complete, Aviation Trial, Inc. turned its attention to other non-restoration matters.

On January 25, 1989, the West Third Street Historic District, which includes The Wright Cycle Company building and the Hoover Block as contributing structures, was listed in the National Register of Historic Places. In 1990, The Wright Cycle Company building itself was listed as a National Historic Landmark. On October 16, 1992, Congress passed legislation establishing the Dayton Aviation Heritage National Historical Park to "commemorate the legacy of three exceptional men - Wilbur Wright, Orville Wright, and Paul Laurence Dunbar - and their work in the Miami Valley."[14] Properties included in the park were four new national historic landmarks: (1) a core unit consisting of The Wright Cycle Company building, the Hoover Block, and the vacant land between those two structures; (2) the Huffman Prairie Flying Field at Wright-Patterson Air Force Base; (3) the 1905 Wright Flyer III in Carillon Historical Park; and, (4) the Paul Laurence Dunbar State Memorial. Of the four landmarks, only the first one was designated for ownership by the National Park Service. The other three were (and continue to be) owned and administered respectively by: the Wright-Patterson Air Force Base, the Carillon Historical Park, and the Ohio Historical Society.

The 2003 Committee purchased the Hoover Block from Aviation Trail, Inc. for $100,00 in 1994, and a year later purchased The Wright Cycle Company building for $200,000, donating both buildings to the National Park Service. The purchase of both buildings was accomplished by using State of Ohio capital improvement funds. The 2003 Committee, comprised of community leaders and activists in Dayton, was "the godparent to the [Dayton Aviation Heritage National Historical Park] and diligently nurtured and guided the effort to make the park's vision a reality. Having generated the grassroots support and the idea for a national park in Dayton, the 2003 Committee helped prepare the enabling legislation and gained the bipartisan support of political leaders that led to establishment of the park."[15] The 2003 Committee is spearheading the Century of Flight Program, which is preparing the celebration of the Centennial of Flight in 2003.

On November 2, 1995, the National Park Service took title of both The Wright Cycle Company building and the Hoover Block. Both buildings form the core of the National Park Service unit, and are the only properties owned by the National Park Service in the Dayton Aviation Heritage National Historical Park. The National Park Service has outlined objectives for both structures which are included in the *General Management Plan/Interpretive Plan for the Dayton Aviation Heritage National Historical Park - Ohio* prepared by the National Park Service in November 1997. A main objective is the protection of The Wright Cycle Company building, the Hoover Block, and other resources of the park for visitor use. To accomplish this objective, the park intends to "restore The Wright Cycle Company building and the Hoover Block to the mid-1890s (period of the Wright brothers occupation) and use the interior spaces for adaptive purposes" and "provide universal accessibility to The Wright Cycle Company building and the Hoover Block."[16]

Photographic Chronology

The Wright Cycle Company Building: 1896

The earliest known photo of The Wright Cycle Company building was taken by Lura Hoover, daughter of Z.T. Hoover, the owner of the Hoover Block. The photo is a portrait of her young friend, the niece of Charles Webbert, owner of the nearby Webbert Building, and is part of a private collection. In the background of this 1896 photo is The Wright Cycle Company building and two smaller buildings separated by Sanford Court. A detail of the 1896 photo is shown in Figure 1. Figure 1 shows the north and west elevations of The Wright Cycle Company building, with a chamfered northwest corner. This corner chamfer creates one bay, which is repeated twice on the west elevation, with the center bay serving as the entrance. The entrance is made up of double wood doors which each have glass lights divided into four, over a solid bottom with two recessed panels. Above these is a transom with three vertical divisions and a heavily profiled transom bar. Like the southernmost bay of the west elevation, the corner bay is a large window, glazed to within inches of the second floor level, with a single vertical division and three horizontal divisions. The upper horizontal division is a transom bar that separates the upper two panes from the bottom six, and may be operational.

There are four simple, squared columns with modified Doric capitals, flanking and dividing the bays. Above the west facing bays at the porch frieze is stenciled, "THE WRIGHT CYCLE CO." in a *serif* style lettering, and above the chamfered bay, a little higher on the brick is painted, "J.H. HOHLER." in a *sans serif* style. In the lower left hand light of the southernmost bay is stenciled a white bicycle silhouette. A narrow, wooden, uncovered porch runs along the west side of the building encompassing the chamfered bay. Above each bay, at the second floor, are two-over-two windows with a single vertical division. Each has a stone header and sill, and flanking trisection wooden shutters.

On the north elevation, there are two doors, one at each floor, in the center of the elevation. Both doors appear to have stone headers. The first floor door has two steps that rest on a continuous stone building sill that extends along the north elevation and presumably continues around the entire building. The upper door is framed by a balcony. The balcony does not appear to be much wider than the doorway itself, nor much deeper than that same measurement. It has a railing with posts at each outer corner, and two horizontal rails at both the south and east

sides, the lower of which do not appear to align. There is a faint diagonal "shadow" below the balcony, towards the west, indicating the presence of a previous steep staircase. This staircase would have provided direct access to the second floor from the street.

Just to the east of the first floor door is a small square window opening with a stone header and sill, but no shutters. There are four windows at the second floor of the north elevation, two on either side of the door. The glazing is not visible in any of the windows on the north elevation. At the west end of the north elevation, at the level of the storefront cornice, is a rectangle of bright paint directly on the brick. Presumably, this is another painted advertisement or sign.

One brick chimney stack is clearly visible in this photo, between the two western-most, second floor windows on the north elevation. The hipped roof appears to be wood shingle, each face sloping up to the center, with gables above the northwest chamfered elevation and above the balcony on the north elevation. Just below the cornice, at the brick, is a continuous wood fascia. There is one downspout visible to the east of the beveled corner. Another chimney, belonging to a house on the adjacent lot, is visible to the south of this building. Note the placement of the chimney, the slope of that roof, and a portion of what appears to be a horizontal trim with dentils below it at the very right-hand edge of the photo.

There is a small one-story addition at the east elevation that projects past the north elevation, with a gable roof. While the body of the main building is brick masonry construction, the addition appears to have a different

Figure 1 *This is a detail, showing The Wright Cycle Company building in 1896, from a photo of Charles Webbert's niece taken by Lura Hoover. The original photograph is in a private collection. (Wright State University, Archives and Special Collection)*

cladding material, presumably wood. An exterior doorway appears in the west face of the addition. There is no porch on the west elevation of the building. There also seems to be a small protrusion at the roof of the addition, which might be a chimney stack.

The Wright Cycle Company Building: Circa 1940

Figure 2. This photo, circa 1940, was taken by Roger McCure, and shows The Wright Cycle Company building modified and being used as a two-family residence. This is the only known photo of the building from the time period between 1896 and 1980. This photo shows the north and west elevations of 22 South Williams Street, with a chamfered northwest corner. The storefront windows and entrance doors have been removed, and a new, recessed wall has been created, running north to south from the back of the northernmost column to approximately one quarter of the way into the southernmost bay. From this point, a second, north-facing wall extends westward, to within two to three feet of the outer face of the west-facing columns. It is picked up by a west-facing wall that returns to the inner side of the south wall of the building, behind the southernmost column. These three walls are clad with narrow, horizontal wood siding. The storefront columns remain in place, now freestanding and supporting the upper facade. The northernmost portion of this ensemble, on the left, contains a one-over-one window, behind the northernmost column on the west elevation. To the south of this window are two new entrances; the one on the right presumably leads up to the second floor. Both floors show paint ghosting from shutters that are no longer installed.

At the north elevation, a bay window has been added in the center of the elevation, where the 1896 doorways were once located. There is a one-over-one window in each of the bays, the body of which is also narrow, horizontal, wood siding. On the ground floor of the original structure, there are two newer window openings aligning with the two western-most windows of the second floor. The glazing of these four windows is not visible, but the second floor windows appear to be original; again, there are no shutters. Beyond the bay window, a portion of the rear addition is visible.

Gutters have been added to the roof. There is a downspout at the left side of the northwest elevation's gable, and another at the southwest corner of the building.

Figure 2 This circa 1940 photo shows The Wright Cycle Company building after its conversion to a two-family residence. (Dayton Aviation Heritage National Historical Park Archieves)

The Wright Cycle Company Building: 1982

In this photo, Figure 3, the changes to the first floor are more visible. The north window is a double-hung, one-over-one sash. At the center bay is an entrance with a wood paneled door and wooden screen door, complete with a wall-mounted porch lamp and mail box. At the southern end, at the bump-out, is another entrance with another wall-mounted porch lamp and the address numbers "24." The wood trim is the same for both of these entrances and the one window. Along the west elevation, there is a concrete porch that includes the chamfered corner, with two steps down in front of the southern entrance. Above, on the second floor, the windows appear to be original, though the shutters are missing. Only the bottom sash of the southernmost window appears to have been replaced with a single-pane sash.

At the north elevation, a bay window has been added in the center of the elevation, where the 1896 doorways were once located. There is a one-over-one window in each of the bays, the body of which is also narrow, horizontal, wood siding, and the base of which is unpainted brick. On the ground floor of the original structure, there are two newer window openings that align with the two western-most windows of the second floor. The glazing of these four windows is not visible, but the upper windows appear to be original; again, there are no shutters. The bay window blocks the view of the eastern half of the north elevation.

The brick chimney on the north elevation is still in place although it is missing its corbelled detailing. The second chimney visible in the photo belongs to the adjacent house to the south. The shingles at the roof appear to have been replaced with rolled roofing membrane over the main body of the building, and dark shingles are visible over the bay window. The exterior stairway to the basement can seen at the north elevation. Almost every surface of the building has been painted white.

Figure 3 *View of The Wright Cycle Company building in 1982. (Aviation Trail, Inc.)*

Figure 4 *View of The Wright Cycle Company building in 1986 with most of the restoration work completed. Photo courtesy of Aviation Trail, Inc.*

Wright Cycle Company Building: 1986

This photo (Figure 4) shows the north and west elevations of 22 South Williams Street, with a chamfered northwest corner. For the most part, these elevations appear to have been restored to the image in the 1896 close-up photo (Figure 1), but there are some slight differences in their appearances. These inconsistencies are as follows:

- The 1987 Wright Cycle Co. sign has been designed as a plaque with *sans serif* lettering, and the J.H. Hohler sign is gone.
- The base of the storefront windows in the two outer bays seems to have been constructed with a more pronounced sill than the original.
- The horizontal transom support above the entrance doors is thinner than the original, and did not initially align with the storefront window mullions.
- The porch on the rear addition that extends onto the face of the north wall in the 1987 photo is not original.
- The railings on the balcony are more substantial in the more recent photo, presumably in order to meet code.
- The chimney corbelling detail and the current grade around the building do not appear to match those of the 1896 photo.
- There is a beam of some sort protruding from the second floor doorway that is not evident in the 1896 photo.
- The replacement shutters only have two divisions, while the original shutters were divided into three sections, as evidenced in the 1896 photo.
- The small square window on the north elevation at the first floor is not in the same location as the window in the 1896 photo. Originally, the window was centered between the two second floor windows above it.
- The rear door on the north facade which opens onto the porch is not original.
- The board fence visible in the 1896 photograph was not reconstructed.

Historic Map Analysis

Sanborn Map 1887

Figure 5. Drawn shortly after the Wright building was constructed in 1886, this map shows the original outline of the building (circled). There is an exterior stair on the north side, no additions at the back, and the northwest corner is beveled. A porch or unknown structure extends from the west elevation into the street. The lot to the immediate south is empty.

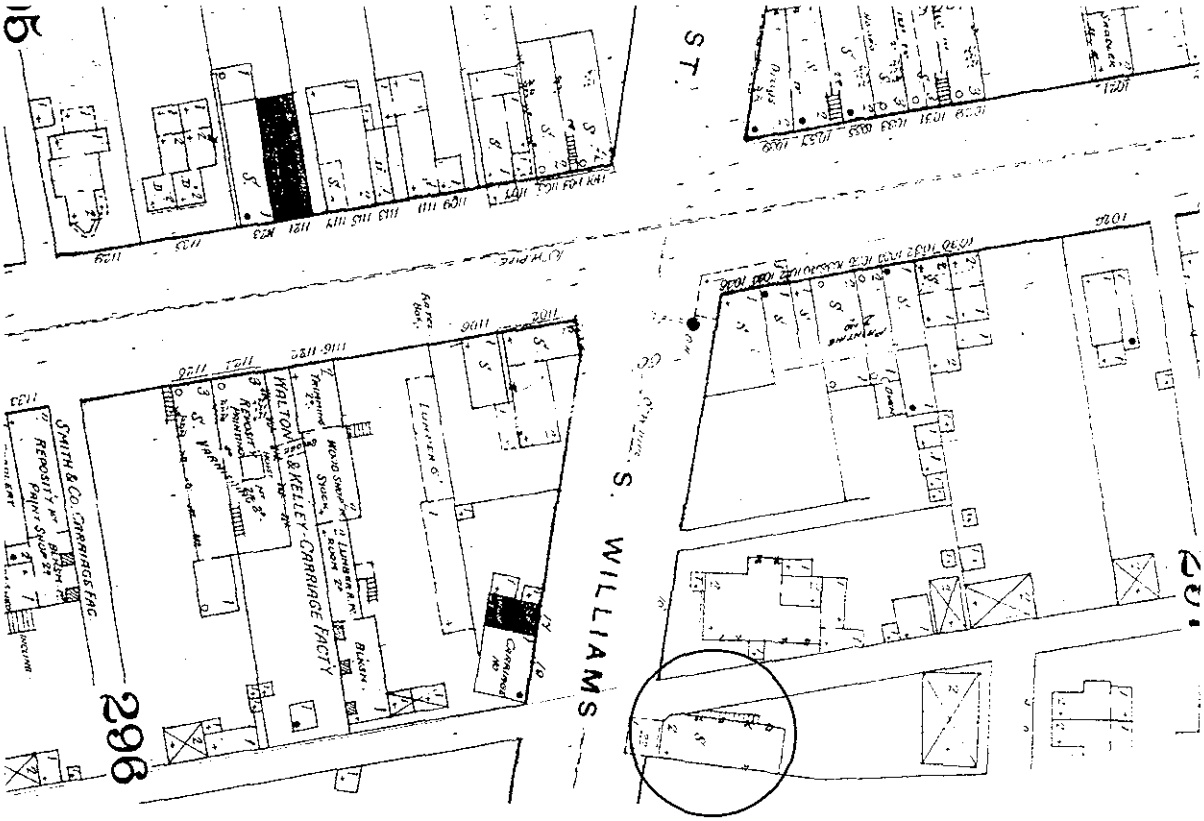

Figure 5 *Sanborn Insurance Map, 1887. (The Sanborn Perris Map Co., Ltd., New York, New York)*

Sanborn Map 1897

Figure 6. By 1897, the front extension had been removed. Two additions were constructed at the back of the building. The text within the body of 22 Williams Street reads "Window Screen Fcty 1st & part of 2nd," indicating the building was still used for manufacturing. The map includes the two houses to the south of 22 Williams Street, No. 24 and No. 30, which are also part of the current West Third Street Historic District.

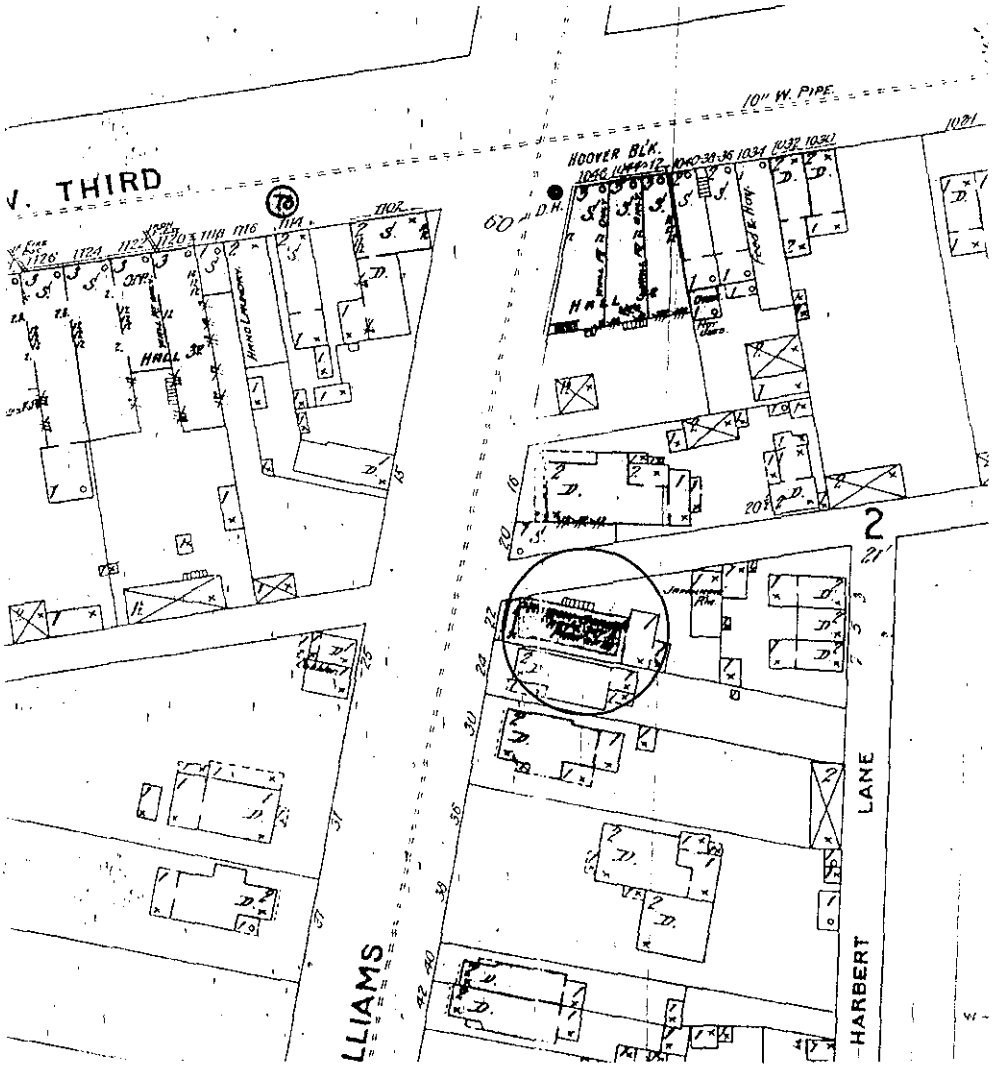

Figure 6 *Sanborn Insurance Map, 1897. (The Sanborn Perris Map Co., Ltd., New York, New York)*

Sanborn Map 1911

Figure 7. Changes to the Wright building (circled) indicated on this map include the removal of the north exterior stair and the addition of a bay window to the same elevation. A porch has been added at the northeast corner. On the west side of South Williams Street, the houses at 23-25 and 27 South Williams Street are in place. These houses are also part of the current West Third Street Historic District. The duplex at 23-25 replaced an earlier, smaller structure shown on the 1897 Sanborn map. The occupancy designation of "D" within the building outline indicates a dwelling. Generally, the Sanborn Maps use "dwelling" specifically to mean a single-family residence.

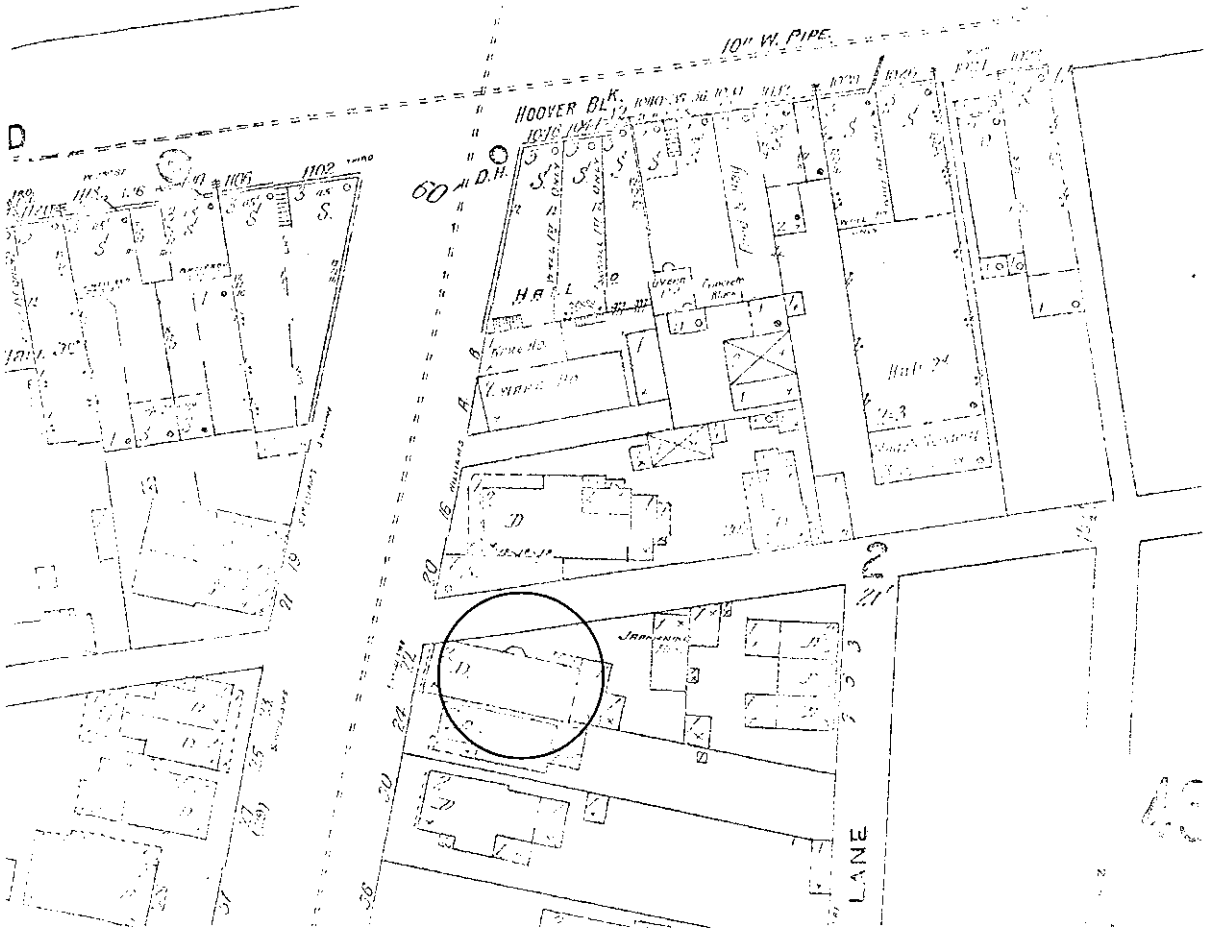

Figure 7 *Sanborn Insurance Map, 1911. (The Sanborn Perris Map Co., Ltd., New York, New York)*

Sanborn Map 1918

Figure 8. Changes to the Wright building (circled) indicated on this map include the removal of the north exterior stair and the addition of a bay window to the same elevation. The smaller of the two previous additions has been removed from the back. The occupancy designation has been changed to "F", which in the Sanborn code represents "flats": a single family dwelling at each floor of the building. A dashed line at the west end of the building indicates that the storefront windows have been converted to a porch by this time. The original storefront has been removed, with the columns remaining as freestanding supports for the upper story. The new first floor facade is now recessed into the body of the building, bringing it in line with the house to the south.

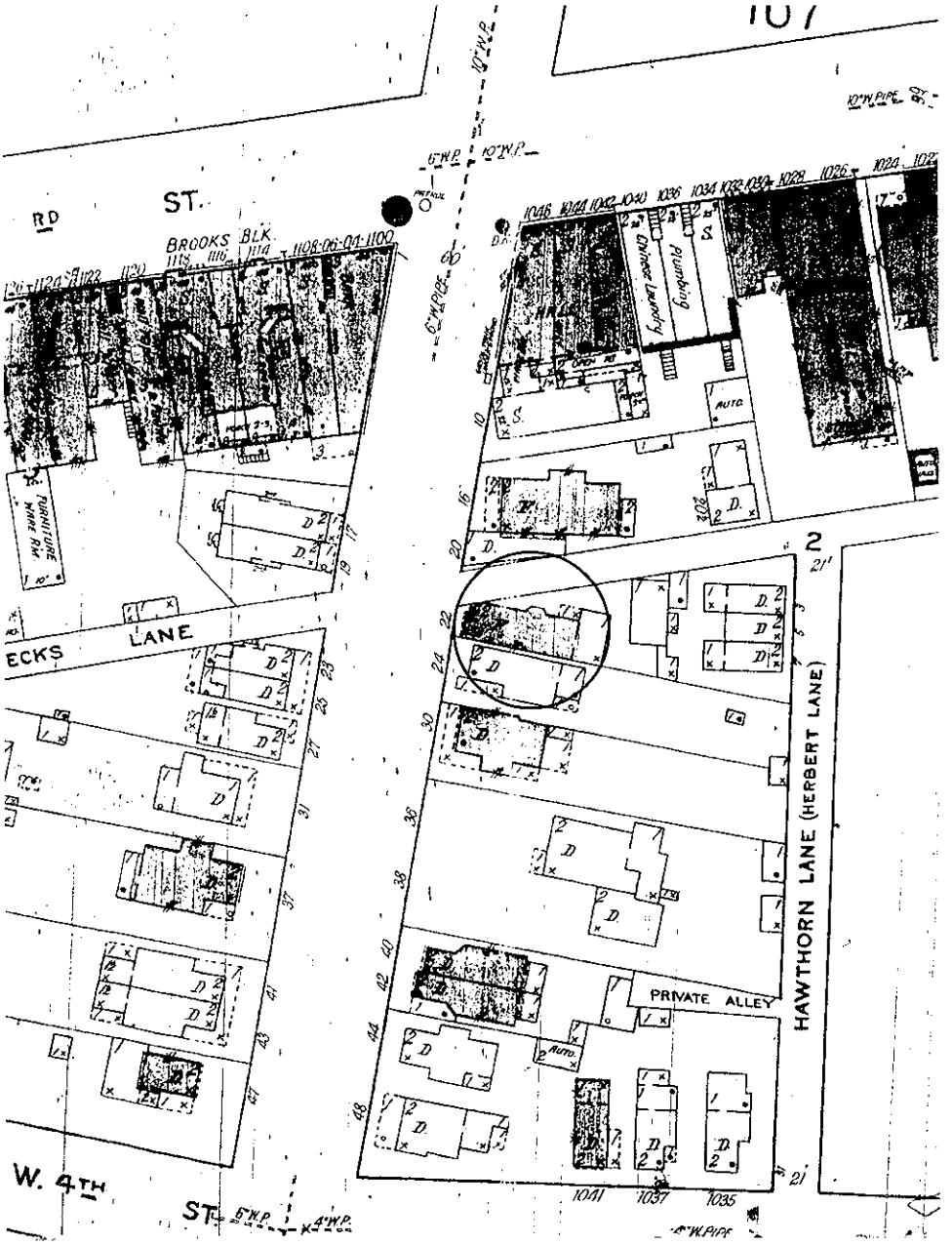

Figure 8 *Sanborn Insurance Map, 1918. (The Sanborn Perris Map Co., Ltd., New York, New York)*

Sanborn Map 1936

Figure 9. The general outline of the Wright building (circled) remains unchanged, and the occupancy type is still listed as "flats." The only change appears to be in the roofing material: composition shingles have replaced the wood on the main building and the rear additions.

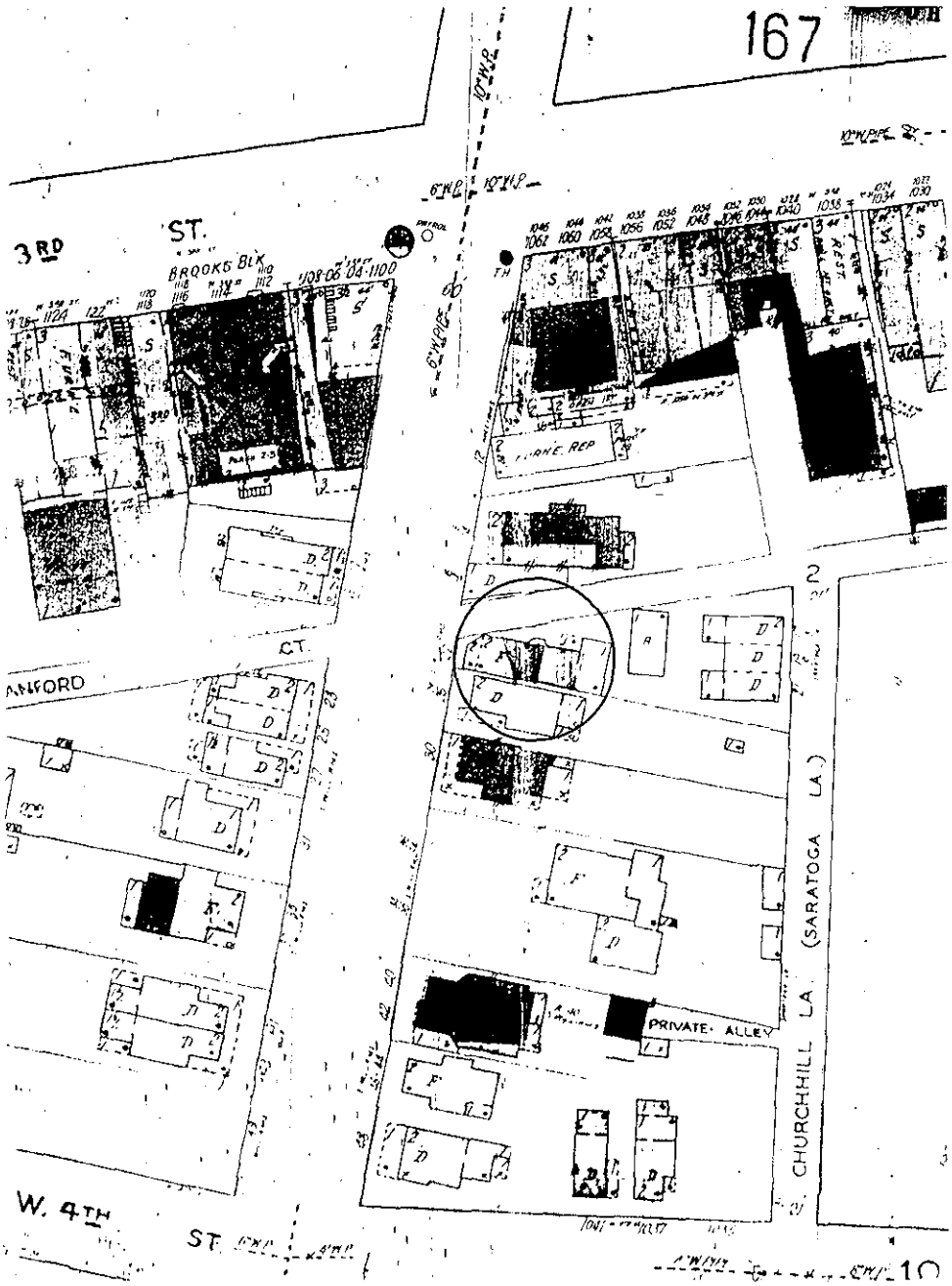

Figure 9 *Sanborn Insurance Map, 1936. (The Sanborn Perris Map Co., Ltd., New York, New York)*

1 Mary Ann Johnson, *A Field Guide To Flight: On the Aviation Trail in Dayton, Ohio* (Dayton, Ohio: Landfall Press, 1986), 35.

1 Fred C. Kelly, *The Wright Brothers: A Biography* (New York: Dover Publications, Inc. 1989), 37.

3 Ibid., 37.

4 Fred C. Fisk and Marlin W. Todd, *The Wright Brothers: From Bicycle to Biplane* (West Milton, Ohio: Fred C. Fisk and Marlin W. Todd, 1993), 21.

5 Ann Deines, *Dayton Aviation Heritage National Historical Park Historic Resource Study (Draft)*, (Omaha, NE: U.S. Department of the Interior, National Park Service, Midwest Regional Office, September 1996), 65.

6 United States Department of the Interior, National Park Service (prepared in conjunction with The 2003 Fund Committee), *Study of Alternatives: Dayton's Aviation Heritage • Ohio* (U.S. Government Printing Office: 1991-573-040/20,039, Region No. 8), 9-10.

7 Johnson, 35.

8 Johnson, 35.

9 Johnson, 35.

10 Jill York O'Bright, David G. Richardson, and William S. Harlow, U.S. Department of the Interior, National Park Service, Midwest Regional Office, *National Historic Landmark Nomination Form* [for The Wright Cycle Company building], (Omaha, NE: January 18, 1990), section 8, p.5.

11 *Ibid.*, section 7, 2.

12 Fisk and Todd, 42.

13 Fisk and Todd, 43.

14 U.S. Department of the Interior, National Park Service, "Dayton Aviation Heritage National Historical Park Ohio" (brochure).

15 U.S. Department of the Interior, National Park Service, Denver Service Center, *Draft General Management Plan/Environmental Assessment: Dayton Aviation Heritage National Historical Park • Ohio* (Denver, CO: November 1996), 3.

16 *Ibid.*, 14.

Part C.

Archeological Analysis

Part C: Archeological Analysis

Limited archeological investigation was conducted around The Wright Cycle Company building by Wright State University prior to the National Park Service becoming the owner. According to the park's November 1996 *Draft General Management Plan/Environmental Assessment*:

> . . . no documentation of the investigation findings was produced. Maps from the historic period indicate the location of a paint and metal finishing shed at the rear of the cycle building. Maps also indicate three buildings with auxiliary structures on the land between the Hoover Block and the Cycle Building. One of the structures housed a storefront hat shop and residences.[1]

In 1996, National Park Service personnel "monitored grading of the plaza area between The Wright Cycle Company building and the Hoover Block for the discovery of subsurface archeological features."[2] According to the *General Management Plan*, "continued historic archeological work in this area is highly probable."[3] Further, the 1996 *Interpretive Plan for the Dayton Aviation Heritage National Historical Park* identifies additional studies, plans, and pieces of research needed to complete implementation of the plan including historic site archeological assessments. The goal of the archeological assessments is "to recover data, determine the size and location of missing structural elements and features, and increase the historical base of information for the park."[4] Accordingly, assessments will be needed for, among other sites, "the Hoover Block, and the adjacent vacant lot behind the structure," as well as for "The Wright Cycle Company building with its adjacent yard."[5]

Floodplains and Wetlands

According to the *General Management Plan/Environmental Assessment*, the core unit (consisting of The Wright Cycle Company building and the Hoover Block) is not within either a 100-year or 500-year floodplain (although the area did flood in 1913). The closest designated 100-year and 500-year floodplains to the core unit are associated with Wolf Creek, which is approximately one quarter mile from the sites, and the Great Miami River, which is less than one mile away.

No wetlands have been identified at the core unit. However, the channels of Wolf Creek and the Great Miami River that are located within one quarter mile of the core unit are "delineated as riverine lower perennial wetland systems."[6]

Vegetation

Prior to the white settlement of Greene and Montgomery Counties, forests covered about 95 percent of the land. A majority of the woodland cover consisted of hardwood forest types including beech, mixed oak, elm-ash, and oak-maple. Development and agricultural activities soon "reduced the original forest cover to small scattered woodlots on poorly drained soils unsuitable for other crops. However, with management, woodland acreage has been steadily increasing in recent times."[7]

The core unit is located in a developed urban setting in West Dayton. Because of this, no undisturbed native vegetation types exist. What vegetation there is, on or near the core unit, is "typical of disturbed urban areas and consists primarily of maintained lawn and ornamental vegetation..."[8]

Topography and Climate

The terrain in the project area is primarily flat, the result of the grinding-down and filling-in process of glacial action. The core unit is about 740 feet above mean seal level (MSL).

The climate is classified as continental with warm, humid summers and cold, cloudy winters. July is normally the warmest month with an average daily maximum temperature of about 86 degrees while January is typically the coldest month with an average daily maximum temperature of 38 degrees. Precipitation is well-distributed throughout the year and averages about 38 inches annually.[9]

Geology and Soils

The geology of the project area, according to the November 1996 *Draft General Management Plan/Environmental Assessment*, is the result of "glacial advance, retreat, and deposition followed by the deposition of silt, or loess, over much of the region. Soils in the project area formed in several kinds of parent materials including glacial drift, weathered sedimentary bedrock, loess, lacustrine deposits, alluvium, and organic material."[10]

Underlying the core unit is the Crosby-Urban land complex. The natural soil characteristics of this mapping unit have "been eradicated due to the level of disturbance from earthmoving or fill activities. These soils are nearly level and typically occur on uplands underlain by glacial till. They are seasonally wet, somewhat poorly drained, and permeability is slow."[11]

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1 U.S. Department of the Interior, National Park Service, Denver Service Center, *Draft General Management Plan/Environmental Assessment: Dayton Aviation Heritage National Historical Park • Ohio* (Denver, CO: November 1996), 82.

2 Ibid., 82.

3 Ibid., 82.

4 U.S. Department of the Interior, National Park Service, Division of Interpretive Planning, Harpers Ferry, *A Plan for the Interpretation of Dayton Aviation Heritage National Historical Park Ohio* (Harpers Ferry, West Virginia: October 22, 1996), 49.

5 Ibid., 49.

6 *Draft General Management Plan/Environmental Assessment: Dayton Aviation Heritage National Historical Park • Ohio*, 86.

7 Ibid., 86.

8 Ibid., 86.

9 Ibid., 85.

10 Ibid., 85.

11 Ibid., 85.

Comparable Structure Analysis

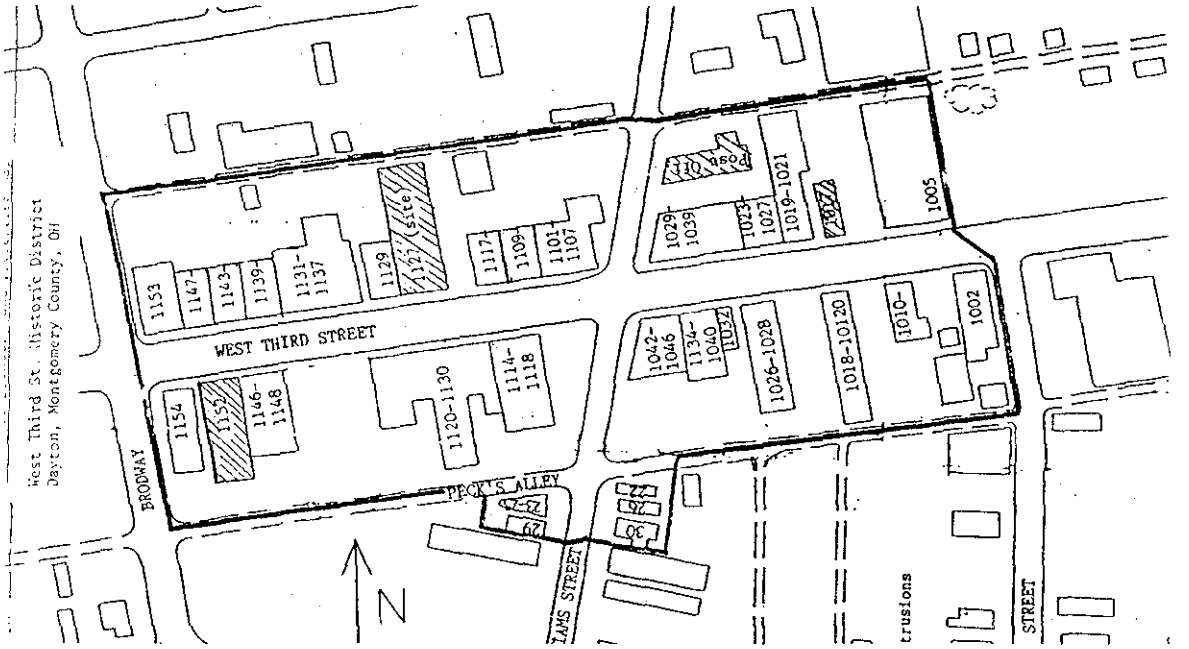

Figure 1 *Map of the West Third Street Historic District. (National Register of Historic Places Nomination Form for the Wright-Dunbar Historic District [now the West Third Street Historic District], 1988)*

Part D: Comparable Structure Analysis

Neighborhood Context

The Wright Cycle Company building is located on the west side of Dayton, in the West Third Street Historic District, and in 1989 was listed on the National Register of Historic Places as a contributing structure in the district.

In 1869, when Orville and Wilbur Wright's parents moved from Indiana to what was then known as Miami City or the West Side, the area had only recently been annexed by the City of Dayton. Located ten blocks and across the Miami River from the center of Dayton, it was one of the city's earliest streetcar suburbs. The extension of the horse-drawn car line across the Miami River bridge into West Dayton made practical the development of new residential neighborhoods for commuters and commercial districts to service them.

The West Third Street Historic District is composed of three blocks of West Third Street, with a short extension south on South Williams Street. A map of the district is shown in Figure 1. Third Street is Dayton's main east-west thoroughfare, and is divided by the Miami River. The Third Street section of the historic district largely consists of two- and three-story, dark-red brick buildings erected between 1885 and 1924. Typical details include corbelling, decorative cornices, and stone trim. Styles range from the High Victorian Italianate and turn-of-the century Italianate to commercial Romanesque Revival and Neoclassical Revival.

Figure 2 shows part of the 1100 block of West Third Street, circa 1937. The empty lot at the center of the photo is the site of the Wright brothers' fifth and final workshop, which was relocated to Dearborn, Michigan, in 1936, by Henry Ford. The tall storefronts meeting the edge of the sidewalk, the common walls, and compatible rhythms and proportions of windows, doors, and details all serve to unite the block visually. This density and styling was characteristic of urban American commercial architecture at the time.

Figure 2 *View looking west at the north side of the 1100 block, West Third Street. (Marvin Christian Collection, William Preston Mayfield Photos, ca. 1937)*

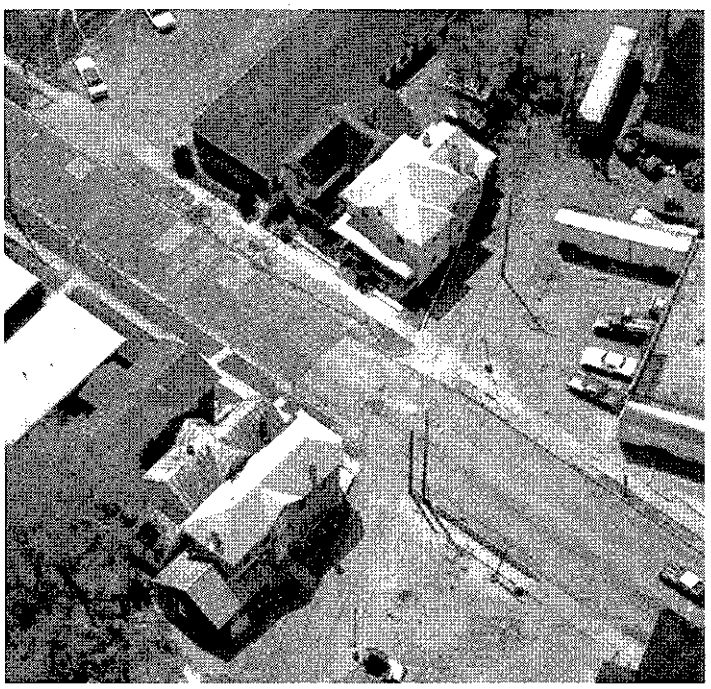

Figure 3 *This aerial photo, taken April 26, 1986, of a portion of South Williams Street shows The Wright Cycle Company building immediately in the foreground. The two houses to the south of the building and the two houses across the street on the west side of South Williams are also part of the West Third Street Historic District.*

Figure 4 *This is a detail, showing The Wright Cycle Company building in 1896, from a photo taken by Lura Hoover. (Wright State University, Archives and Special Collections)*

The South Williams Street extension of the historic district encompasses The Wright Cycle Company building and four residential structures that help convey the area's context: providing goods and services to the new commuters (Figure 3). The Wright Cycle Company building is located at the bottom of the photo. The two houses to the south (left) of the building and the two houses directly across South Williams Street are part of the historic district as well. These four houses provide a representative sample of the domestic architecture found in the neighborhood during the Wright brothers' occupancy; all were built as part of the suburban development that followed the streetcar expansion to the West Side.

Architectural Features

The architectural features of The Wright Cycle Company building reflect the dual commercial/residential nature of the neighborhood. The original two-story building was constructed in 1886 with a dry goods store on the first floor and a residence for the store's owner above. This resulted in a typical three-bay storefront capped by a domesticated upper floor and roof. Figure 4 shows the building in 1896.

In general, the storefront fits with the scale and detail of the commercial buildings on Third Street. The storefront is of exaggerated height, with stone columns and a decorative frieze. A set of entry doors with a transom compose the central bay. The chamfered northwest bay was an acknowledgment of the corner lot occupied by the building, and provided a welcoming transition to customers approaching the store from the east-west side alley.

Unlike the Third Street buildings, the commercial features of 22 South Williams Street were not carried over the entire facade, nor were architectural details limited to the front of the building. There is no upper cornice with a parapet, the roof is not flat, and the side walls (north and south) are not blank, but rather had several windows. There was originally a set of side entrances in the north elevation, one door for each floor. This was possible because the building does not fill the triangular-shaped lot, and shares no common walls with other buildings.

With the exception of the storefront, the remainder of The Wright Cycle Company building was decidedly domestic, relating to the residential architecture to the south rather than the commercial block on West Third Street. The building was freestanding and small-scaled, designed to be visually compatible with the two-story residences nearby. The visible wood-shingled roof was hipped and gabled. The upper windows are trimmed with shutters. Visible roofs and decorative shutters were not common on commercial buildings of the period. Also unlike typical commercial structures of the period, the front edge of the building is set back from the street, with a grass margin between street and sidewalk. This continues the facade-to-street relationship of the houses to the immediate south. However, unlike the those houses, The Wright Cycle Company building has no front lawn.

The 1896 photograph taken by Lura Hoover (Figure 4 is a detail) shows another example of mixed domestic/commercial architecture directly to the north of The Wright Cycle Company building. A one-and-a-half story, flat roofed addition in the commercial style has been constructed adjoining a gable-roofed, vernacular residence with Victorian trimwork. The addition appears to be constructed of brick, and has a large canvas awning that conceals the top portion of the facade. Although no store name is obvious, there are objects on display in the front windows. Further examination of the original photo or a better reproduction may provide further details.

The National Register of Historic Places Nomination Form for the Wright-Dunbar Historic District (now the West Third Street Historic District) refers to the Needham building located at 1010-1012 West Third Street as being a further example of mixed commercial/residential architecture. The nomination form includes an image of the Needham building: a small-scale, two-story structure with a first-floor storefront, and two upper story bay windows. Again, the building is freestanding, with numerous openings visible on its right side. The building does feature a commercial cornice and parapet.

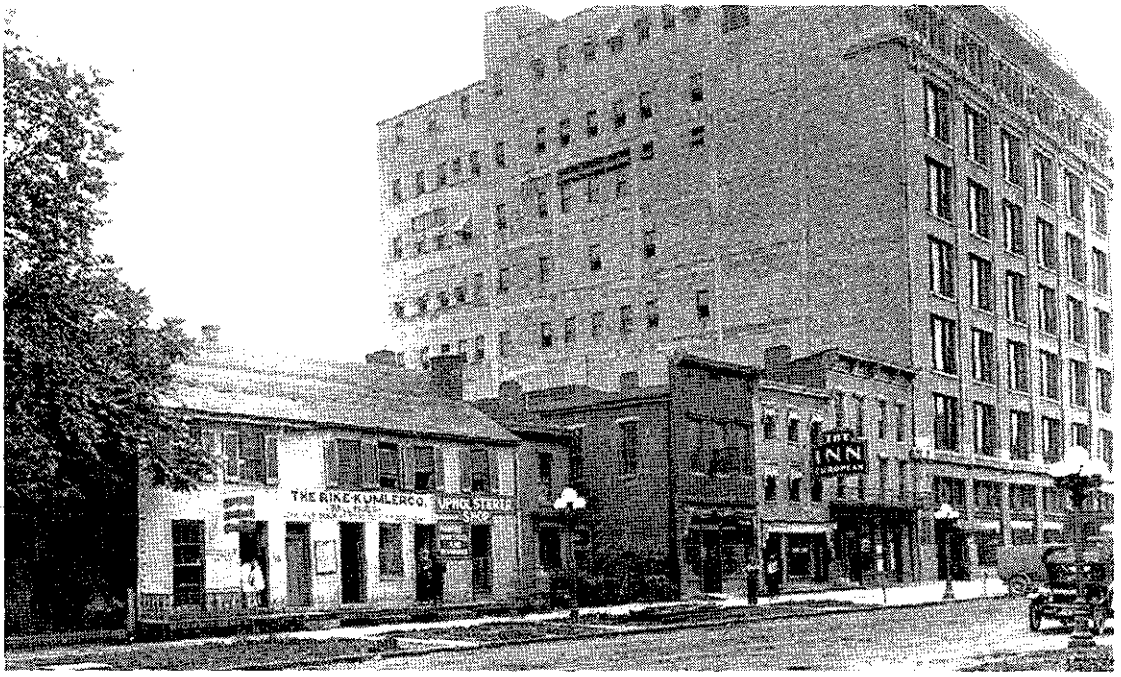

Figure 5 *The northeast corner of Second and Ludlow Streets in downtown Dayton, taken between 1913-14. (Dayton and Montgomery County Public Library, Futzenberger #149)*

Figure 6 *The east side of South Williams Street, showing No. 22 (The Wright Cycle Company building), No. 26, and No. 30. The west elevation of the Hoover Block is visible at the extreme left. (Aviation Trail, Inc.)*

Figure 5 is a photograph of the northeast corner of Second and Ludlow Streets in downtown Dayton, taken between 1913-14. The building at the left, "THE RIKE-KUMLER CO." also shows mixed commercial/residential characteristics. The end-gabled roof is visible from the street, and the upper story windows are not only shuttered, but contain six-over-six divided-light, double-hung windows. The building to the right of "The Inn" was the location of the Wrights' downtown bicycle shop in 1895. They were only in that location for one year.

The Wright Cycle Company building and the four houses in the historic district, although of different styles, share certain features common to American suburban residential architecture of the time. All three buildings have their narrow, gabled ends facing the street. This characteristic is largely determined by the long, rectangular city lots. However, unlike the commercial buildings on West Third Street, the houses are freestanding, even though the space between them is nominal. The front setback, although very small, further separates the house from its surroundings. This reflects the desire of the new suburbanites for an independent homestead, and an escape from the more densely packed row houses of the older city core.

The houses to the south and across the street share the scale and many features of The Wright Cycle Company building. No. 26 is wood-framed, one window bay wide, with a side porch. No. 30 is two window bays wide and constructed of brick. Although the Wright building is composed of three bays, and therefore wider, the chamfered northwest bay makes the building seem narrower. Visually, the three buildings are similar in width (Figure 6). All three buildings have visible, peaked roofs. The upper windows at No. 22 are double-hung, as are all of the windows that are visible on the other two houses.

Across the street, at No. 23-35 and No. 29, are two more houses styled in the late Victorian vernacular. They are two stories, with complex roofs (hipped, gabled, cross-gabled), as clearly shown in Figure 4. They both have porches, and are set back from the street. In Figure 4, the roof lines of the four houses in the historic district, peaked and gabled, are clearly reflected in the roof of The Wright Cycle Company building, and contrast with the flat roofs of the commercial structures along West Third Street. Modern infill buildings, although commercial, to the south (left) of the historic district have retained the residential-style roofs.

The Wright Cycle Company building provides a visual and physical transition from the dense commercial district along West Third Street to the freestanding houses in the surrounding neighborhood.

Architectural Analysis

Part E: Architectural Analysis

General Analysis

The building at 22 South Williams Street underwent three identifiable periods of construction modifications: the construction of the east addition, the conversion into two separate residential flats, and the reclamation as a historical landmark. These periods have been established by reviewing historic photos, oral accounts, and documents prepared for Aviation Trail, Inc.'s renovation of the site, rather than by physical observation. Little about the construction history can be determined by physical observation without more invasive procedures. As the building is in good condition, is being occupied, and was recently renovated, such procedures are not justified.

Exterior Analysis

The building was constructed in 1886 as mixed-use project, with commercial space on the first floor and a single-family residence on the second. It was a two-story brick building with a chamfered northwest corner. The storefront windows at the first floor were defined by four one-story stone columns. Across the tops of the column capitals was a wooden frieze that ran the length of the west and northwest elevations. The central bay served as the main entrance, with double-doors, glass lites, and a transom. The flanking bays were large divided windows. A narrow, uncovered wooden porch ran the length of the storefront. At the second floor, there were large double-hung windows, one per bay, with shutters. The roof was gabled over the northwest corner elevation.

The north elevation contained two doorways, one per floor, with a roof gable just above them. The upper doorway led to a very small exterior landing. Stairs came down from this landing on the west side, along the north elevation. At the first floor, there was only one other opening: a small square window located midway between the door and the east edge of the elevation. At the second floor level, there were two windows at either side of the doorway. The window style matched those of the west and northwest elevations. One chimney stack was located on the roof, between the two windows at the west half of the north elevation.

The east elevation, which is the rear of the building, originally contained two doorways at the south end. One led to the first floor interior, which was originally a dry-goods store, while the other provided direct access to a second floor residential suite. In addition, there was a bulkhead for an exterior basement stair near the center of the elevation. Originally, there was no chimney stack at the east wall. This was one of the first elevations to be modified. The 1897 Sanborn shows that a single story, wood-sided addition, slightly wider than the main building, was added at this elevation. Probably as part of the addition's construction, the basement stair and bulkhead were removed and a chimney stack was added near the center of the original east exterior wall. The new chimney may have been added to accommodate new stoves needed to heat the addition or to provide better heat at the east end of the building.

Where the addition's west elevation extended beyond the main building's north elevation, there was one exterior opening. The addition also had one large window at the center of its north elevation. The east elevation was gabled, with a chimney stack at the peak of the elevation. The southern half of the east elevation was shaded by a small covered porch, which concealed a door and another large window. There is no evidence of any feature along the south elevation of the addition, which lies on the property line. The adjacent building could have abutted this facade.

The south elevation of the main building was fairly plain, as there was another building constructed within two feet of this elevation. There were only three window openings. Two were at the basement stair, near the eastern end of the elevation, and the third was directly above the western-most of these, at the second floor stair landing.

Between 1911 and 1936, the building was remodeled as two separate, single-family dwellings. Along the west and northwest elevations, a poured concrete porch replaced the previous wood porch. The windows and entrance between the columns were removed, and a recessed wall with horizontal siding was built across two thirds of the west elevation, behind the line of the northernmost column. An enclosed staircase, also with horizontal siding,

made up the rest of the west elevation, taking up the majority of the southernmost bay. This stair led from the face of the columns at the font porch to the second floor. A new entry for the first floor and a window were built in the recessed wall, and a door at the bottom of the enclosed stairway became the entrance for the second floor.

At the north elevation, the first and second floor doors were replaced with bay windows. At the first floor, two windows were added at the west half of the elevation, and the small window at the east half of the elevation was replaced by a third full size window and adjoining door. Below the west end windows, an exterior concrete stair leading to the basement was added. Just outside the east end openings was a small covered porch, the roof of which extended from the roof of the wood frame addition at the east. At the east elevation of the main building, another window was added to the southern corner of the second floor, while at the same elevation of the addition, the window was made smaller, and another door was added at the southern corner. Three windows were added to the south elevation: two at the middle of the second floor elevation, and the third just below the western-most of these, at the first floor.

Most of the window shutters were removed, except for those at the window on the second floor stair landing. With the exception of the base of the bay windows, the porch, the door, and the window frames, the entire building was painted white.

In 1985, the building was reclaimed as a historic site. The paint was cleaned from the brick, and new shutters were placed at the second floor windows at the north, northwest and west elevations. A wood porch replaced the concrete porch, although no porch is shown in the 1896 documentation. The large windows and the entrance at the west and northwest elevations were recreated. The recessed west facing wall, and southwest enclosed stair, were removed, as were the bay window and the two windows at the western end of the north elevation. The window just east of the bay window, was re-sized to a smaller opening, and the doorway was reused. The addition and its porch along the north elevation of the main building were completely rebuilt, with the addition of an accessible ramp. Along the south elevation, the easternmost window of the first floor was removed and infilled, as was a small bathroom window.

Most of the actions taken during this restoration procedure were accurate to the 1896 image (Figure 1), with some exceptions. First of all, the sizing of some materials varies. This is the case at the base of the storefront window in the two outer bays, where the sill is now more pronounced. Similarly, the horizontal transom support above the entrance doors is thinner and aligns differently than the original. Secondly, some of the replacements that were made were not done precisely. The railings on the balcony are more substantial, and the chimney corbelling detail is different, than the original. In addition, the replacement shutters have only two divisions, as compared to the original three, and the small square window on the first floor at the north elevation is no longer in the same location.

Interior Analysis

Basement

The basement is constructed of original stone rubble walls. The walls at the northwest corner are chamfered, reflecting the above-ground building configuration. At the east wall is an additional, partially excavated, 4'x6' area with masonry walls and a sloped, unfinished floor. This was an exterior stair to the basement (Figure 1) which was probably closed off when the rear addition was constructed prior to 1896. The basement floor is a concrete slab. On the floor north of the stair opening is a semicircular concrete pad which is believed to be original. This may have served as a stove or furnace base.

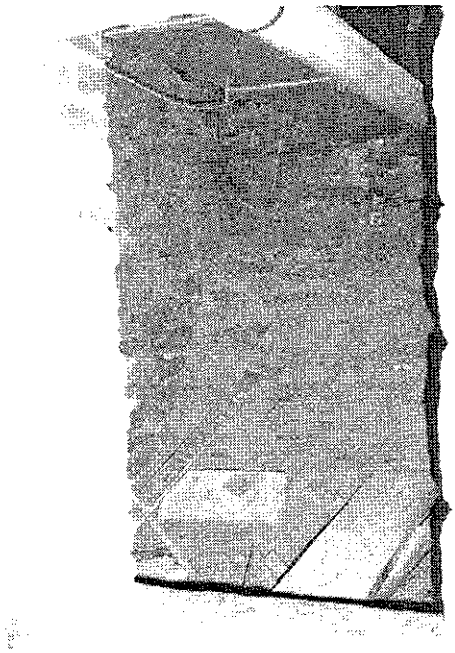

Figure 1: The cavity of the former exterior basement stair.

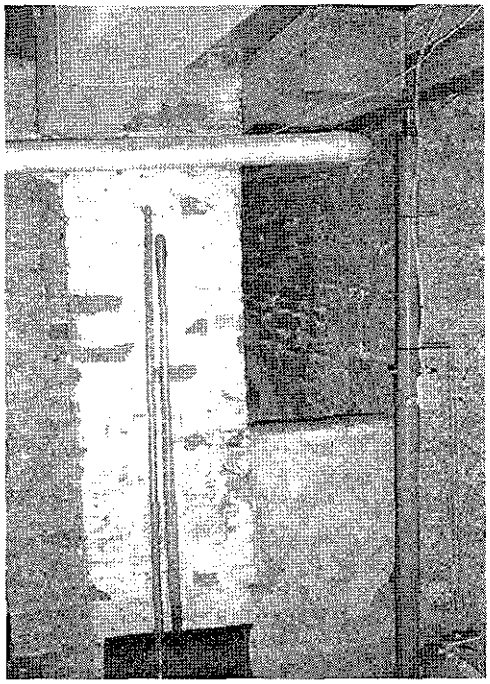

Figure 2: The chimney was constructed at the time of the addition. The brick infill at the left of the chimney indicates that it was not part of the original wall.

Two chimney chases are currently located at the basement level: one at the western half of the north wall, the other near the center of the east wall. The east chimney is not original, as indicated by the brick infill used on the north side and the former stairwell behind it (Figure 2). This chimney was probably added as part of the addition construction. One interior wood stair at the east end of the south wall leads up to the first floor. There is one small window over the stair, high in the south wall. An original window in the east wall, south end, was bricked up, probably when the addition was built.

Five wood columns running east-west supported a wood beam, which, in turn, supported wood floor joists. Various partition walls were built around and between the wood columns over time. It is speculated that some of these walls partitioned off a coal storage room at the west end of the north elevation, in front of a chimney chase. Walls were built in the southwest corner to support an additional interior stair. The floor at the west, in the area of this stair, was sloped up. Foundation walls for the addition at the east end of the building and for the porch along the west elevation are unclear. Foundations were also laid to support a bay window addition at the center of the north elevation. At some point in time, an exterior concrete stair was added to the western end of the north elevation, restoring the direct access to the basement from the exterior.

Later restoration efforts gutted all but the exterior walls and the wood columns from the interior of the basement. The exterior stair and the foundations for the bay window were removed, and the opening sealed. The basement window, together with its sill stone and head stone, was removed and the opening bricked in.

First Floor

Originally there were three bays making up the ground floor elevation of the west and northwest walls: two large bays of windows flanking a glass entrance bay, with stone columns framing the bays. There was one first floor door opening in the center of the north elevation. Halfway between this opening and the east edge of the building, was a small, square window. There is no indication as to the appearance of either of these openings. There were

two first-floor doors at the south half of the east elevation. The north door was a single wood door, with a transom above, and opened directly onto the first floor. Only a steel lintel remains at the basement level to mark the southern door, which opened into the enclosed stairwell leading to the second floor, built directly above the basement stair, along the south wall. The stair could be access from the interior through a door that was located adjacent and perpendicular to the north door. There is no indication of the number or location of any other original, interior enclosures or partitions at this floor.

Prior to 1896, a single story wood-frame addition was built at the east wall. The east doors of the main building connected the two constructions. The addition was slightly wider than the east elevation of the main building, extending a little further north, and was initially divided into two spaces along the roof ridge. The northern half of the addition contained one large window at its north elevation, and one door at this west-facing, extended elevation. The southern half of the addition contained a fireplace in the northeast corner, and a large window and a door at the southern end of its east elevation. There appears to have been a porch at the east elevation, just outside this window and door. The interior finishes appear to have been plaster at the walls and ceiling except for a the north half of the east interior elevation, which was the exposed brick of the main building.

Later renovations, between 1911 and 1936, removed the storefront and replaced it with a recessed wood-frame wall and an enclosed staircase to the second floor. The first floor was converted into a single family residence, complete with kitchen, bath, closets and divided living spaces. Two windows were added at the south elevation; one at the new kitchen and a smaller one at the new bathroom. Two more windows were added to the western end of the north elevation; the doorway was replaced with a bay window at the center of the north elevation; and the small window was replaced with a larger window (just to the east of the bay window) and a new doorway.

At this time, it is believed, a hallway was created along the south wall of the east addition, aligning with the main building's stairwell. The original doorway in the south end of the east wall, at the first floor landing, was used to connect the stairwell with the hall in the addition. The doorway from the stair to the first floor interior was walled off. A new entrance was added in the east elevation of the addition to access this hall; the hall did not access any other portion of the addition in any way. This restored direct access to the second floor from the exterior at the east end of the building. The east porch was probably removed around the same time.

The final set of renovations, begun in 1985, recreated the large windows, entrance doors and transoms at the west and northwest elevations. The recessed west facing wall and southwest enclosed stair were removed, as were the bay window and the two windows at the western end of the north elevation. The window just east of the bay window was re-sized to a smaller opening, and the doorway was reused. The former door to the east stairwell was reopened in the southeast corner of the main building. Except for a small utility closet that was built at the south wall, the entire first floor was completely gutted. The window above the basement stairs was bricked in. A closet and chimney were removed from the east elevation addition; the doorway between the two main rooms of the addition was relocated further west on the wall; and a bathroom was added.

Second Floor

Originally, the second floor was lit by numerous windows: one above each bay of the first floor and four more along the north elevation. There was another window at the south exterior wall at the second floor landing. In the middle of the four north elevation windows was a doorway leading to a small porch. The design of the door or doors there is not known. The walls and ceiling were painted plaster and the floor was hardwood. There is no indication as to the number or location of any original, interior enclosures or partitions at this floor, other than the stairwell enclosure and what may have been a closet adjacent to it, in the southeast corner.

The entire second floor was later renovated as a single family residence, complete with kitchen, bath, closets and divided living spaces, with partitions that aligned with those on the first floor. An enclosed staircase leading to an

exterior door on the west, first floor, porch was added in the southwest corner, and a bay window was added in place of the door at the north elevation. At the east elevation, a small window was added in a closet space that aligned with the eastern stair. Another window was added at the new kitchen at the south elevation.

The final renovation of the second floor, conducted by Aviation Trail, consisted of the removal of the southwest staircase and enclosure, and the bay window at the north elevation. The bay window was replaced by a recreation of the doors and small porch that had been there previously. A doorway leading to the western-most living space was widened and the doors removed. The kitchen was gutted and an interior window removed but not walled off. The bathroom, between the kitchen and the top of the east stairwell, was remodeled, and a closet added next to the entrance to the stairs. The small window at the southeast corner appears to have been boarded up from within, but its frame is still in place. As there was no historic documentation for the original second floor space, Aviation Trail rehabilitated it for use as a caretaker's apartment.

Existing Conditions Analysis

Part F: Existing Conditions Analysis

Exterior Fabric Analysis

In general the building fabric is in good condition, having been recently renovated. The west, northwest and east facades are in particularly sound condition, the only issue of note being the amount of residual white paint remaining behind shutters and around window areas in general. The north elevation has only a few questionable conditions. At the first floor, at the western half of the elevation, residual paint is, once again, an issue. It seems especially heavy around the location of the two former windows. Above this area, just below the fascia board at the roofline, there is an area of inappropriately repointed brick. The mortar is particularly dark and does not match the historic mortar color. There also appears to be two replacement bricks, one at either side of the first floor door, that do not match the historic brick and have poorly pointed mortar joints.

The south elevation, like the other elevations, has noticeable residual paint at the brick, but the larger issue is the water damage occurring to the masonry fabric. The proximity of the house to the south, the lack of proper drainage, and the retention of moisture by surrounding materials have combined to accelerate deterioration of the foundation wall at this area. Although there are existing gutters at both buildings, the narrow gap between them prohibits ground water from being evaporated by sun and wind. Lack of foundation drains allows the water to percolate through the soil and eventually into the porous masonry walls. There are patches of cementitious parging over the brick along the ground level. The moisture being retained in the masonry by this parging has created missing mortar joints and brick elsewhere along the elevation.

Other materials such as the wood trim, gutters and downspouts, and the roofing materials all appear to be in sound condition.

Interior Fabric Analysis

Most of the interior fabric has been replaced or repaired and refinished. The only failing fabric appears to be the painted plaster all along the south elevation at the upper floors. At both the first and second floors there is evidence of cracking and peeling, as well as general moisture damage, to the plaster. All other fabric at the first and second floor, and the basement, is in sound condition.

Mechanical and Electrical Analysis

Dayton utility company records do not go back more than 30 years, so no definitive information is available concerning the history of the building systems. The original heating system was coal-fired furnaces. However, The Wright Cycle Company building contains almost no evidence of the original systems.

Presently, heat for the first floor is provided by furnaces located in the basement. Heat for the second floor is provided by a furnace in the attic, which is almost impossible to service. Portions of the insulation on the attic airduct work is torn and in need of repair. The basement has a fire suppression sprinkler system, while the rest of the building is unprotected.

There is no electrical equipment of historical significance at the site.

Structural Analysis

The structural observations and recommendations of The Wright Cycle Company building (HS-01), Dayton Aviation Heritage National Historical Park in Dayton, Ohio, described throughout this report are based on physical investigations performed on October 21-23, 1996, and on August 28, 1997, by Tom Fitzpatrick, P.E., and Cheryl Kryscynski, both of Fitzpatrick Structural Engineering, P.C. During these investigations, photographs were taken and a corresponding log was produced. Field notes were also taken and were reproduced on the following drawings attached in Appendix B:

Basement Plan	EXS-100
First Floor Plan	EXS-101
Second Floor Plan	EXS-102
Attic Floor Plan	EXS-103
Roof Plan	EXS-104

Photographs used within this report are also keyed on these drawings. The investigation was limited to only those items that were readily accessible and visually observable at the time of the surveys. No destructive access was permitted or performed.

In the late 1980s, Aviation Trail, Incorporated (ATI), with the assistance of Robert C. Gaede Architects, Inc., organized a volunteer effort to restore the building. During this restoration, a majority of the original and contemporary interior finishes were replaced.[1] The first floor of the building is now being used for public interpretations; the second floor is occupied by National Park Service (NPS) personnel. This report evaluates the structural integrity of the building to be used for public interpretive use on both the first and second floors.

General:

Overall, The Wright Cycle Company building (HS-01) is in good condition. Few areas of severe structural distress were observed at the time of the inspections. Each observed area of distress is discussed in detail below.

Foundation Walls:

No apparent cracking or similar stresses were observed in the stone foundation walls of The Wright Cycle Company building (HS-01) with the exception of the south wall. The south wall has a layer of parging covering the stone foundation wall. The parging is severely cracked and pieces have fallen off in several locations. The poor condition of the parging can be directly related to the condition of the stone foundation wall. Any moisture penetration into or between the wall and the parging will damage the wall and the parging. When moisture is trapped in or between the wall and the parging, it will try to escape. Through its attempted escape, the moisture or vapor will deteriorate the stone wall resulting in a loss of strength of the wall. The water will also cause the parging to crack. These cracks expose more surface area for water penetration to occur, thus allowing more deterioration to occur.

The moisture penetration into the south foundation wall of The Wright Cycle Company building (HS-01) may be due to a combination of reasons. During the inspections, NPS personnel stated that the relationship between the gutters of The Wright Cycle Company building (HS-01) and the residence to the south of The Wright Cycle Company building (HS-01) is problematic. The gutters on the residence are ineffectual and leak heavily into the space between the buildings. Water can easily be collected in the ground between these two buildings due to the small distance -- only two feet -- between them. This small space prohibits wind and sun to either move or evaporate the water. Therefore, the water gravitates downward through the soil, creating a larger soil pressure on the foundation walls of both buildings. The "wet" soil pressure can be two to four times the normal "dry" soil pressure depending on the in-situ soil makeup. As the water progresses, some of it may be moving through the south foundation wall of The Wright Cycle Company building (HS-01). As it migrates through the walls, the water may chemically react with and dissolve the cementitious materials and aggregates in both the mortar and the parge. This chemical reaction causes the mortar and the parge to lose strength, begin deteriorating, form cracks, and show other signs of distress.

As stated earlier, the other foundation walls are in good condition. However, the mortar of the stone walls crumbled when touched in various locations. This is a typical condition due to moisture penetration and the age of the mortar.

Figure 1 *View of the cracked and missing parging of the south foundation wall at the stair, 1996 (Fitzpatrick Structural Engineering).*

Basement:

The basement of The Wright Cycle Company building (HS-01) is composed of the stone walls described under the *Foundations* section of this report, a concrete slab-on-grade, and wood posts running east-west along the center of the basement. Markings on both the floors and the walls indicate brick partitions existed previously, but because of their placement within the building's structure, they are not believed to be original.

Four of the eight columns spanning the center of the basement (those referred to as B, C, F and G on EXS-100 in Appendix B) appear to be original columns. These original columns rest on concrete foundations that are "mound" shaped. Column B, though, is on a rectangular concrete footing that protrudes out from a concrete ramp in the floor as opposed to the "mound" shape. The footing for column F has been chipped away, exposing a wood plate on a concrete footing. The remaining columns, A, D, E, H, and K, are newer 4x4s (nominal). They are resting on concrete block footings. Column J bears directly on the slab.

The columns appear to be in fair condition, but are not vertically plumb. When measured with a four-foot mason's level, only column G was reasonably plumb in both the north-south and the east-west directions. All of the columns that have "moved" in the north-south direction have consistently "moved" only to the north (bottoms to the south). Refer to Table 1 for specific measurements for all of the columns. Note that column D is bowed in the north-south direction (i.e. the top and the bottom of the post are both leaning toward the north wall).

Table 1: Basement Column Movements Measured with a Four Foot Mason's Level

		Movement of the Top of the Column in the		
Column	Size	East-West Direction	North-South Direction	Notes/Comments
A	3-1/2" x 3-1/2"	1-3/4" Towards the W	Reasonably Plumb	
B	3-7/8" x 5-7/8"	Reasonably Plumb	3/4" Towards the N	
C	3-7/8" x 5-7/8"	1" Towards the E	1-1/4" Towards the N	Beam Joint
D	3-3/8" x 3-3/8"	Reasonably Plumb	3/4" Towards the N	Bowed in the N-S Direction; Bearing on Concrete Block
E	3-1/2" x 3-1/2"	5/8" Towards the W	Plumb	Bearing on Concrete Block
F	3-3/4" x 6-1/4"	1" Toward the E	Reasonably Plumb	Beam Joint
G	3-3/4" x 6"	Reasonably Plumb	Reasonably Plumb	
H	3-1/2" x 3-5/8"	Plumb	1/2" Toward the N	
J	3-1/2" x 3-1/2"	N.A.	N.A.	No obvious movement noticeable
K	3-1/2" x 3-1/2"	N.A.	N.A.	No obvious movement noticeable

This column "movement" may actually not be movement at all. The columns could have been built with this alignment. As discussed later under the *Structural Analysis* section of this report, the columns are of adequate size to support the first floor 15 psf dead load and 100 psf live load. They most likely did not move from heavy loading of the floor above. Also, the connections of the columns at both the top and the bottom, appear to be sound and will not permit the extensive movements measured. The columns are supported by the concrete "mound" foundations discussed previously. Floor joists are notched over the beams that the columns support. Although the notches are not snug to the beams, the gap between is too restricting to allow for the measured "movements". Therefore, the columns may have been installed leaning, or the leaning state was invoked with the construction and/or demolition of the clay brick partitions that were once built-up around the columns.

This leaning state of the columns is unacceptable. The lean of the column moves the center of gravity of the column away from the loading point at the top of the column. This creates an eccentric loading on the column inducing a moment loading the column. These loadings will over stress the columns and could cause a failure if the floor is heavily loaded.

First Floor:

The first floor is currently used for public interpretative tours. Exhibits are on display of both the Wright brothers' printing shop and cycle shop. "False" partitions incorporated into the exhibits are in place to aid in dividing the first floor into sections. The tongue and groove flooring is resting on plywood that bears on the joists exposed in the basement. Because the flooring system is exposed in the basement, the physical investigation of the first floor was completed there. With the exception of the western portion of the floor, the joists are rough sawn and use mortise and tenon connections to frame the stairway. These original joists continuously span from north to south and are notched over a wood beam spanning east-west the entire length of the building. The wood beam is supported by the columns discussed in the *Basement* section of this report.

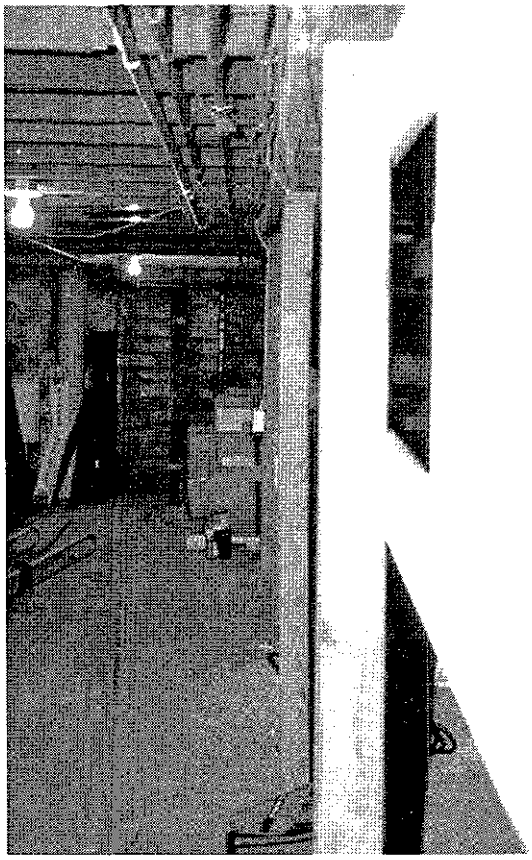

Figure 2 View of columns E (in the foreground) and D (in the background), 1996 (Fitzpatrick Structural Engineering).

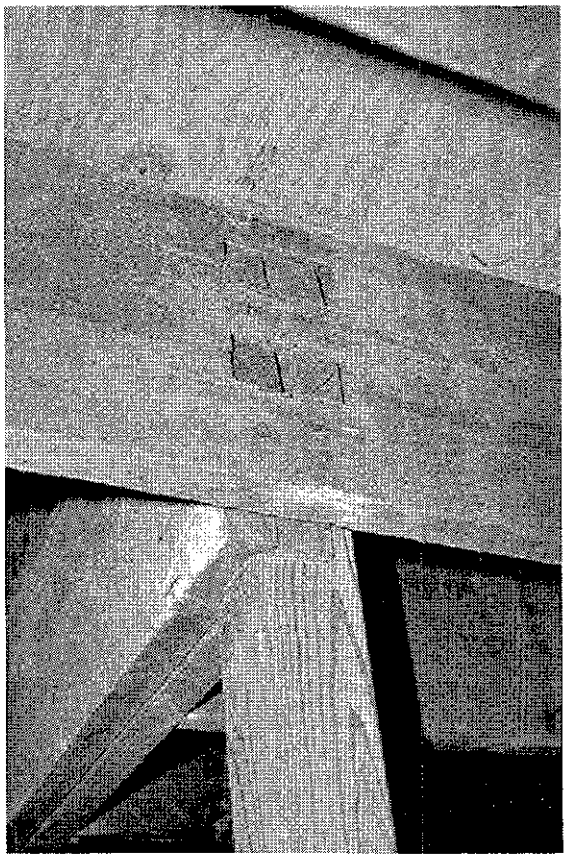

Figure 3 View of the eastern connection between the stair header, joist and wood post, 1996 (Fitzpatrick Structural Engineering).

In general, the joists are in good condition with few splits, shakes, checks, or knots. A double header is used to frame the stairway. Double mortise and tenon connections are used and can be observed in the single joists picking up the header load. In addition to the single joists, two newer wood posts are supporting the double header.

At the south foundation wall, several joists were observed to have rolled on their bearings. Metal joist hangers have been installed connecting these joists and the south mudsill. This corrective action appears to have arrested any further rolling of the joists. Also, the south mudsill is newer lumber suggesting that the original mudsill had rotted to the point of replacement. The size of the newer mudsill indicates that the original must have been a large member. Just east of the infilled north basement door, extensive shimming of the joists was observed. This heavy shimming provides uniform bearing on the north foundation wall; however, because of the amount of shimming, other alternatives may be desired.

On the west end of the first floor, several joists have been either replaced or doubled with newer members. Extensive water and/or insect damage warranted the new reinforcement. Some insect damage was observed on the sixth joist from the west foundation wall. Destructive insects and wood rot require relatively moist environments to survive. This related water damage of both the west end of the first floor and the south mudsill may be related to the water problems associated with the south foundation wall discussed earlier in the report.

This insect damage appears to have ceased and the new members have reinforced this western end of the first floor. The four western-most members have been replaced with newer 2x12s (nominal). The fifth western-most

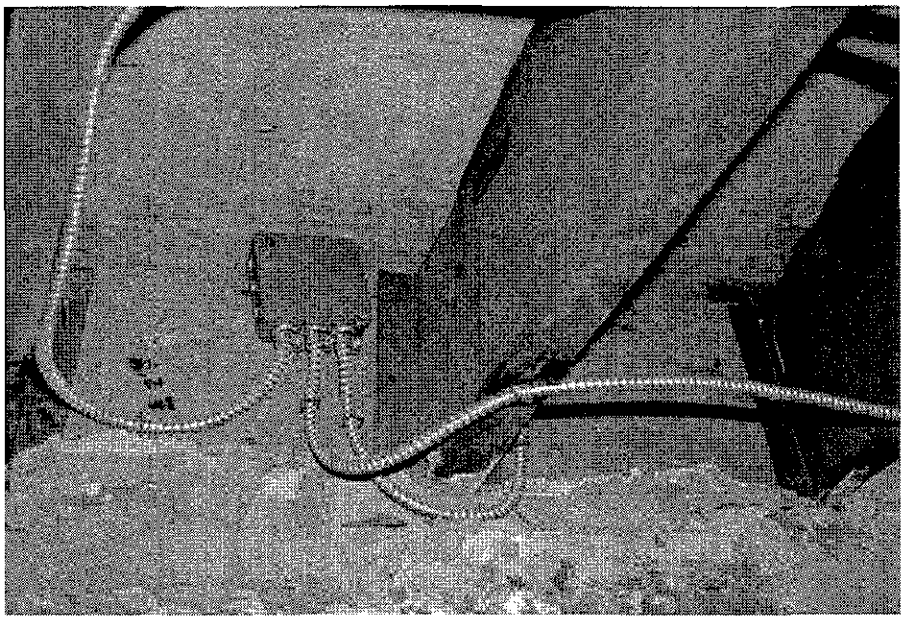

Figure 4 View of the joists rolled on the south bearings and new metal joist hangers, 1996 (Fitzpatrick Structural Engineering).

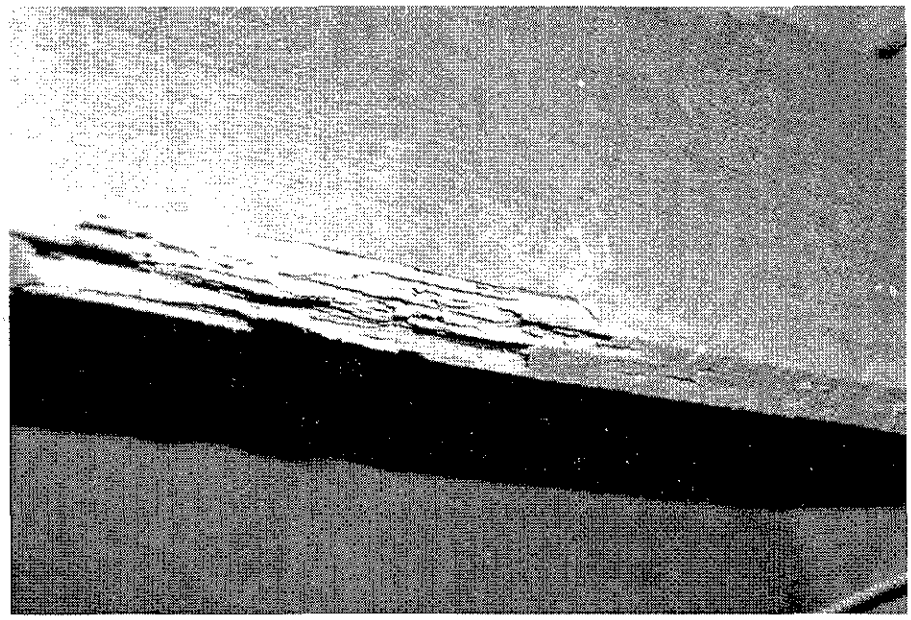

Figure 5 View of the insect damaged joist, 1996 (Fitzpatrick Structural Engineering).

joist is an original joist that has not been reinforced. The sixth and seventh western-most joists have been sistered on their south halves with newer 2x12s (nominal).

The joist in the first floor structure at the chimney in the north wall of the basement are headered to prevent the joists from bearing on the chimney structure. The header supports a single joist which is split along the entire length of the member. The joists adjacent to this member support the header and show no signs of distress at the time of the inspections. The west connection, however, between the header and the joist's stringer, is separating. The spikes can be seen between the members. In addition, the header is rotated at the bearings.

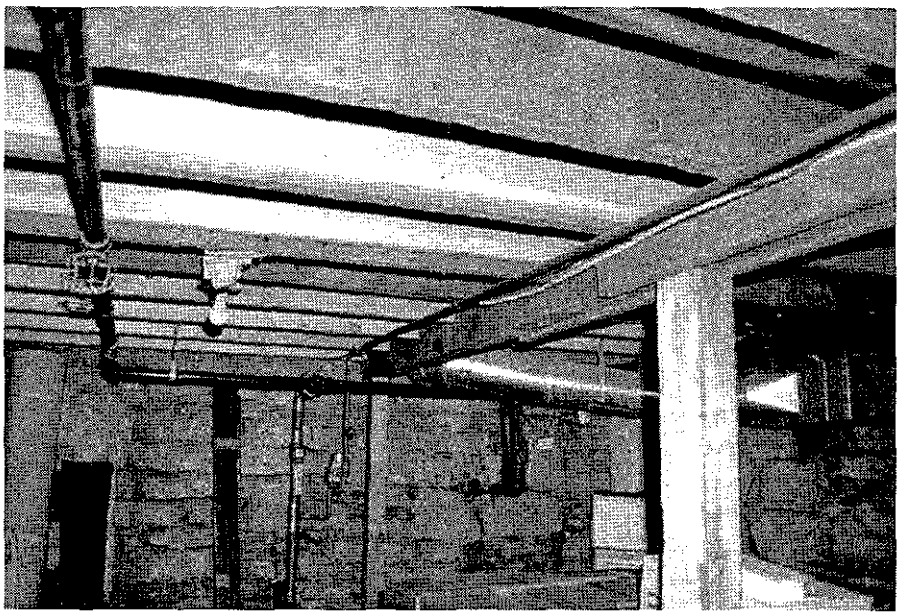

Figure 6 View of the western end of the first floor framing, 1996 (Fitzpatrick Structural Engineering).

The center beam spanning east-west and running the entire length of the building is comprised of three members similar in size to a nominal 4x6. The beams are not connected together at their ends, which occur over columns C and F. A bit more than two feet is cantilevered off of column H. The condition of the beam was inaccessible at the time of the inspection due to miscellaneous wood blocking or reinforcing covering most of the original wood beams.

Second Floor:

The second floor is currently being used as office space for the NPS personnel on-site. There is a possibility that this floor will be for interpretative purposes in the future; however, due to handicapped accessibility issues public access to the second floor is not planned at this time.

The exact nature of the second floor structure was inaccessible at the time of the survey. However, some dimensions were estimated with the help of electronic devices, the stair accessing the first and second floors, and past photographs. The spacing of the joists was determined using a deep stud sensor - an electronic device that reacts to differing densities of objects when passed over them. The depth of the joists was determined from measuring the top of the second floor down to the first floor stair landing and the floor to ceiling height of the first floor. These measurements were then subtracted and the possible materials between the top and bottom of the second floor considered, leaving the depth of the joists. The width of the joists was assumed to be the typical 2- inch nominal width found throughout the building. Old photographs revealed that the joists span from north to south the entire width of the building[2]. However, it is uncertain if the joists have been replaced since the time that these photographs were taken. No apparent structural distresses were apparent at the time of the inspection.

Attic Floor and Roof Framing:

Both the attic floor framing and roof framing can be observed through an access hatch in the second floor ceiling. The attic space currently houses some of the building's mechanical units. The use of the attic space is not expected to change. The attic floor joists, again, span north-south the entire width of the building. The roof members are sloped and connect at a ridge board at the top. Skip board sheathing is attached to the rafters, which is a typical form of construction for shake, tile, or slate roofs of the era. No apparent structural distresses were observed at the time of the inspection.

Loading Analysis

The following structural analysis results are based on the following assumptions:

- Those assumptions described under Existing Conditions in this report including joist spans and future floor use
- The mechanical units in the attic space are properly supported
- Members are properly connected and have adequate bearings
- Allowable Bending Strength (Fb') of 1400 psi
- Allowable Horizontal Shear Strength (Fv') of 110 psi
- Modulus of Elasticity of 1,200,00 psi (unless stated otherwise)
- Live Load Deflection Limit of 1/360th the span
- Total Load deflection Limit of 1/240th the span

For public use of the first and second floors, the *Building Officials' and Code Administrators' 1993 Building Code* (BOCA) requires a safe live load capacity of 100 psf. The following analysis results are all related to this requirement.

Basement:

Assuming a 15 psf dead load and a 100 psf live load for the first floor, an analysis was performed on the wood columns in the basement. A floor to ceiling height of 6'-10" was used in the analysis[3]. The allowable compressive strengths were taken and determined from the 1991 National Design Specification for Wood Construction (NDS), Southern Pine, grade No.2. Each reaction was determined via computer models and adjusted to its respective compressive stress in the member. The actual stresses were then compared to the allowable stresses. All of the columns are within range of the permitted stress. Column D has both the maximum actual compressive stress of 606 psi and the lowest allowable compressive stress of 707 psi. This is the most critical case of all of the columns, however, it is still acceptable.

Table 2: Results of Analysis of Basement Columns

Col.	Size	Reaction (lbs)	Actual Stress (psi)	Allowable Stress (psi)	Difference	Acceptable?
A	3-1/2" x 3-1/2"	3040	248	750	502	yes
B	3-7/8" x 5-7/8"	10144	446	867	421	yes
C	3-7/8" x 5-7/8"	5374	236	867	631	yes
D	3-3/8" x 3-3/8"	6902	606	707	101	yes
E	3-1/2" x 3-1/2"	6525	533	750	217	yes
F	3-3/4" x 6-1/4"	5865	250	827	577	yes
G	3-3/4" x 6"	8646	384	827	443	yes
H	3-1/2" x 3-5/8"	4274	337	750	413	yes
J	3-1/2" x 3-1/2"	817	67	750	683	yes
K	3-1/2" x 3-1/2"	2752	225	750	525	yes

Because the columns are all adequate, this further supports the idea that the columns were originally built with a lean in them or the lean was the result of the construction and/or demolition of the brick partitions that were built-up around the columns.

First Floor:

The analysis performed for the first floor framing structure used the assumptions stated in the beginning of the Structural Analysis section of this report. The joists are two-span continuous and are notched to a joist depth of 9 inches at the center support (the wood beam and column system). Computer models were used to determine the stresses in the members.

Table 3: Results of Analysis of First Floor Members

Member	Size	Limited By...	Live Load Capacity (psf)
Typical Joist	1-3/4" x 11-3/4"	—	100+
Stair Header	DBL 1-3/4" x 12"	—	100+
Joist Stringers	1-3/4" x 11-3/4"	—	100+
Beam A-B-C	3-7/8" x 5-7/8"	Bending	19
Beam C-D-E-F	3-7/8" x 5-7/8"	Shear	37
Beam F-G-H	3-3/4" x 6-3/4"	Shear	27

The joists, stair header, and joist stringers (the joists connected to the stair header) are all adequate for supporting 15 psf dead load and 100 psf live load. However, all of the center beams fail to meet the 100 psf live load requirement as per BOCA. The most critical beam capacity, the capacity of Beam A-B-C, is limited by bending. However, shear is also critical for this member, as it is for Beams C-D-E-F and F-G-H. These beams were analyzed as the original, single members. The miscellaneous reinforcement pieces were not considered in the analysis. The size of the members is comparatively small for the required loading.

Second Floor, Attic Floor, and Roof Framing:

Both the second floor joists and the attic floor joists span continuously from the north bearing wall to the south bearing wall as per the undated photographs discussed under the *Existing Conditions* section of this report. It was assumed that the mechanical units in the attic space are properly supported. The roof members are sloped at 32 degrees from the horizontal[4] and are connected at the top with a ridge board. Computer models were again used in the analysis.

Table 4: Results of Analysis of Typical Joists of the Second Floor, Attic Floor, and Roof Members

Member	Size	Assumed Dead Load	Limited By...	Live Load Capacity (psf)
Second Floor Joist	1-1/2" x 11-1/4"	15 psf	Live Load Deflection	41
Attic Floor Joist	1-3/4" x 7-1/2"	10 psf	Total Load Deflection	11
Roof Rafter	1-3/4" x 5-1/2"	12 psf	Capable of supporting the required 12 psf dead load and 10 psf snow load.	

The second floor is adequate for its current use, however, for public use, strengthening of the joists may be desired. The actual dimensions of the attic floor joists should be determined and additional analysis performed before the 11 psf safe live load capacity governs any decisions. At the time of the field inspections, no structural stresses were observed regarding the attic floor. The attic floor framing system is most likely adequate for its current use, providing additional items are not stored there.

All of these analyses are limited by the many assumptions that have been made. Dimensions and spans taken from photographs should be verified. Also, header conditions at the staircase and hatch openings for the respective floors should be verified. Framing of the roof dormer and east and west roof elevations should also be verified.

Historic Paint Analysis

The complete report of the paint analysis executed by Steven C. Seebohm/SEEBOHM, Ltd. is contained in Appendix C. The existing conditions were noted during the on-site physical investigation carried out in conjunction with QUINN EVANS/ARCHITECTS on October 22 and 23, 1996. Sampling was executed with a flat-bladed Exacto knife, with samples being stored in individually-marked envelopes. Envelopes were then placed in storage bags marked for each area of the interior, labeled and dated. All samples were inspected under a 60X and 120X Meiji binocular microscope with a Stocker & Yale 7,000 degree K illuminator; this illumination insures a color match under conditions simulating natural light. Finish Colors were then matched to The Munsell Color Notation System (Glossy Collection). Existing wallpaper was noted, but not analyzed.

Due to early and later renovations to the structure very little of the original finish materials remain, except for the miscellaneous artifacts sampled in the basement, those submitted by Roger McClure that were collected during the last renovation from the second floor, existing samples of a corner guard from a pile of basement artifacts, a door casing from the second floor, a baseboard from the second floor, and an exterior window molding.

Lead Paint Analysis

The following is a summary of the lead paint analysis executed by ATC Associates, Inc. The complete report is contained in Appendix D. Paint testing was conducted at The Wright Cycle Company building on January 26 and 28, 1998. The purpose of this inspection was the measurement of lead concentrations in existing paint treatments. Mr. Todd Taylor, Ohio Department of Health Certified Risk Assessor #OH000137 conducted field operations at the site. The testing for lead-based paint was conducted using a Radiation Monitoring Device; LPA-1 RMD Spectrum Analyzer; and the "XRF Performance Characteristics Sheet" for the RMD LPA-1 Spectrum Analyzer. Numerous samples at the site were found to contain lead greater than 1.0 mg/cm^2. Maintenance, renovation, or demolition work at the site has the potential to cause occupational exposures to lead.

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1 Scope of Work, Indefinite Quantities Task Order Architect/Engineer Contract Design Services Contract No. CX600094014 Quinn Evans/Architects, Ann Arbor, Michigan Title I Design Services; Historic Structures Report Wright Cycle Company Building (HS-01) Dayton Aviation Heritage National Historical Park, Dayton, Ohio. United States of America, Department of the Interior, National Park Service, August 23, 1996, page 3.

2 Photographs were found by Ann Deines, Historian of the Dayton Aviation Heritage National Historical Park, Dayton, Ohio, in the basement of The Wright Cycle Company building (HS-01). January 1997.

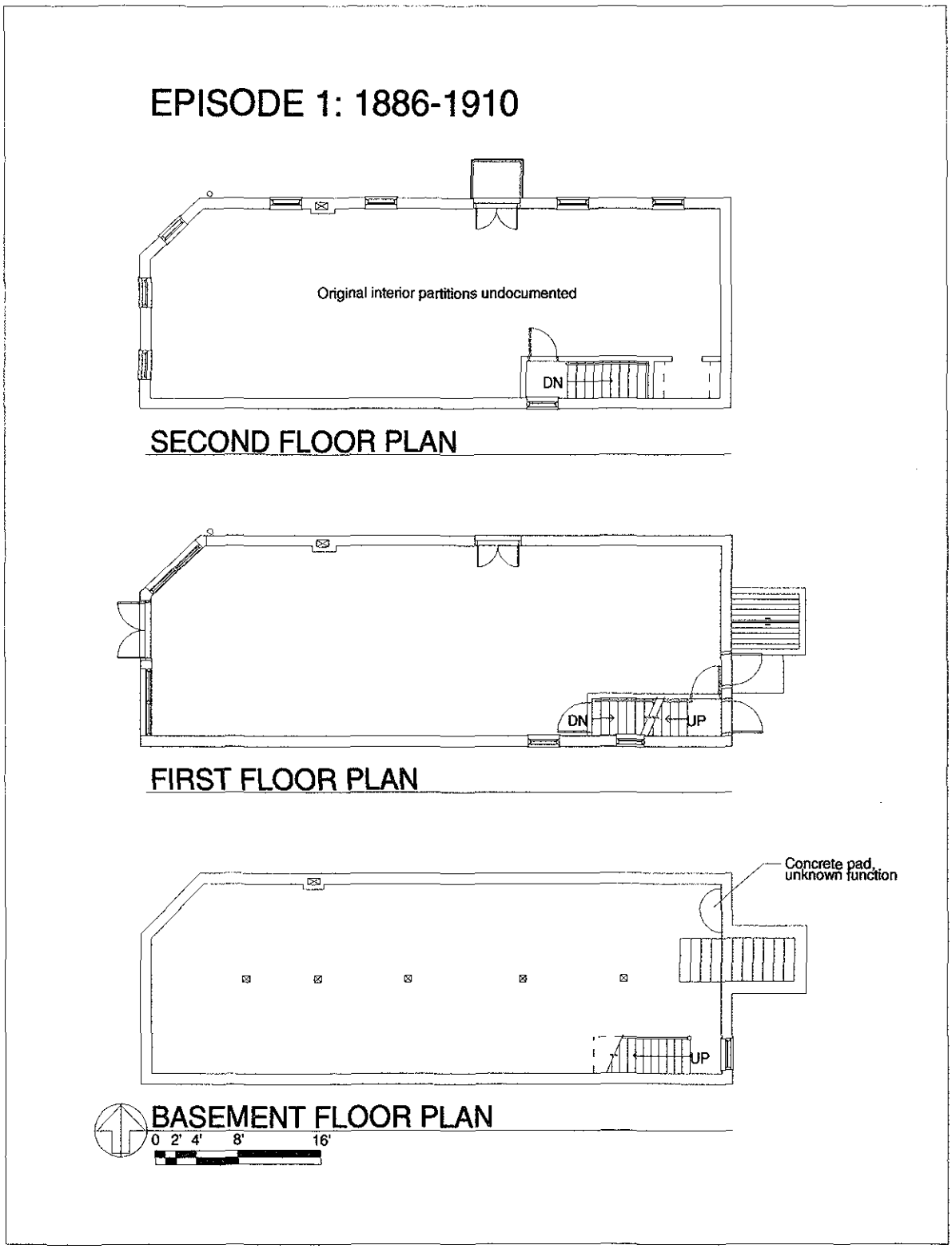
3 Taken from Robert C. Gaede Architects, Inc., Cleveland, Ohio. Restoration of The Wright Cycle Company. Drawing "EX-2, Basement Plan," July 5, 1985.

4 Taken from Quinn Evans/Architects, Ann Arbor, Michigan. The Wright Cycle Company Building, Dayton Aviation Heritage National Historical Park. Draft Drawing "A200, North Elevation, Existing Conditions," October 1996.

Part G:

Building Chronology

Episode 1: 1886-1910



Part G: Building Chronology

Analysis of Episodes

Episode 1: 1886 - 1910

This building was originally built by Abraham and Joseph Nicholas in 1886 to house a grocery store on the first floor. In 1888, the property was sold to Joseph H. Hohler who continued to operate the ground floor as a grocery, then a feed store, while living with his family on the second floor. After 1891, the building, still under the ownership of Hohler, was leased as a saloon, then a boarding house before being leased to the Wrights in 1895.

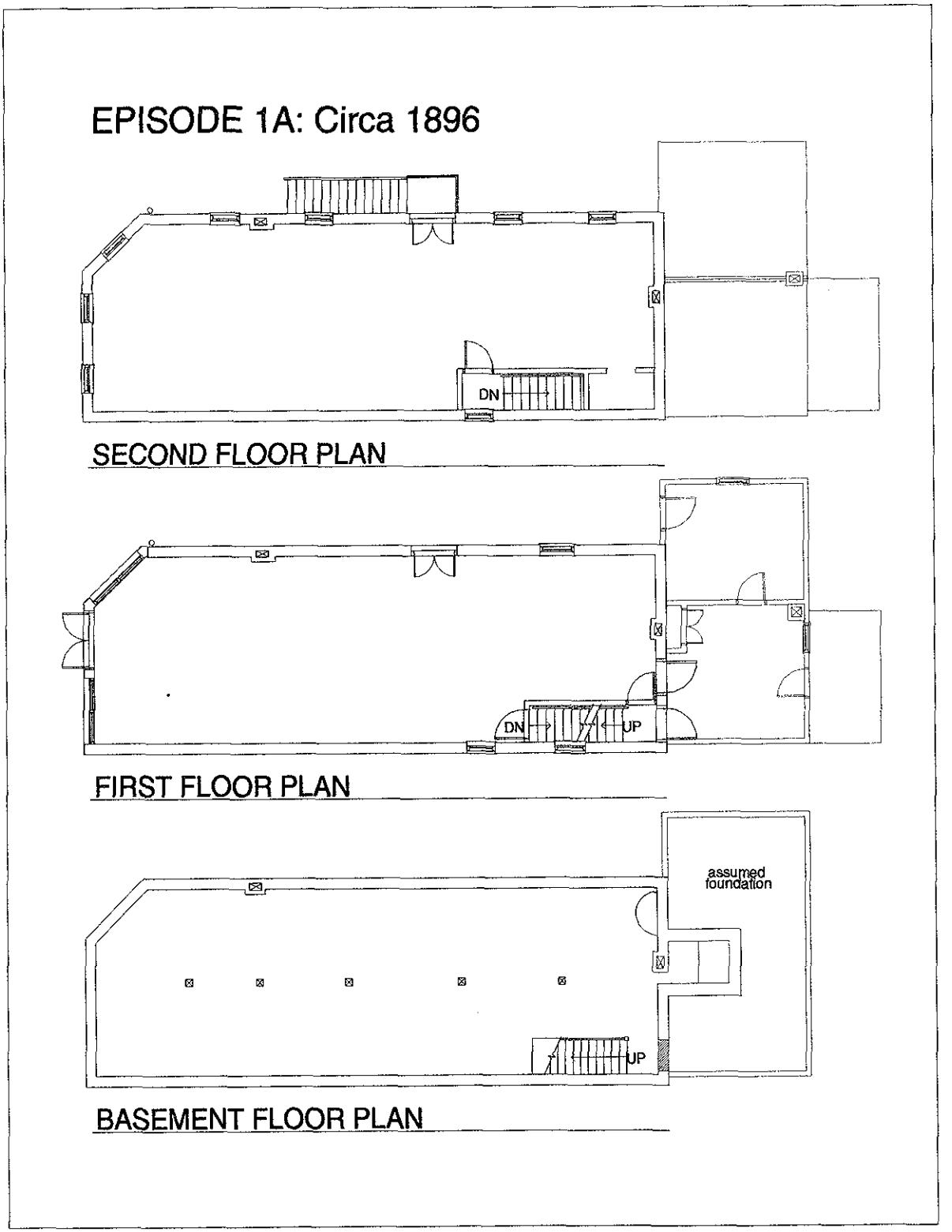
The second floor was apparently a residential unit from the time of construction. It is speculated that modifications were made to the second floor by the Wrights, as part of their expansion of the bicycle business. The National Historic Landmark Nomination Form for The Wright Cycle Company building describes the original second floor configuration as "divided into five rooms of various sizes. The walls were of light colored plaster with a decorative pattern frieze."[1] In a later section, the Form refers to modifications made to the upstairs to transform it into a machine shop.

Though the modifications which occurred to the interior of the building when the Wrights moved in can only be speculated upon, the exterior condition of the building during the period of their occupation is well documented by both an 1896 photograph and an 1897 Sanborn map. There is no evidence that the exterior of the structure went through any significant change from their occupation in 1895 until the time the Wrights moved out in 1897.

Based on the analysis of the 1896 photo and physical investigation, the main body of the building was originally constructed of brick, with stone accents. Three glazed bays on the ground floor constituted a shop front, separated and flanked by squared, stone columns. Two of the bays made up the entire ground floor of the west elevation, while one made up the ground floor of the chamfered northwest elevation. The main entrance into the shop was the central bay of the three-bay storefront.

Above the storefront, on the second floor, were two-over-two wood frame windows, one over each bay. At the center of the north elevation, on each floor level, was a doorway, the doors of which are not visible in the photo. The only other interruption in the brick elevation on the ground floor was a square window just east of the doorway there. Each opening has a stone header and sill: however, none of the glazing on the north elevation is visible in the photograph. Two windows similar to those above the storefront bays were at either side of the door of the second floor doorway, and in front of it was a small balcony, little wider than the doorway.

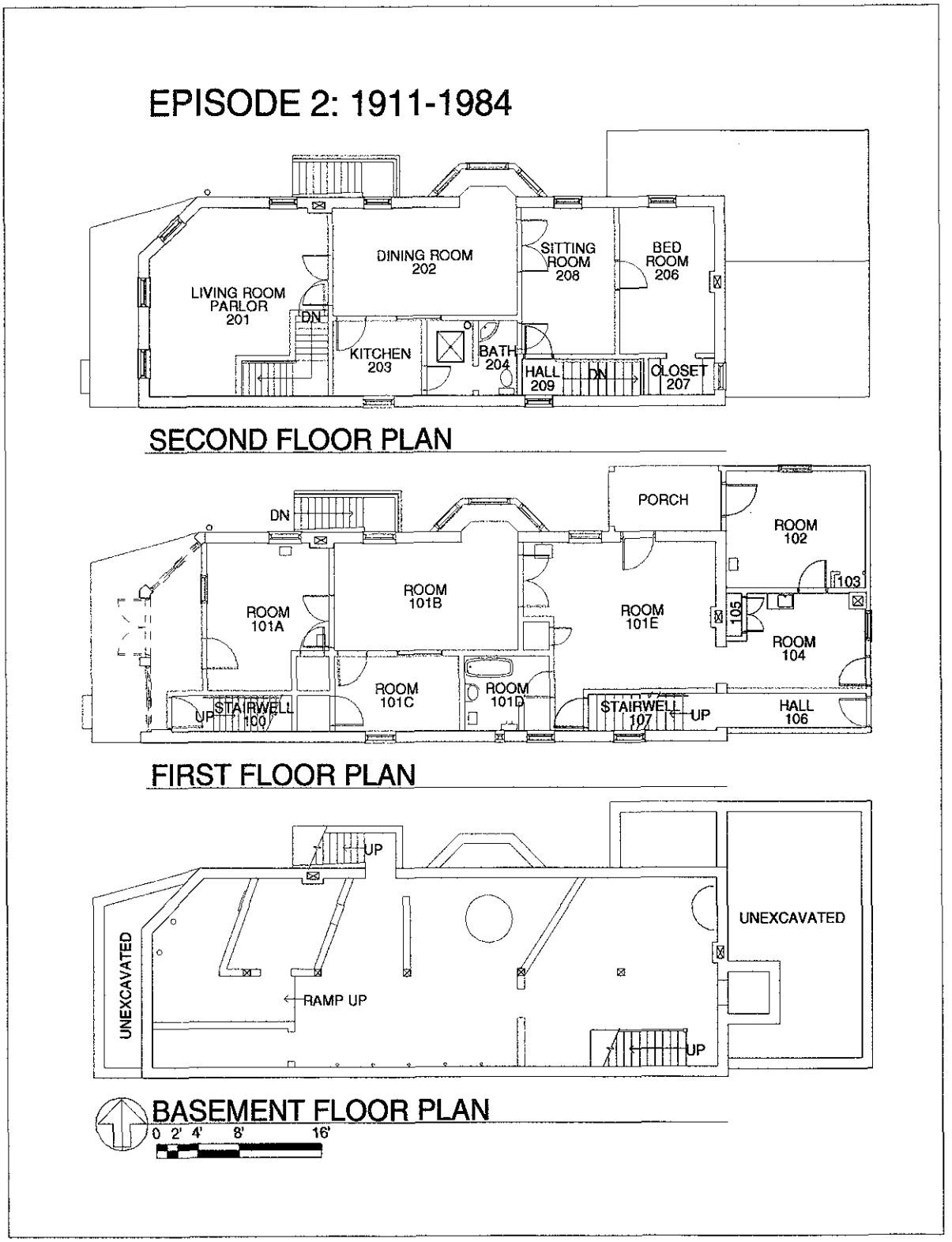
Episode 1A: Circa 1896



Episode 1A: Circa 1896

The 1896 photo reveals a wood-frame, one-story addition that is not shown on the 1887 Sanborn map. The Sanborn map and physical observation indicate that this construction was not original to the building, but it does appear on the 1897 Sanborn map. When the addition was built, the exterior stair to the basement was closed off and the window in the south end of the original east exterior wall was bricked in. A chimney, was also added near the center of the original east wall, partially blocking the former basement exterior stair.

Episode 2: 1911-1984



Episode 2: 1911 - 1984

Sometime prior to 1911 the building was converted single family dwelling, based on the 1911 Sanborn Map. The 1911 map shows that a bay window replaced the north entrance at each floor. By 1918, the easternmost addition was removed, and a porch was built for the remaining addition along the north elevation of the main building. The 1918 Sanborn Map indicates the building was now divided into two residential flats, one per floor. Photo documentation circa 1940 shows the building with significant modifications, divided, top from bottom, into two separate residences. This was the manner in which the building was being used when Aviation Trail, Inc. acquired it. As of this writing no known written documentation analyzed the condition or the physical observations of the building before its restoration by Aviation Trail, Inc. in 1985. However, there are several undated and unidentified photos of the restoration process, both exterior and interior.

Exterior observations of the north and west elevation of the building as a two-family residence are detailed in Section B of this report, based upon the circa 1940 photo of the building. These observations include the removal of the shop fronts, main entrance and fenestration; the addition of a new entry facade on the ground floor of the west elevation for each of the residences; the addition of bay windows at both floors on the north elevation; and the addition of gutters and downspouts. The lower sash of the southernmost window on the west elevation was replaced and two windows were added to the ground floor at the north elevation. One new window and two new doorways were part of the new fabric on the ground floor at the west elevation. A two-story bay window with its own roofing was added at the north elevation where the doorways had been. Most of this addition and all of the west elevation addition were wood construction with horizontal wood siding. There is also a new concrete porch evident along the west elevation that must have replaced the one when this elevation was remodeled.

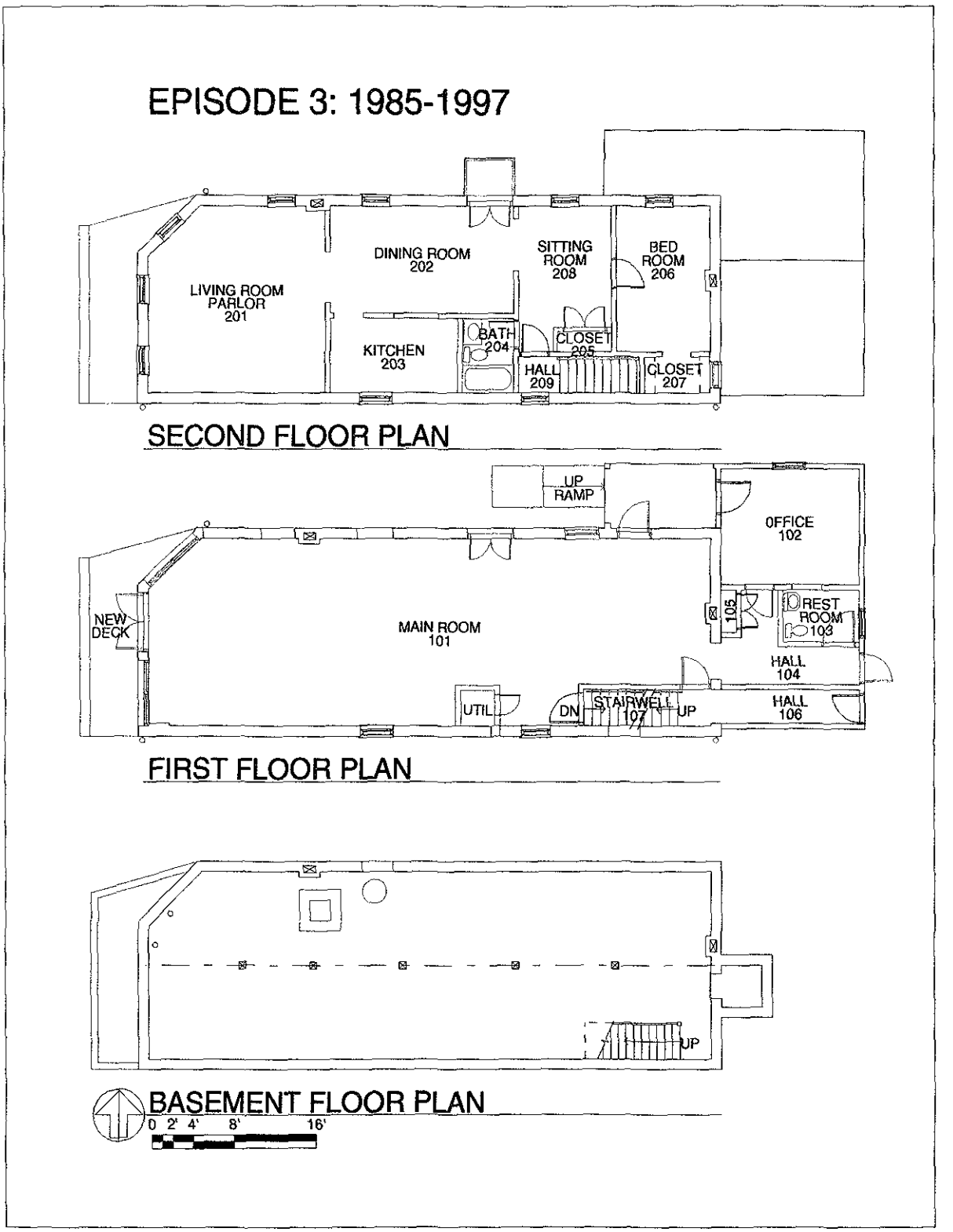
The best source for the documentation of interior alterations is a set of construction drawings prepared by Robert C. Gaede Architects Incorporated, of Cleveland, Ohio, for Aviation Trail's restoration efforts in 1985. These drawings show two sets of stairs leading to the second floor. It appears that the stairs in the southwest corner of the building were added when the building became purely residential. There is a note indicating that there were original shutters still in place at a stair landing window on the south elevation. Perhaps this was the only original window on the second floor, south elevation, though another window is shown just west of the one with shutters. These documents also reveal that the only other second floor window, though noted by the architects as "not original," was scheduled to be left in place for the restoration. At some point, a small window was added to the east elevation at the second floor, south corner.

There is no documentation as to whether any part of the second floor partitions, in place during this period, were original to the building. Based upon conjecture, it is likely that these partitions were part of the remodeled residential space, for they closely follow the first floor partition layout. It is known that the Wright brothers did make some alterations to the second floor space while their print shop was there.[2] Perhaps much of the original partitioning was already gone before the building was split into two residences.

The first floor appears to have been completely re-configured from that of an open plan. Several walls were added, creating separate rooms and closets, to accommodate residents. Two windows were added on the south elevation, one in the kitchen and a smaller one in the bathroom. The addition at the east elevation seems as though it could have served as a third apartment, as evidenced from the construction documents of 1985. Photos taken during Aviation Trail's restoration show the presence of a chimney stack at the far east wall that may have been original.

The basement area was parceled into odd-shaped spaces by several masonry walls. Most of these walls were constructed of concrete masonry units, and therefore could not be original. One brick partition may have been original. At the north elevation there was a set of exterior concrete stairs leading to the basement from ground level. There is no evidence that these were original to the building.

Episode 3: 1985-1997



Episode 3: 1985 - 1997 (Existing Conditions)

The construction drawings prepared by Robert C. Gaede Architects, Inc. in 1985 also chronicle the last set of construction changes to the building, the restoration and renovations made by Aviation Trail in 1985.

At the first floor virtually every partition was demolished, leaving only the central stairs along the south wall in place. The storefront windows and main entrance were rebuilt to approximate the 1896 photo. The only unprecedented interior construction was a utilities enclosure against the south wall. Perhaps this was positioned based on evidence discovered during construction, but there is no record of this. The first floor portion of the bay window was also demolished and the former doorway restored there. The doors along the north elevation were speculatively designed, unlike the window frames which were based on existing original wood profiles. Two first floor windows at the west end of the north elevation were bricked closed to recreate the appearance of the 1896 photo. A third window, further to the east, was re-sized, again, to match the photo.

On the second floor, major demolition included the removal of the stair at the southwest corner of the building, the bay window at the north elevation, and the kitchen and shower along the west wall. The linoleum floor covering at the west end was removed, the original floors patched and sanded, and the bathroom remodeled. Most of the partitions were left in place for the second floor to be used as a caretaker's residence. The only restoration efforts were to reintroduce the small balcony and doorway at their former location at the north elevation.

The addition at the east elevation was remodeled to include a new restroom. The chimney was not rebuilt. There is no record of whether any original material was discovered or restored. For some reason, the porch at the north elevation of the main building (the west elevation of the addition) was retained though it was not in place when the Wrights occupied the building.

The 1985 construction documents indicate that little was to be changed at the basement level. The stair at the north side of the building was to be removed. A new wall running east-west was to be added at the center of the building, steel pipe shoring was to be removed along the south wall, and foundations for a new west porch were to be placed over the historic foundations. There is no documentation as to what the sequence of alterations was to the basement prior to 1985.

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1 Jill York O'Bright, David G. Richardson, and William S. Harlow, U.S. Department of the Interior, National Park Service, Midwest Regional Office, *National Historic Landmark Nomination Form* [for The Wright Cycle Company Building], (Omaha, NE: 1987-88), section 7, p.1-2.

2 Ibid., section 8, p. 2.

Building Recommendations

Part H: Building Recommendations

Restoration Recommendations

Aside from the recommendations that can be made to protect and prolong the life of The Wright Cycle Company building, consideration should also be given to the possibility of making the building more historically accurate in its detailing and configuration. Several inconsistencies are highlighted in the discussion of the historic photos in Part B of this report. They are based on the comparison of the renovated building to the 1896 historic photo of the building. The current renovation of the building, especially at its exterior, inaccurately represents the building's appearance during the Wrights' occupation:

- The 1987 Wright Cycle Co. sign has been designed as a plaque with *sans serif* lettering, and the J.H. Hohler sign is gone.
- The base of the storefront windows in the two outer bays seems to have been constructed with a more pronounced sill than the original.
- The horizontal transom support above the entrance doors is thinner than the original, and did not initially align with the storefront window mullions.
- The porch on the rear addition that extends onto the face of the north wall in the 1987 photo is not original.
- The railings on the balcony are more substantial in the more recent photo, presumably in order to meet code.
- The chimney corbelling detail and the current grade around the building do not appear to match those of the 1896 photo.
- There is a beam of some sort protruding from the second floor doorway that is not evident in the 1896 photo.
- The replacement shutters only have two divisions, while the original shutters were divided into three sections, as evidenced in the 1896 photo.
- The small square window on the north elevation at the first floor is not in the same location as the window in the 1896 photo. Originally, the window was centered between the two second floor windows above it.

There may have been several very good reasons for these inconsistencies at the time of the renovation, and they certainly do not affect the maintenance or the longevity of the building itself. Issues affecting these aspects will be discussed in the following paragraphs.

Exterior and Interior Fabric Recommendations

Renovation efforts by Aviation Trail, Inc. in the mid-1980s have ensured the relatively sound condition of most of the interior and exterior fabric at The Wright Cycle Company building. Many of the materials are new, and are well within the range of their expected lifetimes. However, at the time of the initial survey for this report, portions of the historic fabric along the south exterior wall are failing due to moisture infiltration. The cementitious parging along the ground level of the south elevation was trapping moisture in the masonry, which was deteriorating the mortar joints and displacing the brick. The National Park Service has since made repairs to the exterior south wall and the interior foundation walls.

Another contributor to the moisture gain is the poor drainage condition between the south wall of The Wright Cycle Company building and the neighboring residence. The poured concrete that exists between these two buildings needs to be removed. A french drain should be installed, the length of the building, beneath a porous ground

covering. These measures will also stop the plaster damage that is occurring at the interior elevations of the south wall, and may prevent the need for the plaster to be replaced.

Another issue that concerns the interior of the building is the possibility of using the second floor space for interpretive or other Park functions. It is not recommended that these possibilities be pursued, as they would lead to the destruction of historic fabric and considerable alteration to the appearance of the building. In order for the second floor to be opened to the public, or to serve as more than minor storage for the Park Service in the future, fire egress and ADA accessibility measures would have to be incorporated into the building. The building's size and configuration will not readily accommodate the addition of the required second egress stair or an elevator.

Mechanical and Electrical Recommendations

During the physical inspection of The Wright Cycle Company building, it was noted that portions of the insulation on the attic supply air ductwork are torn and need to be repaired or replaced.

Structural Recommendations

Overall, The Wright Cycle Company building (HS-01) is in good structural condition after the renovation effort completed in the late 1980s. Some repairs and reinforcement are necessary to achieve 100 psf live load required by BOCA for public use of the first and second floors. The following recommendations will obtain the 100 psf floor loadings.

To Acheive 100 psf live load at First Floor:

- Replace concrete block foundations with properly designed and constructed foundations
- Align basement columns to a vertical plumbness or replace
- Secure connections between basement columns and beams with metal column caps
- Replace center beams of first floor framing with properly sized wood (parallam) beams or shore below with steel beams
- Repair joist bearings at first floor, north wall where there is extensive shimming
- Replace or reinforce split joist and header at chimney location. Use joist hangers to attach header to joist stringers
- Install solid wood blocking between (at a minimum of) every other joist over the center beam

Second Floor (if opened to the public):

- Either reinforce the second floor joists to obtain 100 psf live load capacity
- Or, limit the number of persons and the nature of the exhibits on this floor at one time

Some minor recommendations have been made to both maintain and improve the structural integrity of the building. Proper shoring systems and reinforcement of the current floor systems should be completed in order for the building to be used for public interpretive tours. Stone repair should be completed to maintain the integrity of the building's foundation walls. Additional analysis may be desired of the attic floor if its use is expected to differ from what it is now.

Historic Paint Treatment Recommendations

Considering the number of physical changes that have taken place at both the exterior and interior of The Wright Cycle Company building as described in the Architectural Analysis section of this report, and the limited amount of period finished surfaces of the building, it is recommended that the Historic Paint Analysis, Appendix C, be used as a guideline for paint interpretation. Inspection of the photograph listed as Figure 1 in Part B of this report shows the presence of a darker trim color or finish, as can be seen at the eaves and window casing surfaces. Although visual inspection of such historic black and white photographs is often confusing, the values (dark, light and gradient values between dark and light) in the photograph do provide a basis from which we can consider a general range of colors that we have found present in a sample.

With respect to the exterior window molding sampled and analyzed, the first paint film present matching 10R 4/4 would be an appropriate value match to that observed in the photograph in Figure 1, Part B. Further inspection of this photograph provides us with a lighter surface at the window shutters, and on the front doors and door surround. Where evidence is available, it is recommended that the interior ceiling and wall surfaces be re-papered to match the original paper in pattern and color make up. Interpretation of the interior trip moldings should be executed based on the final color choices for the wallpaper.

In summation we can conclude that a limited amount of evidence is available for interpretation of an accurate finishes campaign, but use of the evidence at hand can help in providing an historically appropriate campaign. The most accurate re-creation of the interior paint scheme will be provided by the architectural and archeological evidence, and not from the limited finishes information.

Research Recommendations

Part I: Research Recommendations

The opportunity to understand more about the chronology of the development and evolution of The Wright Cycle Company building exists. This can be further investigated by examining the city directories and continuing archeological research. The 1996 Interpretive Plan for the Dayton Aviation Heritage National Historical Park identifies additional studies, plans, and pieces of research needed to complete implementation of the plan, including historic site archeological assessments. The goal of the archeological assessments is "to recover data, determine the size and location of missing structural elements and features, and increase the historical base of information for the park, and document" as these apply to "The Wright Cycle Company Shop [sic] with its adjacent yard."[1] Additionally, further artifact research needs to be undertaken in order to more accurately interpret the Wrights' printing and cyclery businesses.

1 U.S. Department of the Interior, National Park Service, Division of Interpretive Planning, Harpers Ferry, *A Plan for the Interpretation of Dayton Aviation Heritage National Historical Park Ohio* (Harpers Ferry, West Virginia: October 22, 1996), 49.

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National Register Forms

NPS Form 10-900
(Rev. 8-86)

From Arr 11/6/92

OMB No. 1024-0018

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

NR: 1-25-89

This form is for use in nominating or requesting determinations of eligibility for individual properties or districts. See instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, styles, materials, and areas of significance, enter only the categories and subcategories listed in the instructions. For additional space use continuation sheets (Form 10-900a). Type all entries.

1. Name of Property

historic name N/A

other names/site number West Third Street Historic District

2. Location

street & number W. Third St. between Shannon St. and Broadway N/A ☐ not for publication

city, town Dayton N/A ☐ vicinity

state Ohio code OH county Montgomery code 113 zip code 45407

3. Classification

Ownership of Property
- [X] private
- [ ] public-local
- [ ] public-State
- [ ] public-Federal

Category of Property
- [ ] building(s)
- [X] district
- [ ] site
- [ ] structure
- [ ] object

Number of Resources within Property

Contributing	Noncontributing	
28	4	buildings
		sites
		structures
		objects
28	4	Total

Name of related multiple property listing: N/A

Number of contributing resources previously listed in the National Register 1

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this [X] nomination [ ] request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property [X] meets [ ] does not meet the National Register criteria. [ ] See continuation sheet.

W. Ray Luce 12/8/88

Signature of certifying official Date

SHPO

State or Federal agency and bureau

In my opinion, the property [ ] meets [ ] does not meet the National Register criteria. [ ] See continuation sheet.

Signature of commenting or other official Date

State or Federal agency and bureau

5. National Park Service Certification

I, hereby, certify that this property is:

- [ ] entered in the National Register. [ ] See continuation sheet.
- [ ] determined eligible for the National Register. [ ] See continuation sheet.
- [ ] determined not eligible for the National Register.
- [ ] removed from the National Register.
- [ ] other, (explain:)

Signature of the Keeper Date of Action

Next to the Midget Theater is Mory's Block built in 1884 (1023-1027), a pivotal early commercial structure. Mory's Block is a brick two story building with a stairway bay an three storefront bays on the street level. The original iron columns and metal store front cornice have all survived. Seven window bays with stone sills and a continuous lintel service Mory's Hall. Above the lintel are recessed panels with corbelled tops anc a label panel. A stone string course supports a blind arcade just below the metal cornice. The store windows have been infilled with smaller windows and siding, however, the original storefront configuration is still apparent.

Adjacent to Mory's Block at the corner of Williams Street is the early twentieth century store and office block, the J. A. Prior Building built in 1924 (photo 2). The south side of the street has an important late nineteenth century collection of commercial Romanesqu buildings at the east end of the block (photo 6). The Enterprise Block built in 1890 (1026-1028) has a hall on the third floor. The one story stucco structure next door (1032) is clearly a survivor of the earlier low scale buildings present before annexation by Dayton. Little else is known about this building in spite of extensive research. The Setzer Building built in 1906 is a fine early twentieth century commercial structure. Th Hoover Block is the location of the Wright Brothers' printing business built from 1890 to 1895. This building is to be rehabilitated as an aviation museum related to the Wright Cycle Company Building located to the rear of the Hoover Block at 22 Williams Street.

The Williams Street extension south is focused on the Wright Cycle Company Building. Thi is where the Wright Brother's aviation experiments began. It is a typical neighborhood grocery store type of the period. The four additional houses (23-25, 26, 29 & 30 South Williams Street) (photo 7 & 8) are all properties built as a part of the streetcar suburban development after 1869. They create a vital setting for the cycle shop. The district ends with modern structures and demolition sites on South William Street.

The 1100 block is in full urban scale resembling a small "main street". There is an unfortunate void on the southwest corner of Williams and West Third Streets. The Victorian Italianate commercial Gunkel Building built in 1898 (1101-1107) on the northwes corner is a significant contributor to the district architecturally and historically. It housed the Hamburger Hardware Store for many years and also Dayton's first branch post office (photo 12). The Gunkel Building has three storefront bays on West Third Street. The left store cornice is elaborately decorated while the right is quite plain. The apartments above have semicircular windows with stone head molds and on each side a Chicago type window with stone sill and decorated lintel. The metal cornice is lavishly decorated. The storefront bays have been badly renovated.

Adjacent to the Gunkel building are the Gunkel Block built in 1893 (1109) and the Webbert Flats built in 1908 (1117) both are fine three story examples of turn-of-the-century commercial architecture with first floor storefronts and apartments above. Unfortunately the building across the street at 1114-1118 West Third Street (photo 9) was badly renovated in the 1950's. It has been compatibly rehabilitated as part of the Walters Block project.

The Walters Block, built between 1885-1893 (photo 10), is the only remaining High Victorian commercial block left in Dayton that clearly represents its time in history. The Walters Block is a brick three story High Victorian Italianate commercial block built in three parts; circa 1885, 1888 and 1893. There are six storefront bays with cast iron pillars (several have been reconstructed) the left two bays have cast iron pillars (several have been reconstructed) and the right four bays have limestone pillars. A stairway bay leads to apartments on the second floor. The third floor has a lodge hall. Both second and third floor interiors are in excellent condition. There are seventeen bays of one-over-one double hung sash windows with metal pediments on the second level and cornices on the third. The facade has two open fire escapes. A sheet metal cornice defines the upper terminal.

Across from the Walters Block is a nonconforming modern building (1127) and vacant lot (photo 13) both which occupy the historic site of the last Wright Brother's bicycle shop were the first airplane was invented. The historic building was moved to Greenfield Village in Dearborn, Michigan. The adjacent Hale Building, circa 1923, is a contributing early twentieth century structure. The void next to the Walters Block is the result of a serious fire in 1986.

The Mariette Flats, built in 1913 (1146-1148), represents the influence of early twentieth century cultural expression in architecture. The Mariette Flats located on the north side is a three story pressed brick, mixed commercial and apartment building in Georgian Revival style. The margins have rusticated brick quoins. The center bay is an elaborate cast iron entrance with Doric pilasters, cornice with label and segmental pediment with foliated tympanum. The large door is heavily paneled and has a transom. Above the doorway on the second floor level is a bulls-eye window with swagged garlands. On each side, three bay storefronts have central doors. The right and left bays of the upper facade have a recessed mullion window that has a molded segmental head and paneled spandrels. The windows are six-over-six double hung sash. There is a strong dentiled cornice above the third floor level. Over the cornice is an attic with three-over-three double hung sash windows, rusticated brickwork and a secondary cornice.

Next on the south side is a nonconforming infill building constructed after the period of significance. Last at the corner is the Neo-classical Revival West Side Building and Loan Association Building of 1922. It has the district's only stone facade. The north-side, of the west-end of the block suffered a major fire in 1911 which seriously damaged or destroyed all of the buildings west of the alley (photo 15). The Hoersting-Holtman Building at 1131-1137 West Third Street was "rebuilt." The Hoersting-Holtman Building 1909 has four primary bays and two stairway bays. The storefront bays are mixed in pattern and appear to have considerable original fabric. Each stairway bay has a multiple light transom and stair light above. There are four 3-part polygonal oriels with elaborate scroll sawed Eastlake like detailing. The cornice is whimsical with panels, pendants, rosettes, variformed dentil like devices and modillions.

The twin Groneweg Building, built in 1913 (1139), and William Webbert Building, circa 1912, (1143-1145) with their second story oriels and metal cornice are excellent representatives of their time. The Sapp Building circa 1912 (photo 16), shows the influence of the Prairie style (1147). The Olney Flats (1153) (photo 16) anchors the district on the north side. The Olney Flats 1913 is a three story yellow brick building. Originally a grocery store, it was renovated into a restaurant in the 1940's. There are three recessed bays with corbelled tops on the upper stories. The center bay has a stairway window with stone surround and a blind segmental arch encompassing three round headed mullion windows. The side bays have paired rectangular windows with stone lintels and sills. Over each third story window is a brick panel. The metal cornice has brackets and attic windows. The west side has storefront bays, seven bays of apartment windows and a round arched recessed porch in the northwest corner.

The West Side has suffered serious economic decline since the violent race riot of 1966. The 1200 block of West Third Street has been excluded from the nomination because of extensive demolition (photo 17). While demolition has had an impact, the districts historic character is intact. The district as it stands represents a significant collection of related historic buildings worthy of preservation for its architecture and its local association with historic persons of national significance.
**

6. Function or Use

Historic Functions (enter categories from instructions)	Current Functions (enter categories from instructions)
COMMERCE/TRADE - business	COMMERCE/TRADE - business

7. Description

Architectural Classification (enter categories from instructions)	Materials (enter categories from instructions)
Italianate	foundation stone
Romanesque	walls brick
Classical Revival	stone
	roof asphalt
	other

Describe present and historic physical appearance.

The West Third Street Historic District is a commercial district of two and three story brick buildings built between 1885 and 1924. The buildings have stores on the ground level with offices and apartments above. The facades are made primarily of brick, with stone and metal trim. The one stone facade belongs to a Neo-classical Revival bank building at 1154 West Third Street (photo 11). Styles are wide ranging from the outstanding High Victorian Italianate Walters Block at 1120 West Third Street (photo 10), through turn-of-the-century Italianate (photo 12) and commercial Romanesque Revival (photo 6), to the Neo-classical Revival theater and bank building (photos 3 & 11). The district is linear, only three blocks long. There is a short extension south on Williams Street that encompasses the historically related Wright Cycle Company building built in 1886 (NR: 2-13-86), and four residential structures that help convey the area's context. The district is surrounded by blighted residential lots heavily impacted by demolition. Located only ten blocks from the center of the city it was one of Dayton's earliest streetcar suburbs (1869). While the district has suffered demolition it fully conveys its character as an early suburban streetcar commercial block that evolved at the turn of the century.

Third Street is the city's main east-west thoroughfare. East of the river on Third Street is an Urban Renewal area that was once one of the most prestigious residential locations in Dayton. It is now a widely spaced starkly modern area, encompassing the urban campus of Sinclair Community College and the Montgomery County Administration Building both designed by Edward Durrell Stone. Near the district across the Great Miami River bridge is an area of extensive demolition and several industrial buildings. The center of the city is clearly visible from the edge of the district.

The first building at the southeast end of the district is the Gem City Ice Cream Building, an industrial building at 1005 West Third Street (photo 1). The present facade dates to 1914. The building actually consists of a series of additions wrapped around the structure (right center bay) that housed the first Wright bicycle shop in 1893. Gem City Ice Cream was the first manufactured ice cream in Dayton. On the opposite side of the street (south side) is the unique Mediterranean style three story building of 1914 (photo 4) that housed Dr. Alaman's offices on the second floor and apartments on the third floor. Past an adjacent vacant lot is the Nedham Building of 1897 (photo 5), a significant survival of the mixed residential and commercial facade, now rare in Dayton. Back on the north side there is a brick walled lot and a noncontributing, out-of-period building followed by the diminutive Neo-classical Revival Midget Theater (1019-1021) of 1912 (photo 3). Across the street is the fine commercial Romanesque Revival style Booth building of 1890 (photo 5).

[X] See continuation sheet

Address	Architectural Impression	Building Historic Name	Date of Const.
West Third Street			
1002	Mediterrean influence	Allaman Building	1914
1010-1012	mixed Residential commercial	Needham Building	1897
1005	industrial	Gem City Ice Cream Building	c1886-1914
1017	intrusion		
1018-1020	commercial Romanesque	Booth Building	1890
1019-1021	Neoclassic Theater	The Midget Theater	c1912
1023-1027	commercial Romanesque	Mory's Block and Hall	1884.
1026-1028	commercial Romanesque	Enterprise Building	1890
1029-1039	Early 20th Century commercial	J. A Prior Building	c1924
1032	vernacular		unknown
1034-1040	commercial Romanesque	Setzer Building	1906
1042-1046	commercial Romanesque	Hoover Block	1890
1101-1107	Victorian commercial	Gunkel Building	1898
1109-1111	commercial Romanesque	Gunkel Block	1891
1114-1118	intrusion		
1117-1119	commercial Romanesque	Webbert Flats	1908
1120-1130	High Victorian Italianate	Walters' Block	1885-1893
1127	intrusion	Wright Cycle company Site	
1129	early 20th Century commercial	Hale Building	c1923
1131-1137	Eastlake influence	Hoersting-Holtman Building	1909
1139-1141	Early 20th Century Commercial	Groneweg Building	1913
1143-1145	Early 20th Century Commercial	William Webbert Building	c1912
1146-1148	Georgian Revival	Mariette Flats	1913
1147-1151	Prairie influence	Sapp Building	c1912
1152	intrusion		
1153	commercial Romanesque	Olney Flats	1913
1154	Neoclassic Bank	West Side Building and Loan	1922
South Williams Street			
22	Victorian shop	Wright Cycle company	1886
23-25	Queen Anne influence	residential	
26	Queen Anne influence	residential	
29	Victorian Vernacular	residence	
30	Victorian Vernacular	residence	

North Williams Street

United States Post Office an intrusion (facility leased from private owner)

West Third St. Historic District
Dayton, Montgomery County, OH

8. Statement of Significanc

Certifying official has considered the significance of this property in relation to other properties:

☐ nationally ☐ statewide ☒ locally

Applicable National Register Criteria ☐ A ☒ B ☒ C ☐ D

Criteria Considerations (Exceptions) ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G

Areas of Significance (enter categories from instructions)	Period of Significance	Significant Dates
Invention	1885-1924	
Architecture		

Cultural Affiliation
N/A

Significant Person
Wilbur and Orville Wright

Architect/Builder
unknown

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.

The West Third Street Historic District is significant under Criterion B for its association with Orville and Wilbur Wright, the inventors of the airplane. Several Wright Brothers' printing and bicycle shops were located in the district. For example, the printing shop in the Hoover Block and the Wright Cycle Company Builders located at 22 West Third Street. The district is also significant under Criterion C as a cohesive collection of late 19th century and early 20th century commercial buildings representing a suburban streetcar commercial block. It has a strong commercial Romanesque Revival character with dark red brick, corbelling and round arches. There are also excellent Victorian Italianate and Neo-Classical buildings dating from 1885 to 1924.

The Wrights lived near the district at 7 Hawthorne Street (demolished). Orville Wright's earliest enthusiasm was for printing and he set up his first printing shop at home. In 1889 he took the business to 1210 West Third Street (demolished) and in 1890 moved it to the second floor at the new Hoover Block. While mainly job printers, the brothers also published a weekly magazine and several newspapers including the Westside News. Wilbur Wright, though associated with the printing business, soon took an interest in the booming bicycle fad. In 1892 he opened the Wright Cycle Exchange at 1005 West Third Street which is now incorporated within the walls of the Gem City Ice Cream Building, present appearance dating to 1914. The shop moved next door and then across the street to 1034 West Third Street until 1894. In 1895 the printing and bicycle businesses were brought under the same roof at 22 South Williams Street. There, the Wright brothers began experimenting with aviation. The printing business was finally sold in 1899. In 1897 the Wrights moved to 1127 West Third Street where, in 1903, they invented the first airplane.

The Wright Cycle Company closed its doors in 1908, but the Wrights' office stayed at 1127 West Third Street until 1918. Henry Ford moved the building to Greenfield Village in 1936. Orville maintained an office and laboratory (demolished) at 15 North Broadway until his death in 1948.

☒ See continuation sheet

Apart from the Wrights, the district is associated with Paul Lawrence Dunbar (1872-1906), the internationally renown black poet. Dunbar was born in Dayton and grew up in and around the district. The Dunbar family home is located just outside the district. Although both his parents were illiterate, his mother was a former slave, they encouraged Dunbar to learn to read and write and to get an education. He showed his literary talents early. In high school he became the president of the Literary Society and was also the chief editor of the school paper. He graduated from Dayton Central High School in 1890, the only black man in his class.

A mutual interest in printing and newspapers brought Dunbar and Orville Wright together and they collaborated on Dunbar's shortlived Tattler, a black neighborhood paper. Dunbar contributed frequently to local newspapers, including the Wrights' Westside News. Some of his early poetry was published by the Wrights at their presses located in the Hoover Block. Although no buildings in the district are associated specifically with Dunbar, the thriving commercial strip is representative of the neighborhood in which he grew up and worked.

The West Third Street Historic District is also significant architecturally as a suburban streetcar commercial block of the late 19th and early 20th century. In 1869 W. P. Huffman and H. S. Williams established the Dayton Street Railway as a way of opening up to the real estate market the farms lying within a short distance of Dayton. The West End was already starting to blossom when the railway was put down on West Third Street. The street car added the needed impetus behind the West End development and shops sprung up along the line with residential areas growing up behind.

The architecture of this period has the mixed character of the turn-of-the-century. Common unifying elements are the metal cornices, brick, and overall rhythm of the facades. The east end of the district decreases in scale and contains only the Gem City Ice Cream plant. Other unique buildings include the Mediterranean style Dr. Allaman Building built in 1914 (1002), the mixed residential commercial facade on the Nedham Building, built in 1897 (1010-1012) and the tiny Midget Theater, built in 1912 in Neo-Classical Revival style (1019-1021). The middle cluster around the Williams Street intersection is more Victorian and Romanesque Revival. Here we have excellent examples in the Booth Building built in 1890 (1018-1020), the Enterprise Building built in 1890 (1026-1028) both Romanesque Revival, and the Gunkel Building built in 1898 in Victorian Italianate. The west terminus is 20th century in character. The north side has a series of buildings with oriel bays including the Hoersting-Hortman building of 1909, Groheweg Building of 1913, and William Webbert Building, circa 1912 (1137-1143). The Sapp Building is the districts one Prairie style building built circa 1912. On the south side of the west end of the district There is a Georgian Revival apartment, the Mariette Flats built in 1913 (1146) and a Neo-Classical Revival style bank, built in 1924 (1154).

This streetcar commercial block is considerably different from the other examples in Dayton. It is more urban, compact and architecturally distinguished, and is on a greater scale than others found in Dayton, dominated by two and three story buildings. Those structures that have survived in similar areas are one and two story strips, primarily at intersections and are interspersed with residential buildings. One of these is part of the Huffman Historic District (NR: 8-24-82) on East Third Street. The other west side streetcar commercial block is on the West Fifth Street. It is small and nearly demolished.

Williams to the south lot line of parcel 32 lot 6353 and on to the back lot line, thence northerly along the back lot line to the north side of Peck's Alley, thence westward to the intersection with Broadway, thence northward along the east side of Broadway to the start point.

9. Major Bibliographical References

Conover, Charlotte Reeve. Dayton and Montgomery County Resources and People. New Yo
Lewis Historical Publishing Co. Inc. 1932.

Crouch, Thomas. Unpublished draft biography of the Wright Brothers.

Fisk, Fred C. "The Wright Brothers from Bicycle to Biplane." The Wheelmen.
No. 29; November 1986.

Howard, Fred. Wilbur and Orville. New York; Alfred A. Knopf, 1987.

Johnson, Mary Ann. A Field Guide to Flight. Dayton, Ohio; Landfall Press, 1986,

Montgomery County Register of Deeds and Tax Duplicates

☐ See continuation sheet

Previous documentation on file (NPS): N/A

- ☐ preliminary determination of individual listing (36 CFR 67) has been requested
- ☐ previously listed in the National Register
- ☐ previously determined eligible by the National Register
- ☐ designated a National Historic Landmark
- ☐ recorded by Historic American Buildings Survey # _____
- ☐ recorded by Historic American Engineering Record # _____

Primary location of additional data:

- ☒ State historic preservation office
- ☐ Other State agency
- ☐ Federal agency
- ☐ Local government
- ☐ University
- ☐ Other

Specify repository: _____

10. Geographical Data

Acreage of property 10.1

UTM References

	Zone	Easting	Northing		Zone	Easting	Northing
A	16	739900	440280	B			
C	16	733720	440100	D			

☐ See continuation sheet

Verbal Boundary Description Broadway and the alley between W. 2nd St. and W. 3rd St., thence easterly along the south side of the alley past Williams to the vacated alley east side lot 6308, thence southerly along lot 6308 and diagonally across W. 3rd St. to the corner Shannon, thence southerly west side Shannon to Peck's Alley thence westerly along the north side of Peck's A-ley to the back lot line of lot 7794, thence southerly along the back lot line to the south line of lot 7793, thence westward along the lot line crossing

☒ See continuation sheet

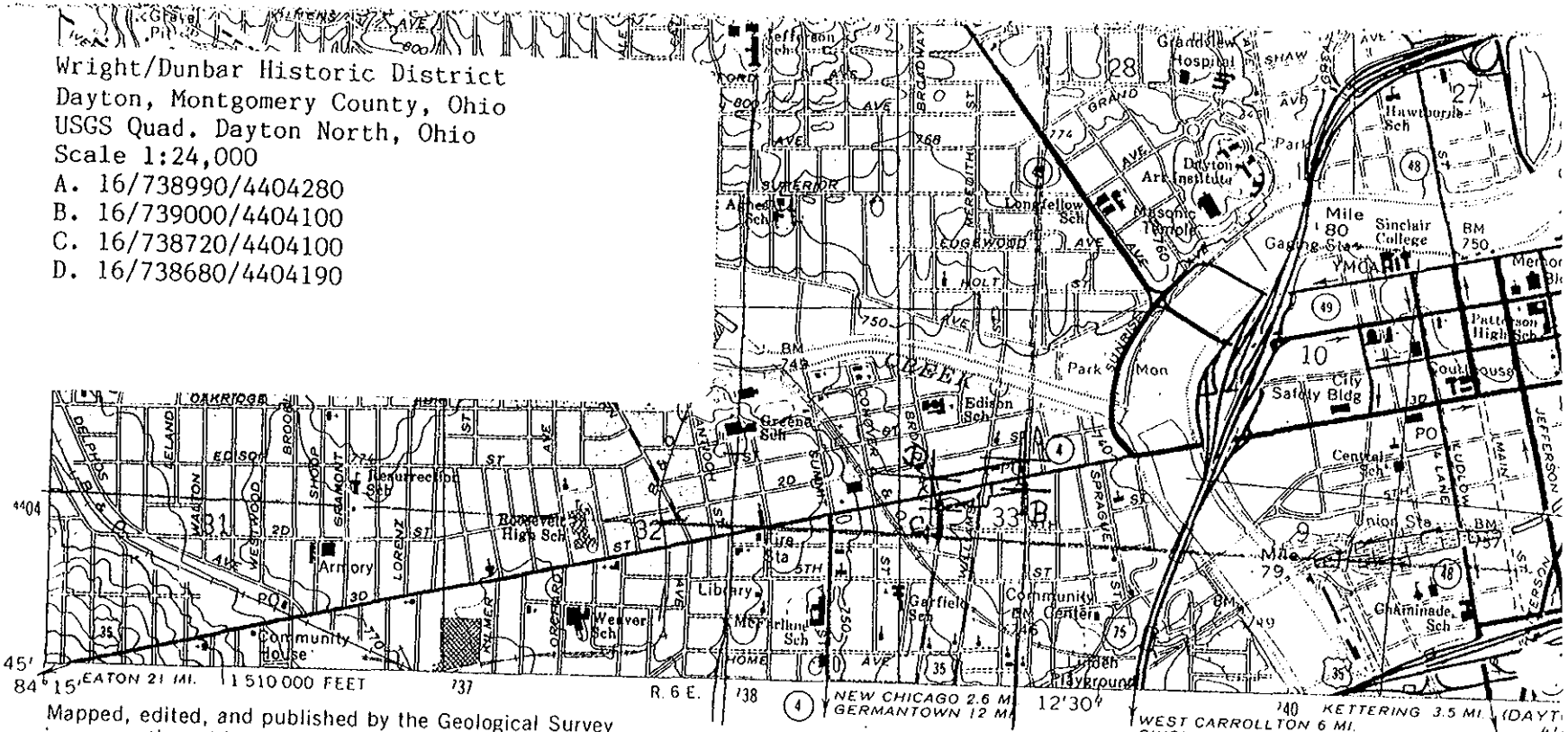
Boundary Justification The W. Third Street Historic District's boundaries were defined to incorporate the best examples of the area's commercial buildings, and with a short extens south along Williams St., to include the Wright Cycle Company building. To the east of S St. and west of Broadway are extensive areas of demolition. What buildings remain outsi the district are of insufficient integrity for inclusion in the nomination.

☐ See continuation sheet

11. Form Prepared By

name/title Loren S. Gannon Jr./Historian
organization Gannon Historical Services date 2 September 1987
street & number 20 Park Avenue, Oakland telephone (513) 298-1110
city or town Dayton state Ohio zip code 45419

Wright/Dunbar Historic District
Dayton, Montgomery County, Ohio
USGS Quad. Dayton North, Ohio
Scale 1:24,000
A. 16/738990/4404280
B. 16/739000/4404100
C. 16/738720/4404100
D. 16/738680/4404190



Mapped, edited, and published by the Geological Survey in cooperation with the Army Map Service
Revised in cooperation with State of Ohio agencies

Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs taken 1954. Field checked 1955. Revised from aerial photographs taken 1964. Field checked 1965

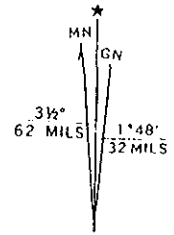
Polyconic projection. 10,000-foot grid ticks based on Ohio coordinate system, south zone. 1000-meter Universal Transverse Mercator grid ticks, zone 16, shown in blue. 1927 North American Datum
To place on the predicted North American Datum 1983 move the projection lines 2 meters south and 6 meters west as shown by dashed corner ticks

Red tint indicates areas in which only landmark buildings are shown

Area covered by dashed light-blue pattern is subject to controlled inundation to 818 feet

Area west of the Great Miami River lies within the Miami River Survey
Area east of the Great Miami River lies within the Between the Miamis Land lines based on the Great Miami River Base

There may be private inholdings within the boundaries of the National or State reservations shown on this map



UTM GRID AND 1981 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

Revisions shown in purple and woodland compiled in cooperation with State of Ohio agencies from aerial photographs taken 1979 and other sources. This information not field checked. Map edited 1981

Purple tint indicates extension of urban areas

SCALE

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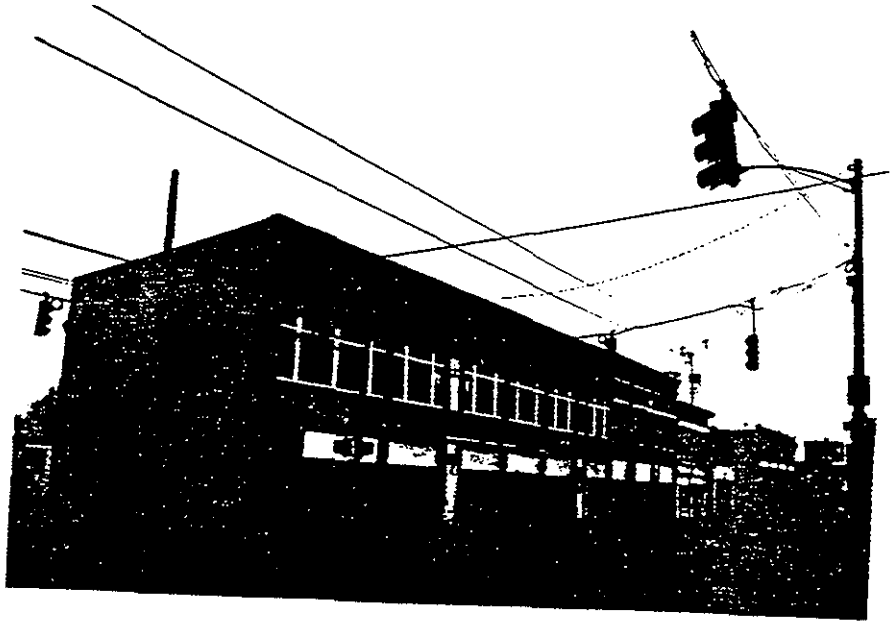

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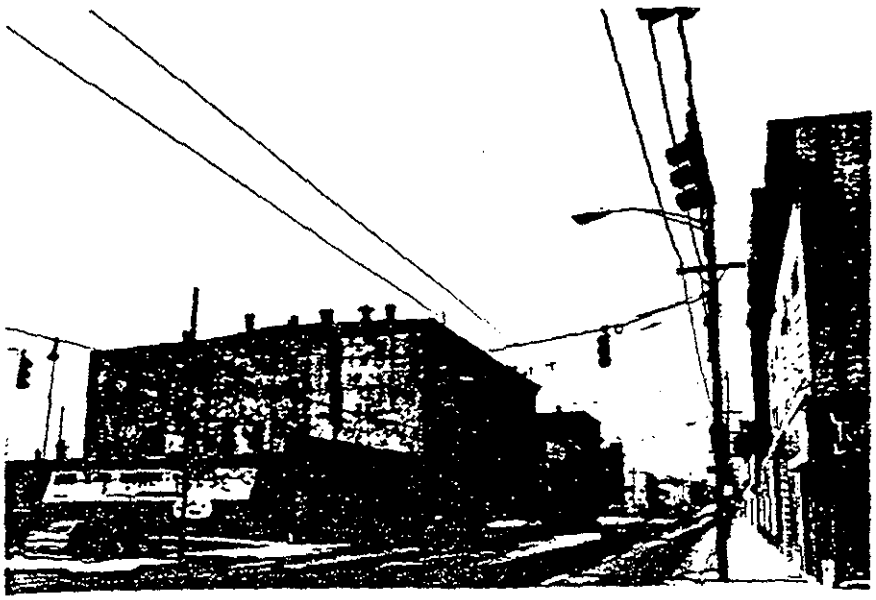

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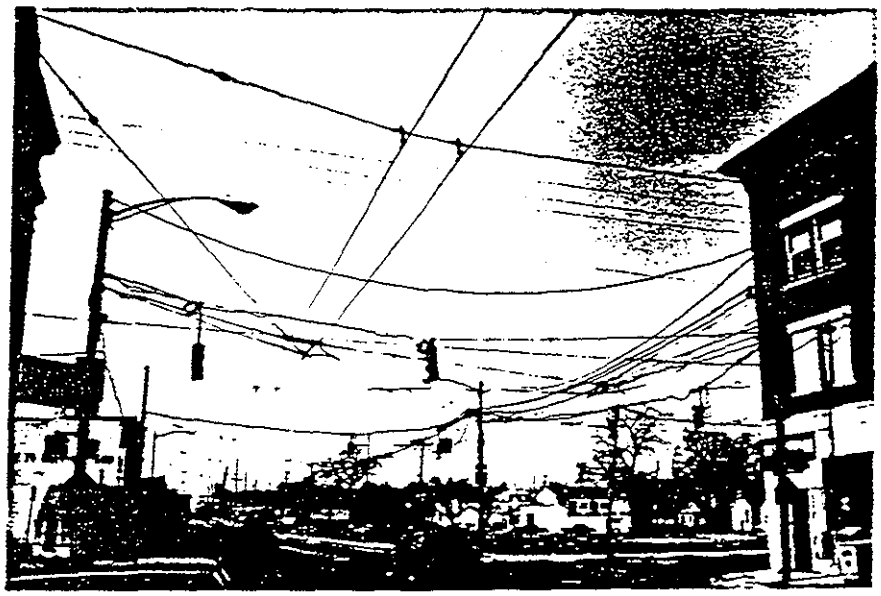

DEPARTMENT OF THE AIR FORCE
UNITED STATES AIR FORCE MUSEUM
WRIGHT-PATTERSON AIR FORCE BASE, OHIO 45433-6518

SEP 16

Mr W Ray Luce, SHPO
Ohio State Preservation Advisory Board
Ohio Historical Society
1985 Velma Ave
Columbus, OH 43211

Dear Mr Luce

I understand the Wright-Dunbar area of West Dayton Ohio has been nominated as an historic district. This area is one of the stops of the popular Dayton Aviation Trail, and as a fellow member of the Trail, the United States Air Force Museum heartily endorses this nomination.

The neighborhood is rich in local history and contains much of what remains in Dayton from the era of Orville and Wilbur Wright and Paul Dunbar. Efforts of the Aviation Trail Association directed toward the Wright Cycle Shop and of other historically inclined Daytonians toward the Dunbar House are keys to bringing the district back to its turn-of-the-century form. This enthusiastic and vigorious program will be enhanced by this designation as an historic district and will do much to spur the supporters of the West Dayton complex to continue their commendable work to restore this portion of the city to its former configuration.

West Dayton certainly deserves the designation as an historic district and I earnestly solicite your support to this end.

Sincerely

RICHARD L. UPPSTROM
Director

RICHARD CLAY DIXON
Mayor

CITY of DAYTON, OHIO
OFFICE OF THE CITY COMMISSION
MUNICIPAL BUILDING • THIRD & LUDLOW STS. • PHONE 443-363

RECEIVED SEP 25 1987

September 16, 1987

Mr. Ray Luce
Ohio State Preservation
Advisory Board
Ohio Historical Society
1985 Velma Avenue
Columbus, Ohio 43211

Dear Mr. Luce:

I am writing to express the City of Dayton's interest in supporting the nomination of the Wright-Dunbar area of West Dayton as a historic district on the National Register.

As you are aware from the documentation, the Wright-Dunbar area of Dayton is rich in historic significance.

We support the efforts of those individuals who believe in preserving an important part of our City's past. Many of the landmarks remain and we can appreciate the preservation of those structures suitable as such.

Thank you for your time and consideration in this matter.

Sincerely,

Richard Clay Dixon
Mayor

RCD:smc

WRIGHT STATE

Wright State University
Dayton, Ohio 45435

RECEIVED SEP 1 7 1987

University Library
513/873-2380

September 11, 1987

Mr. W. Ray Luce
State Preservation Advisory Board
Ohio Historical Society
1985 Velma Avenue
Columbus, OH 43211

Dear Ray:

I am writing in support of the nomination of the Wright-Dunbar area of West Dayton as a historic district. I have served for a number of years as Head of Archives at Wright State, where I have worked especially closely with the Wright Brothers Collection in our archives. As an historian with an research interest in local history, I have also studied the West Side neighborhood which was a home to both Paul Laurence Dunbar and Wilbur and Orville Wright.

Beneath a sometimes altered surface appearances, much of that neighborhood and its landmarks remain intact today. Buildings that housed the Wright Cycle company and Wright and Wright Printers still stand, as does the home of Paul Dunbar. Blocks of houses and business buildings familiar to these men remain to allow the visitor to recreate the early turn of the century streetscape. The neighborhood became a good example of the street-car suburb, providing decent housing and urban services to the working men and their families who were building Dayton into the "Gem City of the Miami Valley."

The West Side was not a fancy place. The shops were small scaled to meet the needs of local residents. The houses were small as well, and usually very plain. But is largely remains intact, a sort of 19th century survivor in late 20th century city. In my opinion it would make an ideal historic district and I strongly support its nominations.

Sincerely,

Patrick B. Nolan

Patrick B. Nolan
Head of Archives & Special Collections
Associate Professor

cc: Jerry Sharkey

PBN:bpc

NATIONAL MUSEUM OF AMERICAN HISTORY

SCIENCE, TECHNOLOGY, AND CULTURE

September 1, 1987

Ohio State Preservation Advisory Board
Ohio Historical Society
1985 Velma Ave.
Columbus, Ohio 43211

Attn: Mr. W. Ray Luce, SHPO

Dear Mr. Luce:

I am writing in support of the nomination of the Wright-Dunbar area of West Dayton as a historic district. As a historian I have developed some familiarity with the area over the years. This includes walking the streets of West Dayton with Sanborn insurance maps in one hand and sheets of late-nineteenth century census records in the other, identifying buildings that have survived from the Wright era and matching them to their occupants at that time.

The neighborhood began as a classic street car suburb, a fact that remains in evidence today. Both along the major thoroughfares of the commercial district and in the residential areas set a block or two back from Third Street, you can still see many elements of the neighborhood that would have been familiar to the Wrights. Although there have been major changes and alterations over the years, much of the architecture is representative of their era.

There are other factors that make West Dayton especially interesting. As I noted above, the pattern of a typical first generation street car suburb; the rich racial, cultural and ethnic mix; and the fact that residential and commercial buildings have survived from the late nineteenth century combine to make West Dayton an ideal candidate for recognition as a historic district.

Sincerely,

Tom Crouch

Tom D. Crouch
Chairman
Department of Social and
Cultural History

TDC:aMc
cc: Jerry Shankey

RECEIVED SEP 1 6 1987

the montgomery county historical society

The Old Court House
Dayton, Ohio 45402
Phone 513/228-6271

September 14, 1987

Mr. W. Ray Luce, SHPO
Ohio State Preservation Advisory Board
Ohio Historical Society
1985 Velma Ave.
Columbus, Ohio 43211

Dear Mr. Luce:

On behalf of the Society, I wish to support nominating the Wright-Dunbar area of West Dayton to the National Register of Historic Places. This neighborhood, the original home of the Wright Brothers, is a classic street car suburb that has retained much of the architecture, both residential and commerical, of the late 19th and early 20th centuries. We feel that both for its architectural integrity and its historical association with the Wright Brothers that the Wright-Dunbar area deserves listng on the National Register as an historic district

Sincerely,

Kirby Turner
Executive Director

KT/jmp

From Ann 4/16/97

United States Department of the Interior
National Park Service

National Register of Historic Places
Registration Form

National Historic Landmark Nomination

This form is for use in nominating or requesting determinations of eligibility for individual properties or districts. See instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, styles, materials, and areas of significance, enter only the categories and subcategories listed in the instructions. For additional space use continuation sheets (Form 10-900a). Type all entries.

1. Name of Property

historic name: Wright Cycle Company and Wright and Wright Printing

other names/site number: Wright Cycle Shop

2. Location

street & number: 22 South Williams Street [ ] not for publication

city, town: Dayton [ ] vicinity

state: Ohio code: OH county: Montgomery code: 113 zip code: 45407

3. Classification

Ownership of Property	Category of Property	Number of Resources within Property: Contributing	Noncontributing	
[x] private	[x] building(s)	1		buildings
[ ] public-local	[ ] district			sites
[ ] public-State	[ ] site			structures
[ ] public-Federal	[ ] structure			objects
	[ ] object			
		1	0	Total

Name of related multiple property listing: Wright Brothers-Associated Properties in the Dayton, Ohio, Area

Number of contributing resources previously listed in the National Register: 1

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this [ ] nomination [ ] request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property [ ] meets [ ] does not meet the National Register criteria. [ ] See continuation sheet.

Signature of certifying official — Date

State or Federal agency and bureau

In my opinion, the property [ ] meets [ ] does not meet the National Register criteria. [ ] See continuation sheet.

Signature of commenting or other official — Date

State or Federal agency and bureau

5. National Park Service Certification

I, hereby, certify that this property is:

[ ] entered in the National Register.
[ ] See continuation sheet.

[ ] determined eligible for the National Register. [ ] See continuation sheet.

[ ] determined not eligible for the National Register.

[ ] removed from the National Register.

[ ] other, (explain:)

6. Function or Use

Historic Functions (enter categories from instructions)	Current Functions (enter categories from instructions)
COMMERCE/TRADE: Specialty store	RECREATION AND CULTURE: museum
INDUSTRY: communications facility	

7. Description

Architectural Classification (enter categories from instructions)	Materials (enter categories from instructions)
Late Victorian	foundation limestone
	walls brick
	wood siding on addition
	roof wood shingle
	other limestone columns

Describe present and historic physical appearance.

The Wright Cycle Company building is a two-story detached rectangular commercial brick structure with a full basement and a single-story frame addition on the rear. The building is three bays wide and six bays deep. The hipped wood-shingled roof of the main section features a projecting gable on the north side and a diagonally projecting gable on the northwest. The addition has a gabled roof which, like the main roof, was covered with wood shingles.

The first floor main facade, which fronts on Williams Street, featured storefront display windows capped with a limestone lintel supported by four one-piece limestone columns with stylized capitols.[1] Comprising eight lights each, the display windows flanked the central double door entryway. There was another double door entryway with a transom window on the north side of the building; this door probably served as a freight entrance. A third main floor entryway, a single door, provided access to the rear addition. Situated directly over the double door entry on the ground floor was another double door which opened onto a small metal balcony; it was probably used to move equipment in and out of the second floor by means of a hoist with pulleys located in the gable end above the door. With the exception of the storefront described above, the building's windows were 2/2 double-hung sash windows with dark painted wood shutters. All of the window and door openings had limestone lintels and sills.

The first floor interior of the main section of the building was one large room used as a showroom and workspace. The room had light colored plaster walls with dark wood baseboards. Interior ornamentation was restricted to tapering the sides of the door and window lintels to suggest a pediment. The rear addition was divided into two rooms and probably served as office space. A stairway in the southeast corner of the building provided access to the unfinished basement below and up to the second floor. The upper floor was divided into five rooms of various sizes. The

[1] Similar columns also made of local limestone appear on several neighborhood commercial buildings of the same vintage.

[X] See continuation sheet

walls were of light colored plaster with a decorative pattern frieze.

The building was altered considerably sometime between 1897 and 1911 as the commercial building was transformed into a two-family residence. The original storefront was removed and a recessed exterior wall of novelty wood siding erected. The display windows were eliminated and bay windows installed in their stead. The front columns from the original west facade remained, forming a porch. A new stairway provided access to the second floor from this porch. A bay window replaced the freight door. All shutters were removed, and the exterior of the structure was painted white. Exterior access to the basement on the north side of the building was provided via an external stairway and door. The first floor interior was divided into five rooms.

The Wright Cycle Company building was recently restored to its historic turn-of-the-century appearance. Aviation Trail, Inc., the current owners, oversaw the restoration project which was based on construction documents prepared by Gaede, Serne, & Zofcin Architects, Inc. The restoration work included replacement of the roof; chemical removal of paint from the brick walls; removal of the bay windows, basement exit, and two first floor windows dating after 1897; elimination of nonhistoric interior partitions; reestablishment of historic doorways; application of new siding to the rear addition; and replication and installation of shutters based on an original shutter found in the tight space between the Cycle Shop and the adjacent residence. The resulting restoration closely resembles a photograph taken by Orville Wright in 1896 or 1897. Modest concessions to public usage include a concrete ramp to the side porch which provides access for handicapped visitors, and improvements required to meet current fire and safety codes.

Aviation Trail, Inc. opened the Wright Cycle Company building as a museum on June 28, 1988. The structure also includes office space for the organization's staff.

8. Statement of Significance

Certifying official has considered the significance of this property in relation to other properties:

☐ nationally ☐ statewide ☐ locally

Applicable National Register Criteria ☐ A ☐ B ☐ C ☐ D

National Historic Landmark Criteria 1, 2

Criteria Considerations (Exceptions) ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G

Areas of Significance (enter categories from instructions)	Period of Significance	Significant Dates
Invention	1895-1897	1896
Transportation		
Engineering		
Commerce		
Communications		

Cultural Affiliation: n/a

Significant Person: Wright, Wilbur and Orville

Architect/Builder: Nicholas, Abraham and Joseph, buil

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.

The Wright Cycle Company building is of significant because of its association with and role in the careers of Wilbur and Orville Wright as printers and bicycle manufacturers, and in their invention of the airplane. The bicycle shop at 22 South Williams Street, which operated between 1895 and 1897, is where the brothers began to manufacture their own brand of bicycles which gave the brothers the mechanical experience and financial resources necessary to begin their experiments on an airplane. Working with sprockets, spokes, chain drives, tires, metals, lathes, drills and engines assisted the Wrights in designing and building their first gliders and flying machines.[1] Further, it was while the Wrights occupied the building at 22 South Williams Street that they became seriously and actively interested in solving the problems of heavier-than-air powered flight. Also operating out of the Williams Street building was Wright and Wright Printing which was located on the second floor of the building; the printing business required access to national news wires, which carried word of Otto Lilienthal's death to the shop in 1896. This event catalyzed the brothers' interest in developing a safe and practical flying machine.

History

Prior to the opening of the first Wright cycle shop in 1892, the Wright brothers had been involved solely with their printing business located in the Hoover Block at 1060 West Third Street (adjacent to the 22 South Williams Street property). However, since the demise of their daily newspaper, the Evening Item, in 1890, the brothers had been looking for another business to complement their ongoing job printing trade. In 1892, the brothers

[1] Fred C. Fisk, "The Wright Brothers' Bicycles," Wheelmen, November 1980, p. 3.

☒ See continuation sheet

skill in the repair of bicycles provided the supplementary business enterprise the Wrights were seeking.

By the time Wilbur and Orville Wright opened their first bicycle shop to repair and sell bicycles at 1005 West Third Street in Dayton, the nation was already in the midst of a cycle craze. In fact, so great was the appeal for the newly developed safety bicycle, that it was extolled as the "greatest invention of the nineteenth century," and the decade of the 1890s was celebrated as the golden age of the bicycle.[2]

The bicycle enterprise, founded in 1892, provided a brisk business for Wilbur and Orville, and necessitated the relocation of their cycle shop to more commodious quarters. In early 1895, the Wrights once again had made the decision to move their bicycle business to larger facilities; however, this time they chose to combine their bicycle and printing interests under one roof.

The location chosen for their new shop was the two-story building at 22 South Williams Street erected by Abraham and Joseph Nicholas behind the Hoover Block. Built in 1886, the structure served as a grocery store, feed store, saloon, and boarding house before the Wrights rented it and refitted it to suit their needs.[3] The newly located Wright Cycle Company and Wright and Wright Printing opened in the spring of 1895. In general, however, since the Wrights first opened a bicycle shop in 1892, the printing business diminished in importance. Although the job printing business was still turning a profit for the brothers and would continue to do so until it was sold in 1899, the Wrights realized that the cycle industry provided more earning potential and offered more of a challenge to them. Hence, their printing interests became subordinate to their cycling interests and were developed into a very successful promotional aid for the Wright Cycle Company. Snap-Shots, the weekly westside newspaper started in 1894 at the

[2]Tom D. Crouch, "The Wright Cycle Company," pamphlet (Dayton, Ohio: Aviation Trail, Inc., n.d.)

[3]Margaret (Lanny) Weaver, "The Wright Brothers at 22 South Williams Street 1895 to 1897," mimeographed (Dayton, Ohio: Aviation Trail, Inc., 1983), p. 6-7.

Hoover Block, was continued at 22 South Williams Street as a means to enhance and publicize the Wright Cycle Company:

> SNAP-SHOTS will be devoted to the interests of its publishers and of the business men of our city in general. It will inform its readers why and where to buy bicycles and other articles, and will also keep them posted concerning the latest happenings in the cycling world both as regards improvements in manufacture and the doings of racing men.[4]

Late in 1895, the Wrights were again thinking of expanding their cycle business; however, this time they sought not only to enlarge their sales and repair operations, but also to manufacture their own brands of bikes. In a pamphlet printed early in 1896, the Wrights announced:

> With the new year we begin our fourth season in the bicycle business, and we take this occasion to thank the public for its increasing favor. Each year we have more than doubled the business of the preceding one. For this reason we feel that we are justified in making special preparation for the accommodation of our customers in the coming year. Our salesroom at 22 South Williams Street is being nicely refitted, and a visit from you will be much appreciated. We are adding new machinery to our shop, and before the riding season opens we hope to have on the market a bicycle of our own make, which in commemoration of Dayton's Centennial Year and in honor of our own ancestor, we have decided to call it the "Van Cleve." . . .We shall also put out a cheaper bicycle which will be known as the "Wright Special."[5]

In preparation to produce their own line of bicycles, the Wrights transformed the property into a well equipped machine shop. Within no time, the backroom and upstairs of the bicycle shop were

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[4] Dayton Snap-Shots, 29 February 1896.

[5] "The Wright Cycle Co. Van Cleve Pamphlet," cited in Fred C. Fisk, "How the Wheelmen Helped Save a Wright Brothers Bicycle Shop," Wheelmen, November 1986, p. 15.

outfitted with a turret lathe, drill press, brazer, tube cutting equipment, and an overhead line shaft.[6] Likewise, the Wrights made many other tools such as files and wrenches which would be necessary to manufacture bicycles.[7] However, most important among the Wrights' engineerings for the bicycle shop was an experimental gas engine. The one-cylinder internal combustion engine was designed by Wilbur and Orville to power the bicycle machinery and was the first engine they ever built.[8]

In the April 17, 1896, edition of Snap-Shots, which was the final issue of the publication, the Wrights again announced their forthcoming line of bicycles:

> For a number of months, Wright Cycle Co. have been making preparations to manufacture bicycles. After more delay than we expected, we are at last ready to announce that we will have several samples out in a week or ten days and will be ready to fill orders before the middle of next month.[9]

The first bicycle produced, as announced, was the Van Cleve. Named for pioneer ancestors of the Wrights, it was always the top of the line of Wright bicycles and sold for sixty-five dollars.[10] The St. Clair, a lower priced model marketed towards school children, was also introduced in 1896.

The year 1896 at the bicycle shop was significant for other reasons as well. In August, after the line of Wright bicycles had been successfully introduced to the Dayton community, Orville contracted

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[6]Tom D. Crouch, The Bishop's Boys: A Life of Wilbur and Orville Wright (New York: W. W. Norton, 1989), p. 112.

[7]Fisk, "Wright Brothers' Bicycles," p. 6.

[8]Crouch, Bishop's Boys, p. 112.

[9]Dayton Snap-Shots, 17 April 1896.

[10]Crouch, "Wright Cycle Company," pamphlet.

typhoid fever from a tainted well at the rear of the bicycle shop.[11] While Orville remained bedridden until early October, Wilbur occupied his time contemplating the aeronautical problems of human flight. Around the time Orville became ill with the fever, Wilbur learned of another tragedy that would be the impetus in the brothers' quest to conquer the air. On August 10, Otto Lilienthal, the German engineer and aeronautical pioneer who was the first man in the world to launch himself into the air and fly, died from injuries received in a glider accident.[12] Lilienthal's death, which Wilbur learned of through a news service the brothers subscribed to for their printing firm, provoked the brothers' inquiry into the problems of human flight. As Wilbur remembered:

> My own active interest in aeronautical problems dates back to the death of Lilienthal in 1896. The brief notice of his death which appeared in the telegraphic news at that time aroused a passive interest which had existed from my childhood . . . and as my brother soon became equally interested with myself, we soon passed from the reading to the thinking, and finally to the working stage.[13]

From 1896 and on, the Wrights harbored a growing belief that man could fly, and they began to focus their attention on the problems of mechanical and human flight.

In 1897, because of the overwhelming success of their line of bicycles, the Wrights once again saw the need to move their bicycle and printing operations to larger facilities. The period 1896-

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[11]Crouch, Bishop's Boys, p. 157.

[12]Arthur G. Renstrom, Wilbur and Orville Wright: a Chronology Commemorating the Hundredth Anniversary of the Birth of Orville Wright August 19, 1871 (Washington, D.C.: Library of Congress, 1975), p. 6.

[13]Wilbur Wright to the Western Society of Engineers, 18 September 1901, in The Papers of Wilbur and Orville Wright: Including the Chanute-Wright Letters and Other Papers of Octave Chanute, 2 vols., ed. Marvin W. McFarland (New York: McGraw-Hill, 1953) 1:103.

1897 represented the peak years of the Wright Cycle Company. In the fall of 1897, after the bicycle season had ended, the Wrights shifted their operations to 1127 West Third Street, the final location of their bicycle enterprise. It was in this building that the brothers built the world's first airplane, constructed their experimental gliders and later machines, and conducted much of their aeronautical research. Today, this structure is enshrined at Henry Ford's Greenfield Village in Dearborn, Michigan, thus lacking a quality of integrity in location, setting, and feeling.

In comparison, however, the 22 South Williams Street bicycle shop retains its integrity in all aspects. Not only has the bicycle shop been restored to its appearance when the Wrights occupied the building, but it also maintains the historical feeling of time and place associated with the westside neighborhood in which it is located and where the Wrights lived and worked most of their lives. In fact, this is the only property intact today associated with the Wright brothers' bicycle business and one of only two structures remaining related to their careers as printers.

The years in the bicycle business were instrumental to the invention of the airplane. Through their experiences of manufacturing, selling, and repairing bicycles and in designing the bicycle shop machinery, the Wrights sharpened their mechanical skills and ascertained knowledge that would prove invaluable to the invention of the airplane. The gas engine the Wrights first assembled in the bicycle shop would later aid them in their design of a suitable engine for a flying machine, and their experience with chain drives on bicycles assisted them in developing a workable transmission for the airplane.[14] Indeed, many of the parts of the early airplanes were mere adaptations of bicycle parts and were made by the same equipment and tools that were used to build bicycles.

Many aeronautical principles were also derived from the bicycle business. One day while toying with an empty inner tube box, Wilbur discovered the necessary mechanical corollary to the

[14]Mary Ann Johnson, A Field Guide to Flight: On the Aviation Trail in Dayton, Ohio (Dayton, Ohio: Landfall Press, 1986), p. 36.

aeronautical theory of wing-warping and lateral control.[15] Air pressure and wind tunnel tests were also conducted from devices fabricated at the bike shop and were frequently made out of bicycle parts.

The bicycle shops also had two other advantageous aspects which fostered the Wrights brothers' aviation interests--it provided the funds for the Wrights' work in aviation and afforded them sufficient time to pursue their interests in flying. The bicycle business was extremely seasonal in nature with the Wrights working twelve to fourteen hours daily in the spring, but considerably less in the summer and almost not at all in the fall and winter.[16] Those free months provided ample time for Wilbur and Orville to conduct their aeronautical experiments.

Likewise, the bicycle business was quite profitable. Although their income from the bicycle shops never exceeded more than three thousand dollars a year, it was sufficient for the Wrights to finance all their early aeronautical experiments in both Dayton and Kitty Hawk. In fact, the success of their bicycle shop paid for the construction of all of their early gliders, airplanes, engines, and experimental apparatuses. A story recounted by Dayton wheelman Fred Fisk concerning the Wright brothers' wind tunnel illustrates the point:

> The wind tunnel, with the fan sending a current of air through the large tube, was running one day when a customer came in the shop. He asked what that thing had to do with making Van Cleve bicycles. Orville smiled and said, **"It has nothing to do with the Van Cleve, except that the Van Cleve paid for it."**[17]

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[15]Fred C. Kelly, The Wright Brothers: A Biography Authorized by Orville Wright (New York: Harcourt, Brace, 1943, reprint ed., New York: Farrar, Straus and Young, 1950), p. 49.

[16]Wilbur Wright to Octave Chanute, 17 May 1901, in Papers of Wright, ed. McFarland, 1:55.

[17]Fisk, "Wright Brothers' Bicycles," p. 8.

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_____. "The Wright Brothers' Bicycles." Wheelmen November 1980.

Johnson, Mary Ann. A Field Guide to Flight: On the Aviation Trail in Dayton, Ohio. Dayton, Ohio: Landfall Press, 1986.

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_____. The Wright Brothers: A Biography Authorized by Orville Wright. New York: Harcourt, Brace, 1943; reprint ed., New York: Farrar, Straus and Young, 1950.

McFarland, Marvin W., ed. The Papers of Wilbur and Orville Wright: Including the Chanute-Wright Letters and Other Papers of Octave Chanute. 2 vols. New York: McGraw-Hill, 1953.

Renstrom, Arthur G. Wilbur and Orville Wright: A Chronology Commemorating the Hundredth Anniversary of the Birth of Orville Wright, August 19, 1871. Washington D.C.: Library of Congress, 1975.

Weaver, Margaret (Lanny). "The Wright Brothers at 22 South Williams Street 1895 to 1897." Mimeograph. Dayton, Ohio: Aviation Trail, Inc., 1983.

9. Major Bibliographical References

☒ See continuation sheet

Previous documentation on file (NPS):

- ☐ preliminary determination of individual listing (36 CFR 67) has been requested
- ☐ previously listed in the National Register
- ☐ previously determined eligible by the National Register
- ☐ designated a National Historic Landmark
- ☐ recorded by Historic American Buildings Survey: #
- ☐ recorded by Historic American Engineering Record #

Primary location of additional data:

- ☐ State historic preservation office
- ☐ Other State agency
- ☐ Federal agency
- ☐ Local government
- ☐ University
- ☒ Other

Specify repository:

Aviation Trail, Inc.
Dayton, Ohio

10. Geographical Data

Acreage of property: less than one acre

UTM References

	Zone	Easting	Northing
A	16	713820	4404420
B			
C			
D			

☐ See continuation sheet

Verbal Boundary Description

Lot 7794, City of Dayton, Ohio, with the exception of 25 feet taken by parallel lines off the south side thereof, as described in Warranty Deed 12235, recorded July 27, 1983.

☐ See continuation sheet

Boundary Justification

The boundary includes the city lot historically associated with the property, and is the legal boundary of the property owned by Aviation Trail, Inc.

☐ See continuation sheet

11. Form Prepared By

name/title: Jill York O'Bright, Historian; David G. Richardson, Historian; and William S. Harlow, Historical Architect

organization: National Park Service, Midwest Region — date: January 18, 1990

street & number: 1709 Jackson Street — telephone: 402-221-3426

city or town: Omaha — state: NE — zip: 68102

Major Bibliographical References

Crouch, Tom D. The Bishop's Boys: A Life of Wilbur and Orville Wright. New York: W. W. Norton, 1989.

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_____. The Wright Brothers: A Biography Authorized by Orville Wright. New York: Harcourt, Brace, 1943; reprint ed., New York: Farrar, Straus and Young, 1950.

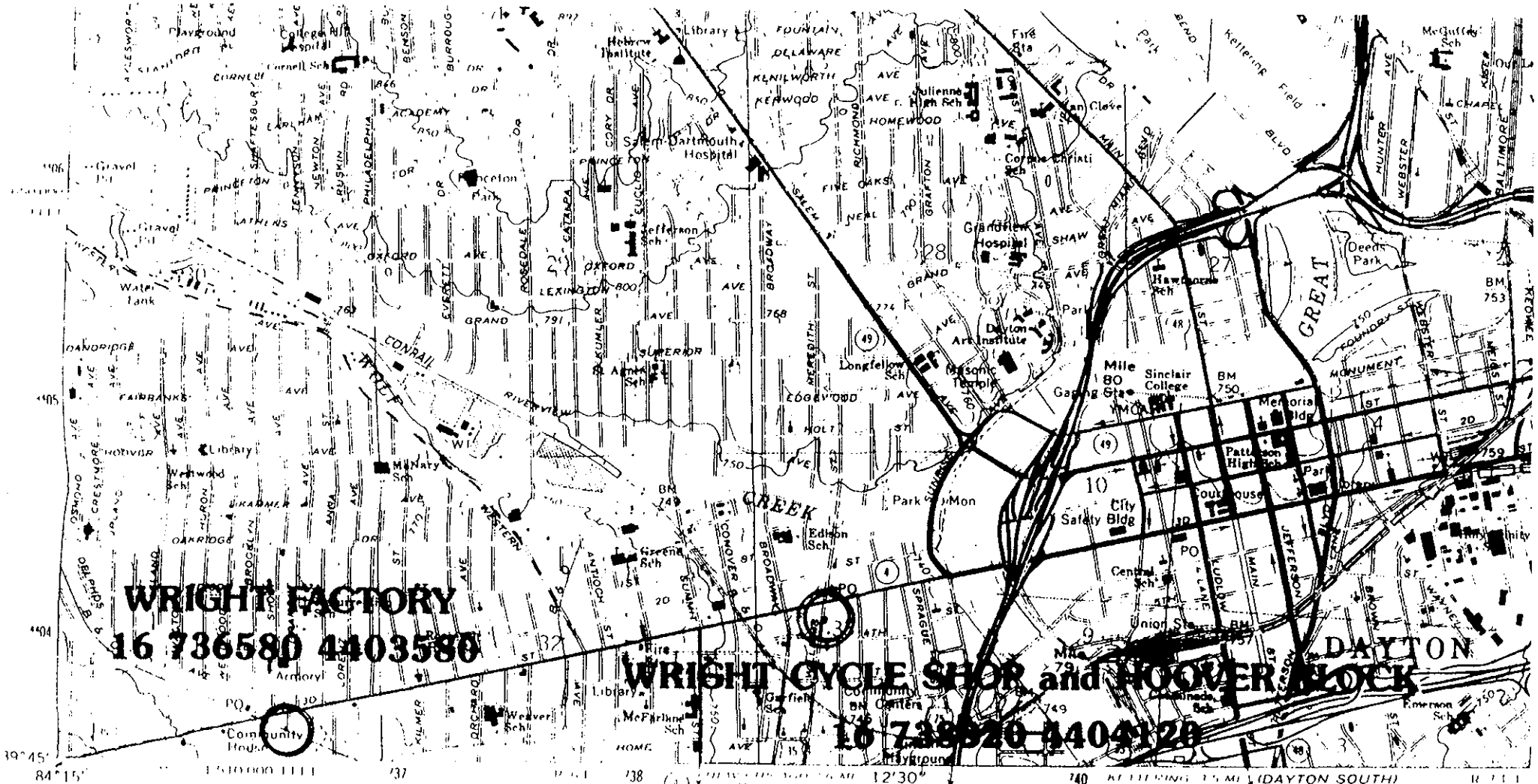
McFarland, Marvin W., ed. The Papers of Wilbur and Orville Wright: Including the Chanute-Wright Letters and Other Papers of Octave Chanute. 2 vols. New York: McGraw-Hill, 1953.

Renstrom, Arthur G. Wilbur and Orville Wright: A Chronology Commemorating the Hundredth Anniversary of the Birth of Orville Wright, August 19, 1871. Washington D.C.: Library of Congress, 1975.

Weaver, Margaret (Lanny). "The Wright Brothers at 22 South Williams Street 1895 to 1897." Mimeograph. Dayton, Ohio: Aviation Trail, Inc., 1983.

Wright Cycle Company facing east
Dayton, Ohio

Phot.: William Harlow
May 1989
Neg.: National Park Service
Midwest Regional Office



Mapped, edited, and published by the Geological Survey in cooperation with the Army Map Service
Revised in cooperation with State of Ohio agencies

Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs taken 1954. Field checked 1955. Revised from aerial photographs taken 1964. Field checked 1965.

Polyconic projection. 10,000 foot grid ticks based on Ohio coordinate system, south zone. 1000 meter Universal Transverse Mercator grid ticks, zone 16, shown in blue. 1927 North American Datum. To place on the predicted North American Datum 1983 move the projection lines 2 meters south and 6 meters west as shown by dashed corner ticks.

Red tint indicates areas in which only landmark buildings are shown.

Area covered by dashed light blue pattern is subject to controlled inundation to 818 feet.

Area west of the Great Miami River lies within the Miami River Survey. Area east of the Great Miami River lies within the Between the Miamis Land Lines [illegible] on the Great Miami River Base.

There may [illegible] ivate inholdings within the boundaries of the Nation[illegible]

MN
GN
3½°
62 MILS
1°48'
32 MILS

UTM GRID AND 1981 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

1000 0 1000 2000 3000 4000 5000

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, RESTON, VIRGINIA
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE

Appendix D:
Structural Drawings

Table 1: Basement Column Movements Measured with a Four Foot Mason's Level

Column	Size	Movement of the Top of the Column in the East-West Direction	Movement of the Top of the Column in the North-South Direction	Bearing on	Notes/ Comments
A	3-1/2" x 3-1/2"	1-3/4" Towards the West	Reasonably Plumb	4" Concrete Block	
B	3-7/8" x 5-7/8"	Reasonably Plumb	3/4" Towards the North	Concrete Slab	
C	3-7/8" x 5-7/8"	1" Towards the East	1-1/4" Towards the North	Concrete Mound Cover over Stone	Beam Joint
D	3-3/8" x 3-3/8"	Reasonably Plumb	3/4" Towards the North	4" Concrete Block	Bowed in the N-S Direction
E	3-1/2" x 3-1/2"	5/8" Towards the West	Plumb	4" Concrete Block	
F	3-3/4" x 6-1/4"	1" Toward the East	Reasonably Plumb	Concrete Mound Cover over Wood Plate on Stone?	Beam Joint
G	3-3/4" x 6"	Reasonably Plumb	Reasonably Plumb	Concrete Mound	
H	3-1/2" x 3-5/8"	Plumb	1/2" Toward the North	4" Concrete Block	
J	3-1/2" x 3-1/2"	N.A.	N.A.	Concrete Slab	No obvious movement noticeable
K	3-1/2" x 3-1/2"	N.A.	N.A.	4" Concrete Block	No obvious movement noticeable

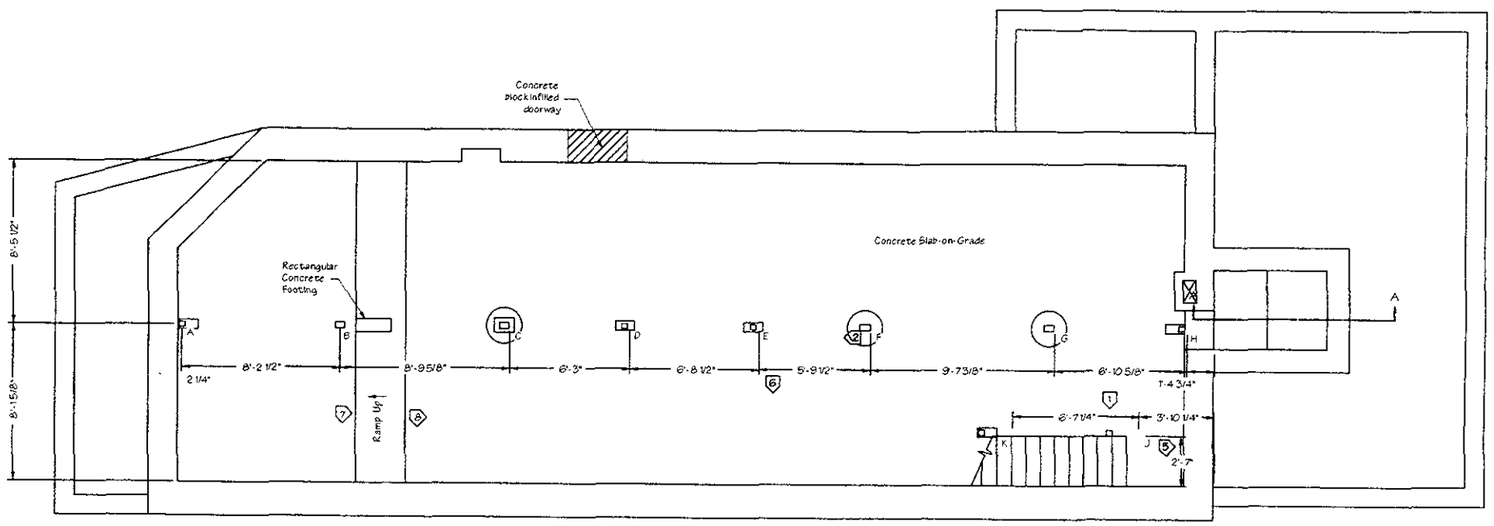


FIGURE KEY
The number inside the polygon corresponds to the figure number used in the report. The point of the polygon indicates the direction from which the photograph was taken. The polygon symbol is placed in the approximate location where the photograph was taken

1 South Foundation Wall at Stair

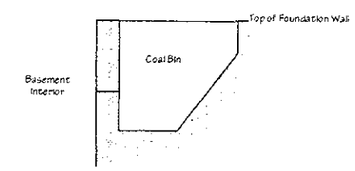
2 Columns E (In Foreground) and D (In Background)

5 Eastern Connection Between Stair Header, Joist and Wood Post

6 Joists Rolled on South Bearings and New Metal Joist Hangers

7 Termite Damaged Joist

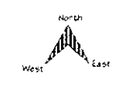
8 Western End of First Floor Framing



DETAIL A-A: Profile of Coal Bin

4 2 0 4 8

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



4 2 0 4 8

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

Fitzpatrick Structural Engineering, P.C.
219-1/2 N. Main • Ann Arbor • MI • 48104
313-769-0320 Fax 313-769-3015

QUINN EVANS ARCHITECTS
219 1/2 N. Main Street
Ann Arbor, Michigan 48104
313 663 8888

REVISED	
DATE	BY
03/05/97	CLK

PREPARED
CLK
DESIGNED
CLK
DRAWN
TRF
CHECKED
03/01/97
DATE

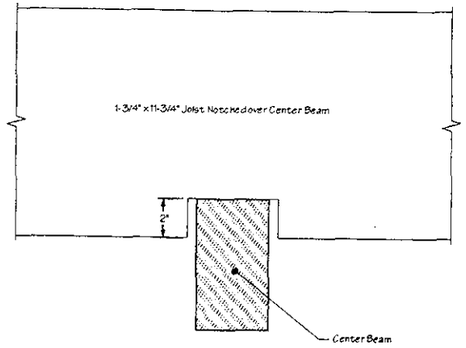
TITLE OF SHEET
Basement Floor Plan

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

THE WRIGHT CYCLE COMPANY SHOP (HS-01)
DAYTON AVIATION HERITAGE NATIONAL HISTORIC PARK
DAYTON, OHIO

AUTOCAD FILE NO
SUB SHEET NO
EXS - 100

DRAWING NO
362
20616
SHEET 1 OF 3

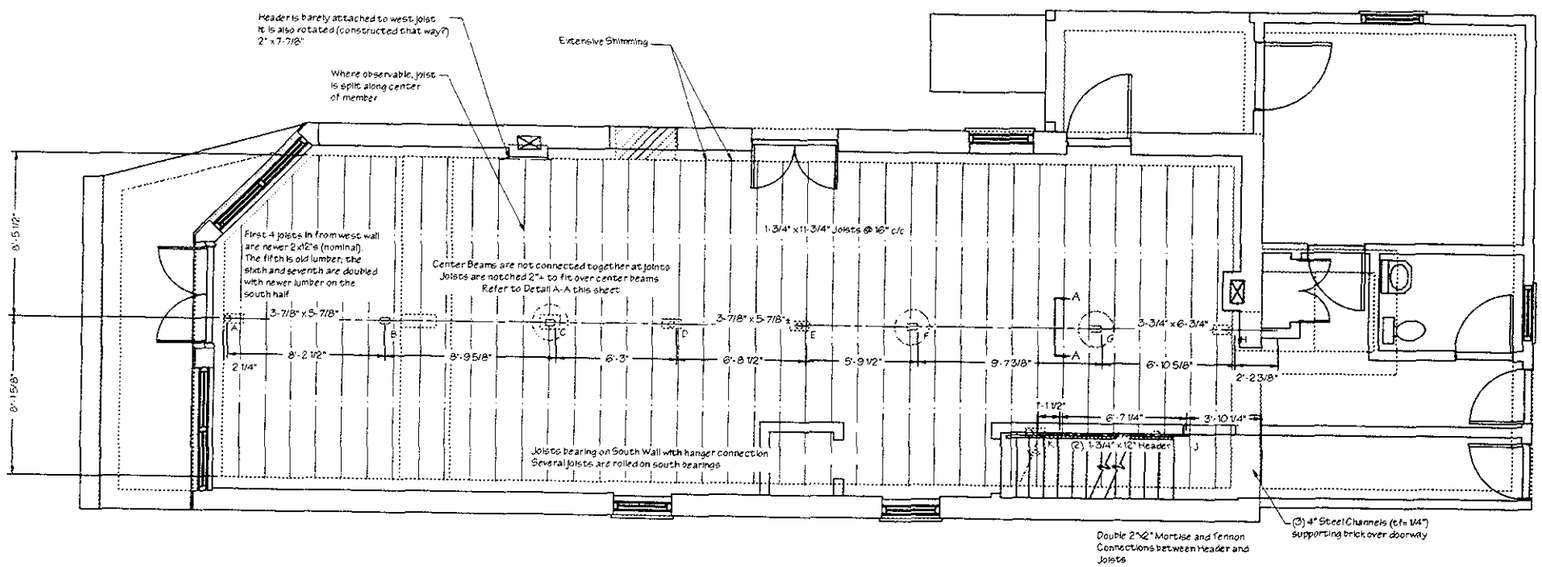


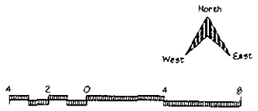
DETAIL A-A: Joists Notched over Center Beam

0 4" 8" 1'-0"

Scale: 3" = 1'-0"

First Floor Partitions are shown over First Floor Joists.

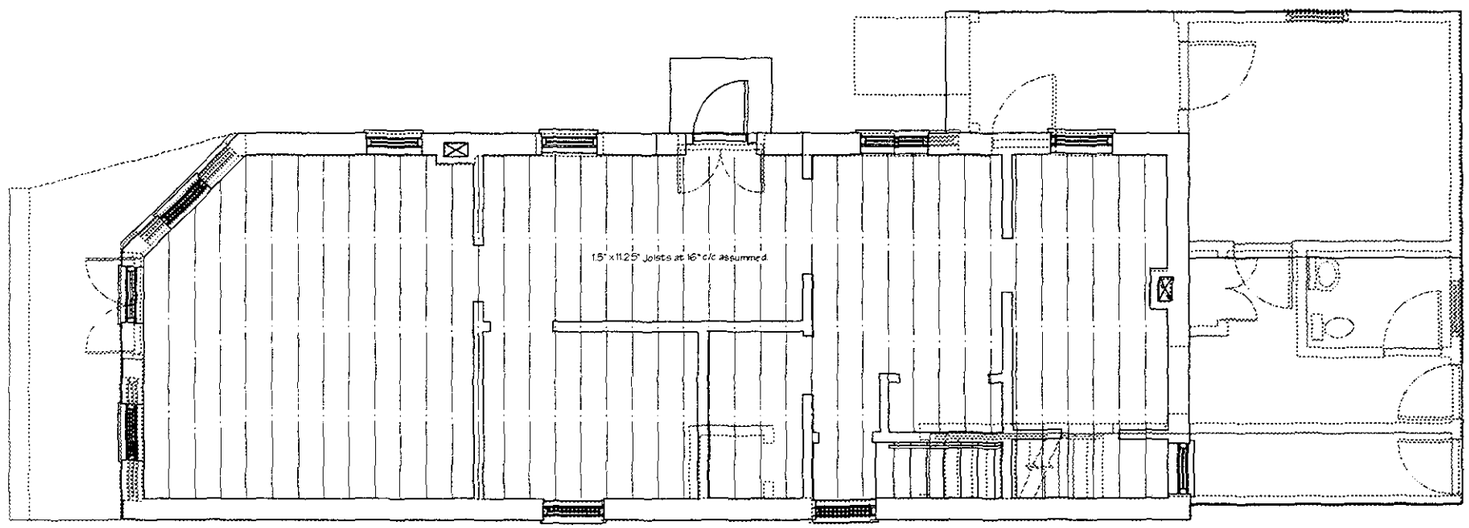


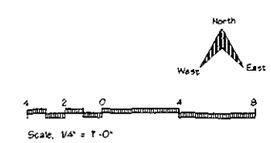


Scale: 1/4" = 1'-0"

Fitzpatrick Structural Engineering, P.C. 219-1/2 N. Main • Ann Arbor • MI • 48104 313-769-0320 Fax 313-769-3015	QUINN EVANS ARCHITECTS 219 1/2 N. Main Street Ann Arbor, Michigan 48104 313 663 2888	REVISED DATE / BY 03/05/97 / CLK	PREPARED CLK DESIGNED CLK DRAWN TRF CHECKED 03/01/97 DATE	TITLE OF SHEET First Floor Plan	UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE THE WRIGHT CYCLE COMPANY SHOP (HS-01) DAYTON AVIATION HERITAGE NATIONAL HISTORIC PARK DAYTON, OHIO	AUTOCAD FILE NO SUB SHEET NO EXS - 101	DRAWING NO 362 206/a SHEET 2 OF 5

Second Floor Partitions are shown over Second Floor Joists.





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219 1/2 N. Main Street
Ann Arbor, Michigan 48104
313 663 5888

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09/05/97	CLK

PREPARED
CLK
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TRF
CHECKED
03/01/97
DATE

TITLE OF SHEET
Second Floor Plan

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

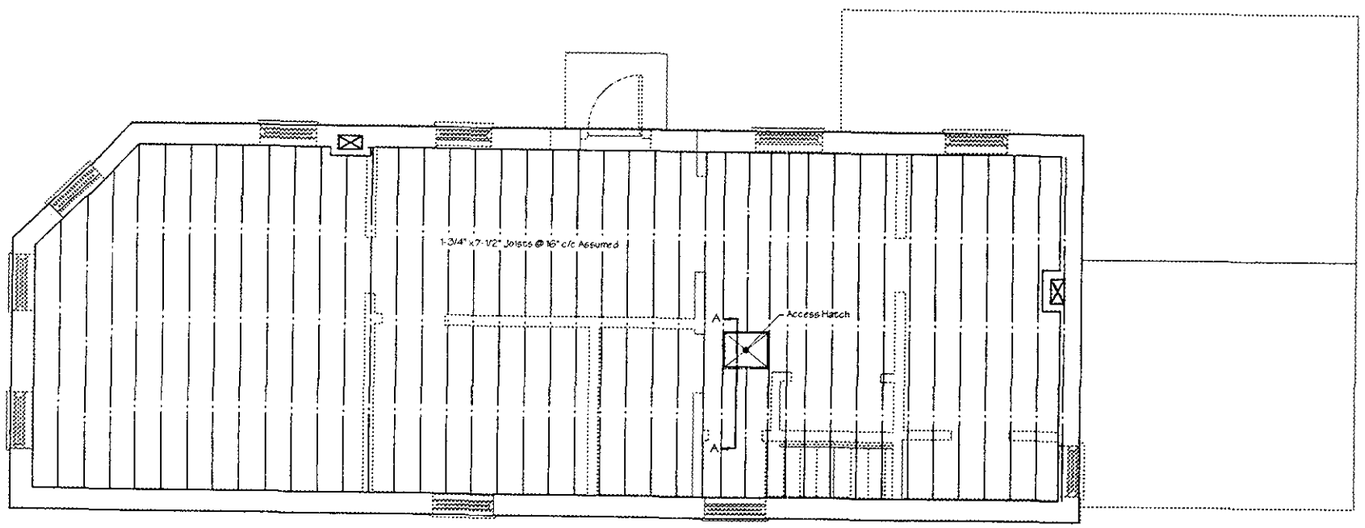
THE WRIGHT CYCLE COMPANY SHOP (HS-01)
DAYTON AVIATION HERITAGE NATIONAL HISTORIC PARK
DAYTON, OHIO

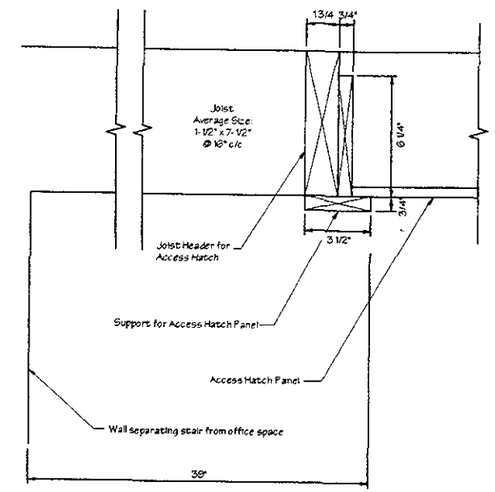
AUTOCAD FILE NO.

SUB SHEET NO.
EXS - 102

DRAWING NO.
362
20016

SHEET 3 OF 5

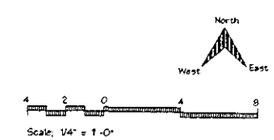




DETAIL A_A: Cross Section of Attic Access Hatch

0 4" 8" 1'-0"

Scale, 3" = 1'-0"



Scale, 1/4" = 1'-0"

Fitzpatrick Structural Engineering, P.C.
219 1/2 N. Main • Ann Arbor • MI • 48104
313 - 769 - 0320 Fax 313 - 769 - 3015

QUINN EVANS ARCHITECTS
219 1/2 N. Main Street
Ann Arbor, Michigan 48104
313 663 [illegible]

REVISED	
DATE	APPR.
09/05/97	CLK

PREPARED
CLK
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DRAWN
TRF
CHECKED
03/01/97
DATE

TITLE OF SHEET: Attic Floor Plan

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

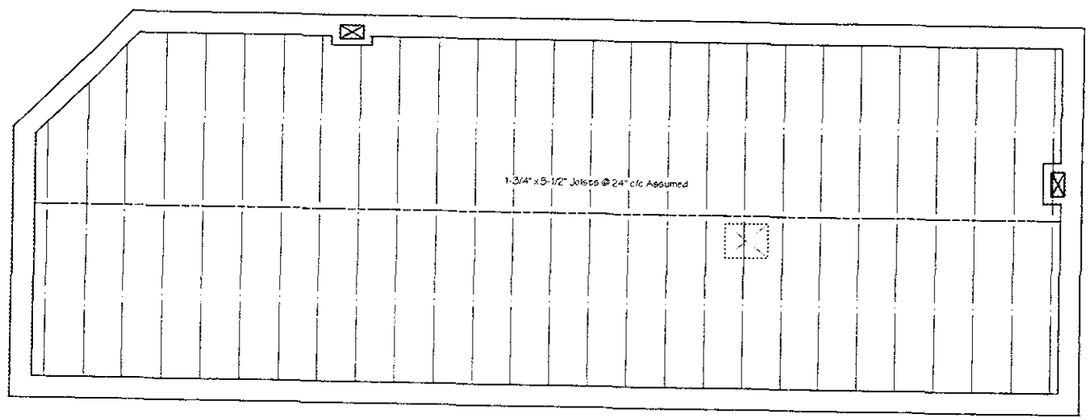
THE WRIGHT CYCLE COMPANY SHOP (HS-01)
DAYTON AVIATION HERITAGE NATIONAL HISTORIC PARK
DAYTON, OHIO

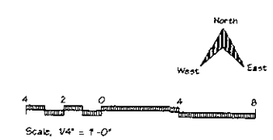
AUTOCAD FILE NO:

SUB SHEET NO: EXS - 103

DRAWING NO: 362 / 20016

SHEET 4 OF 5





Fitzpatrick Structural Engineering, P.C.
219-1/2 N. Main • Ann Arbor • MI • 48104
313 - 769 - 0320 Fax 313 - 769 - 3015

QUINN EVANS ARCHITECTS
219 1/2 N. Main Street
Ann Arbor, Michigan 48104
313 663 7888

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03/05/97	CLK

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03/01/97
DATE

TITLE OF SHEET
Roof Framing Plan

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

THE WRIGHT CYCLE COMPANY SHOP (HS-01)
DAYTON AVIATION HERITAGE NATIONAL HISTORIC PARK
DAYTON, OHIO

AUTOCAD FILE NO

SUB SHEET NO

EXS - 104

DRAWING NO 362
20016

SHEET 5
OF 5

Historic Paint Analysis

Historic Paint Analysis

Executed by
Steven C. Seebohm/SEEBOHM, Ltd.
P.O. Box 616
Petoskey, Michigan 49770

A. Introduction and Description

The purpose of this report is to document the chromachronology of limited interior and exterior finishes of the Wright Cycle Company Shop, or HS 01, in the Dayton Aviation Heritage National Historic Park, Dayton, Ohio.

The report includes the following sections:

Part A: Introduction and Description

Part B: Methods and Analysis

Part C: Existing Conditions and Physical Investigation

Part D: Finishes Analysis

Part E: Sample Location Record

Part F: Recommendations

Part G: Summary and Conclusion

B. Methods and Analysis

Sampling was executed with a flat-bladed Exacto knife, with samples being stored in individually-marked envelopes. Envelopes were then placed in storage bags marked for each area of the interior, labeled and dated.

All samples were inspected under a 60X and 120X Meiji binocular microscope with a Stocker & Yale 7,000 degree K illuminator; this illumination insures a color match under conditions simulating natural light.

Finish Colors were then matched to The Munsell Color Notation System (Glossy Collection).

Wallpaper existing was noted, but not analyzed.

C. Existing Conditions and Physical Investigation

The existing conditions were noted during the on site physical investigation carried out in conjunction with QUINN EVANS/ARCHITECTS on October 22 and 23, 1996.

Due to early and later renovations to the structure very little original finish material remains, except for the miscellaneous artifacts sampled in the basement and those submitted by Roger McClure that were collected during the last renovation from the second floor; and existing samples of a corner guard from a pile of basement artifacts, a door casing from the second floor, a baseboard from the second floor, and an exterior window molding.

D. Finishes Analysis

The following Finishes Analysis Listing is a record of the chromachronology of the samples taken from the interior and exterior of the Wright Cycle Company Shop on October 22 and 23, 1996. A cross-section of painted finishes was tested to determine the type, or base, of paint originally used. Solvent and chemical testing proved that earlier finishes were solvent (oil) based paints, with lead present; while later finishes were alkyd on trim and alkyd and acrylic on ceilings and walls.

The list below records the Room/Location first, followed by the Surface name, then listing the Chromachronology of the finishes for the given surface. Under Chromachronology the substrate is listed first (i.e.: Wood, Plaster, etc.), followed by the subsequent layering of wallpaper or paint, with the painted finishes matched to The Munsell Color Notation System/Glossy Collection.

Immediately following each Munsell Color Notation a letter, or series of letters, may be identified as listed below to describe the closest sheen, and whether or not the finish was a primer:

P	Primer
f	flat finish
e	eggshell finish
sa	satin finish
se	semigloss finish
g	gloss finish
<u>a</u>	underline denotes first probable finish

INTERIOR SAMPLES

Room/Location	Surface	Chromachronology
1st Floor/Front Rm	Wall	<u>Wallpaper</u>
	Comments: Wallpaper most likely applied straight onto finish coat of plaster. No traces of finishes present.	
1st Floor/Front Rm	Ceiling	<u>Wallpaper</u> 2.5G 8/4 & 7.5R 8/4

INTERIOR SAMPLES - Continued

Room/Location	Surface	Chromachronology
1st Floor/Front Rm	Ceiling - Continued	
	Comments: Wallpaper fragment from ceiling with green painted finish retained beneath at the edges, which may have been original trim color, and with traces of red painted finish on top at edges, which may have been from trim or wall painting.	
1st Floor/Center Rm	Wall	Wallpaper
	Comments: Sample was taken from behind door frame and appears was likely applied straight onto finish coat of plaster. No traces of painted finish present.	
1st Floor/Center Rm	Wall	Wallpaper
	Comments: Sample was taken from unknown wall location and removed from site prior to architectural changes that took place during Episode 3: 1985 - 1997.	
1st Floor/Rear Rm.	Wall	Wallpaper - 4 consecutive layers Numerous painting campaigns
	Comments: The sample was removed from behind shelf bracket. The first four treatments of this wall sample were wallpaper, the first applied directly to finish plaster. Heavy amounts of recent (within ten years) paint applications have been made directly over the older papers.	
2nd Floor/Top of Stairs	Wall	Wallpaper 2.5G 5/2

Comments: The wallpaper fragment was removed from behind the stair hand-rail mount. No coating was found between the paper and finished plaster surface, with only traces of a green painted finish found at the top, outer edge of the paper.

Sample of artifact from Basement Pile

	Corner Guard	Wood Varnish - g 10YR 5/6 N0.5 Dirt layer 5Y 9/6
	Comments: The first finish of this element was a resinous varnish, now oxidized. It was subsequently painted on three separate occasions, with a heavy dirt layer building up between the third (N0.5) strata, and the top (5Y 9/6) strata.	
2nd Floor	Door Casing	Varnish - g 5YR 4/2

INTERIOR SAMPLES - Continued

Room/Location	Surface	Chromachronology
2nd Floor	Door Casing - Continued	
	Comments: The door casings were originally varnished. At a later date a brown paint was applied.	
2nd Floor	Baseboard	
	Comments: Same stratigraphy as 2nd Floor Door Casing listed above.	
Exterior	Window Molding	10R 4/4 2.5Y 5/4 (varnish?) N0.5
	Comments: The first finish layer is a deep red, followed by a yellow/brown clear coat. The top-most finish is a gloss black.	

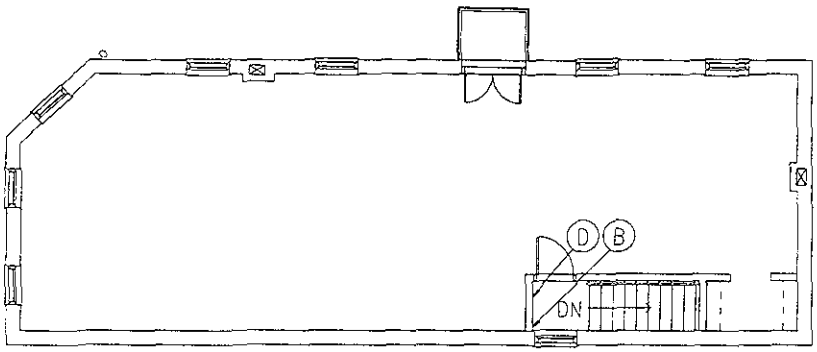
E. Sample Location Record

The sample location record for the Wright Cycle Company Shop is limited to two (2) samples removed from the second floor, as indicated on the floor plan below.

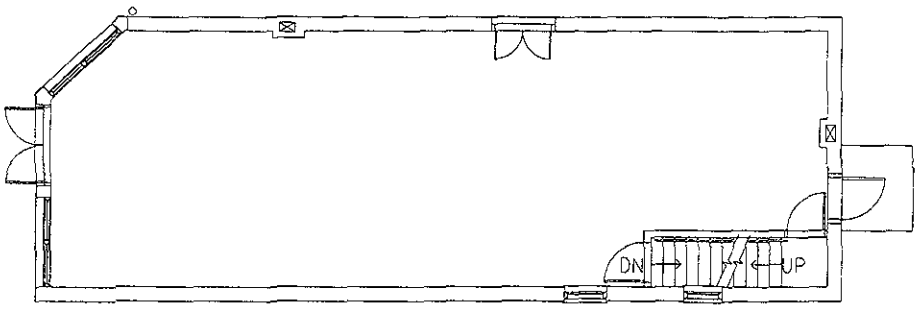
Both samples were taken from intact surfaces at the top of the stair case. The surfaces sampled were a Door Casing labeled on the plan as **D**, and a Baseboard labeled on the plan as **B**.

Historic Paint Analysis: Sample Locations

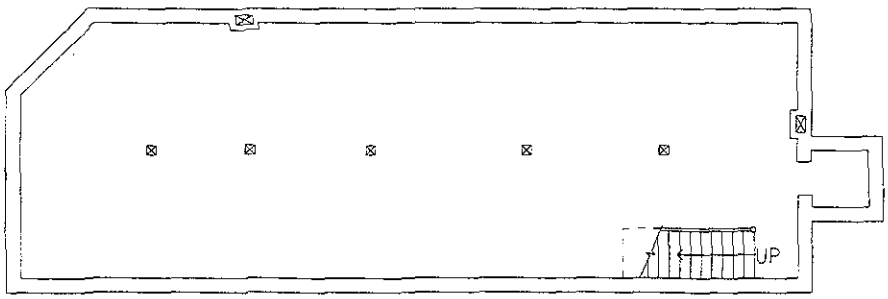
EPISODE 1: 1886-1910



SECOND FLOOR PLAN
0 2' 4' 8' 16'



FIRST FLOOR PLAN
0 2' 4' 8' 16'



BASEMENT FLOOR PLAN
0 2' 4' 8' 16'

F. Recommendations

Considering the number of physical changes that have taken place at both the exterior and interior of the Wright Cycle Company Shop as described in the Architectural Analysis section of this report, and the limited amount of period finished surfaces of the building, it is recommended that use of the material information listed above be used as a guideline for interpretation.

Inspection of the photograph listed as Figure 1 in Historic Document Summary of this report shows the presence of a darker trim color or finish, as can be seen at the eaves and window casing surfaces. Although visual inspection of such historic black and white photographs is often confusing, use of the values (dark, light and gradient values between dark and light) in the photograph do provide a basis from which we can consider a general range of colors that we have found present in a sample.

With regards to the exterior window molding sampled and analyzed, the first paint film present matching 10R 4/4 would be an appropriate value match to that observed in the photograph in Figure 1.

Further inspection of this photograph provides us with a lighter surface at the window shutters, and on the front doors and door surround.

Where evidence is available, it is recommended that the interior ceiling and wall surfaces be repapered to match the original paper in pattern and color make up.

Interpretation of the interior trip moldings should be executed based on the final color choices for the wallpaper.

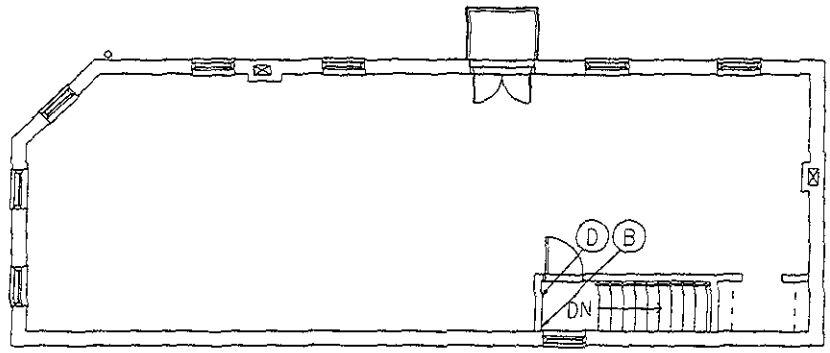
G. Summary and Conclusion

In summation we can conclude that a limited amount of finishes evidence is available for interpretation of an accurate finishes campaign, but use of the evidence at hand can help in providing an historically appropriate campaign.

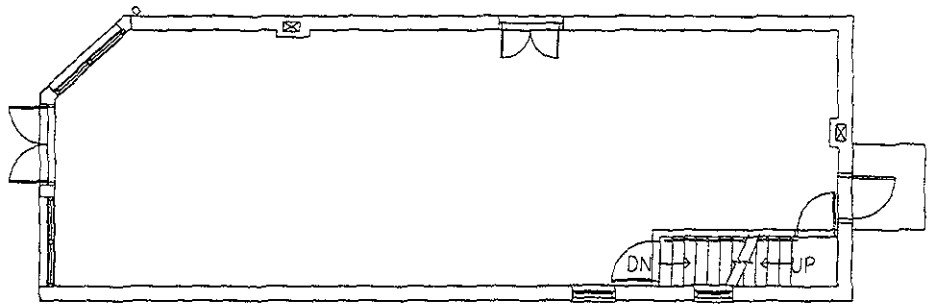
The most accurate reconstruction of the interior of the structure will be provided by the architectural and archeological evidence, and not from the limited finishes information.

Historic Paint Analysis: Sample Locations

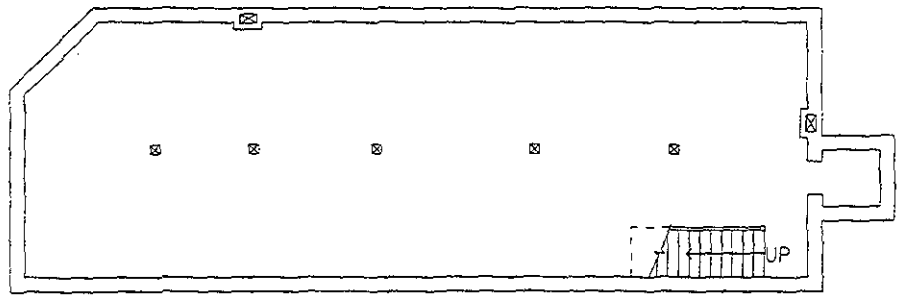
EPISODE 1: 1886-1910



SECOND FLOOR PLAN
0 2' 4' 8' 16'



FIRST FLOOR PLAN
0 2' 4' 8' 16'

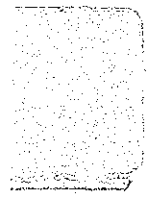


BASEMENT FLOOR PLAN
0 2' 4' 8' 16'

Historic Paint Analysis: Sample Colors

The following pages contain color photocopies of Munsell Color Notation chips. These chips have been selected by Seebohm, Ltd. as the best color matches for the historic finish samples taken from the Wright Cycle Company building (HS-01) and the Hoover Block (HS-02). Due to the limitations of the color photocopy process, the colors are approximate and are for informational use only. The Munsell Book of Color or the notebook of Munsell Color chips provided to the Dayton Aviation Heritage National Park by Seebohm, Ltd. should be consulted for the exact colors. Color samples marked with a red dot are the colors found only at the Wright Cycle Company building. All other colors were found only at the Hoover Block. The historic buildings had only two colors in common: 7.5R 8/4 and N 0.5.

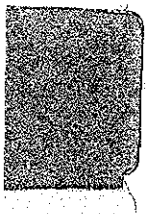
The Munsell Book of Color



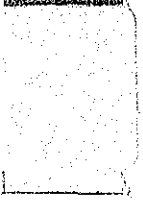
2.5Y 7/2

2.5Y 8/2

2.5Y 8.5/2



2.5Y 5/4 ⊙



2.5Y 7/4

2.5Y 8/6

2.5Y 8/8

2.5Y 8.5/8

5Y 8/2

5Y 8.5/2

5Y 9/2

5Y 8/4

5Y 8.5/4

5Y 9/4

5Y 9/6 ⊙

5Y 8.5/10

7.5Y 8/2

7.5Y 9/2

7.5Y 8/6

10Y 4/2

10Y 3/4

10Y 6/1

⊙ denotes (HS-01)

The Munsell Book of Color

7.5R 2/2

7.5R 9/2

7.5R 3/4

7.5R 8/4

7.5R 2/6

7.5YR 9/2

7.5YR 4/4

7.5YR 8/4

7.5YR 7/12

10R 7/2

10R 4/4

10R 4/6

10R 6/6

10YR 6/4

10YR 7/4

10YR 8/4

10YR 5/6

10YR 5/8

2.5YR 5/6

2.5YR 6/6

5YR 4/2

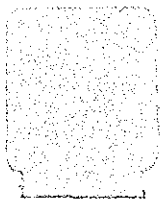
5YR 9/2

5YR 4/4

denotes (HS-01)

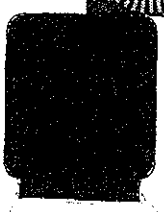
The Munsell Book of Color

2.5GY 5/4



5GY 7/2

7.5GY 5/2

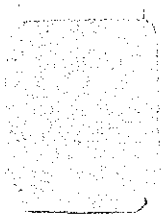


10GY 4/4

5GY 9/2

7.5GY 7/2

10GY 8/4



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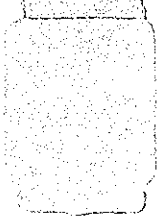
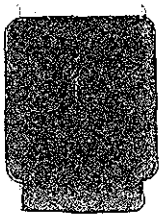
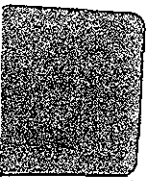


7.5GY 7/4



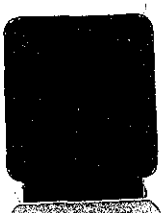
10GY 5/6



2.5G 5/2 ⊙

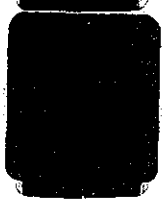
5G 3/2

5G 9/1

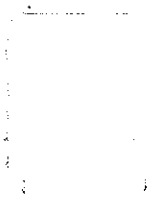


7.5G 3/2

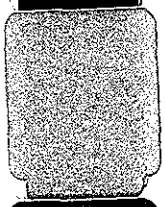
2.5G 8/4 ⊙



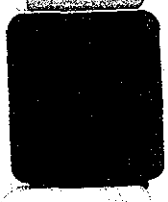
5G 3/4



5G 9/2



7.5G 6/2



7.5G 3/4

7.5G 8/4

⊙ denotes (HS-01)

2.5BG 7/2

7.5BG 9/2

10BG 8/4

10BG 7/6

7.5B 8/4

5PB 2/4

7.5B 4/6

N 0.5

N 0.75

N 2

N 3.5

N 8.75

N 9.25

N 9.5

denotes (HS-01)

Lead Paint Report

ATC ASSOCIATES INC.

1121 Canal Road
Cincinnati, Ohio
45241
513.771.2112
Fax 513.782.6908

RECEIVED APR 0 6 1998

April 1, 1998

Mr. Steven Jones
QUINN EVANS ARCHITECTS
219 1/2 North Main Street
Ann Arbor, Michigan 48104

Re: Wright Cycle Shop & Hoover Building
Lead-Based Paint Testing
ATC Project No. 17960.0001

Dear Mr. Jones:

Paint testing was conducted at the Wright Cycle Shop and the Hoover Building on January 26 and 28, 1998 by ATC Associates Inc. (ATC). The survey was performed at the Wright Cycle Shop located at 22 South Williams Street and at the Hoover Building located at 1060 West Third Street, both sites located in Dayton, Ohio. The purpose of this inspection was the measuring of lead concentrations in paints in preparation for upcoming renovation projects. Mr. Todd Taylor, Ohio Department of Health Certified Risk Assessor #OH000137 conducted field operations at the site.

The testing for lead-based paint was conducted using a Radiation Monitoring Device; LPA-1 RMD Spectrum Analyzer, and the "XRF Performance Characteristics Sheet" for the RMD LPA-1 Spectrum Analyzer.

At the beginning and end of the day, ATC performed three calibration checks using the calibration standard provided by the manufacturer. The average of the three calibration readings were between 0.6 and 1.6 mg/cm2, within the acceptable range for unit operation.

Fixed, painted and varnished surfaces on the interior, as well as any exterior painted wood surfaces were randomly sampled using the RMD LPA-1 XRF Spectrum Analyzer (Serial No. 1221). Materials were classified to be negative, inconclusive or positive for lead-based paint by each XRF measurement per component. The XRF Data Summary is presented in Appendix A. The level of 1.0 mg/cm2 for the XRF, and 0.5% by weight (5,000 ppm) in paint chip samples has been established by the Department of Housing and Urban Development (HUD) "Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing" and Ohio Department of Health (ODH) regulations as lead-based paint.

Initial testing of the painted surfaces by the XRF was performed using the "Quick" Mode which has a varied inconclusive range depending upon the substrate (see below). Occasionally, a change of substrates will interfere with an XRF screen. In these cases, if the inspector suspects that the screen could be in error, he may disregard the first screen and collect a second.

If a material was determined inconclusive, a paint chip sample was collected and analyzed by an Ohio Department of Health Accredited Laboratory that participates in the Environmental Lead Proficiency Analytical Testing Program (ELPAT). The Environmental Protection Agency (EPA) Method SW846-7420 was utilized for the analysis of the paint chip samples. The results of the analysis was then compared to the 0.5% by weight (5,000 ppm) HUD Guidelines to determine if the paint was positive for lead. No paint chip samples were collected at either site.

The levels to classify a material as containing lead-based paint, as provided in the RMD LPA-1 Performance Characteristics Sheet, are as follows:

Substrate	XRF Mode	Threshold (mg/cm2)	Inconclusive Range (mg/cm2)
Brick	Quick	1.0	None
Concrete	Quick	1.0	None
Drywall	Quick	1.0	None
Metal	Quick	None	0.9 to 1.3
Plaster	Quick	None	0.9 to 1.3
Wood	Quick	1.0	None

Conclusions

Numerous components at both buildings were found to contain lead greater than 1.0 mg/cm2. See attached XRF field sheets for components and locations. ATC did not accomplish a lead-based paint inspection in compliance with the Housing of Urban Development "Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing" or the Ohio Department of Health "Ohio Childhood Lead Poisoning Prevention Rules". The results of the XRF testing can only be applied to the exact area that the XRF was placed and cannot be considered representative of other locations.

The Occupational Safety and Health Administration (OSHA) regulates workplace exposures to lead; however, OSHA does not define lead-containing materials, or specify a lead content for materials involved in construction/demolition activities that could cause occupational exposures to lead above the permissible exposure limits specified in the OSHA Lead Construction Standard (29 CFR 1926.62). Therefore, because the XRF cannot accurately detect lead in paint at concentrations below the HUD action level, lead must be assumed to be present, in low levels (<1.0 mg/cm2) on all painted surfaces which tested "negative" by the XRF. Maintenance renovation or demolition work with any lead-containing material has the potential to cause occupational exposures to lead. OSHA requires that any manual activities which has the potential for causing lead exposures be conducted by specially trained and equipped workers utilizing controlled work practices in accordance with the OSHA lead construction standard. Worker exposures must be measured during work activities. The Wright Cycle Shop and the Hoover Building do not meet the Ohio Department of Health definition of a "structure", therefore, lead related work does not need to be accomplished by a Ohio Licensed Lead Abatement Contractor.

ATC appreciates the opportunity to assisting Quinn Evans Architects during this upcoming renovation project. Please feel free to call us if you have any questions regarding this project or any other project at (513) 771-2112.

Sincerely,

ATC Associates, Inc.

Todd Taylor
Project Manager

attachments

Wright Cycle Shop

ATC Associates Inc. Lead Based Paint Survey Data Record

Date:1/26/98 Client: Quinn Evans Architects Inspector: Todd Taylor
Client # 17960.0001 Project Name/Location: 22 South Williams Street
Survey Site: The Wright Cycle Shop RMD; LPA-1- #1221

Room Type	Wall	Component	Substrate	Condition	Color	Initial K.Shell	POSITIVE NEGATIVE
Calibration	N/A	N/A	N/A	N/A	N/A	2.6	****
Calibration	N/A	N/A	N/A	N/A	N/A	2.1	****
Calibration	N/A	N/A	N/A	N/A	N/A	2.1	****
Calibration	N/A	N/A	N/A	N/A	N/A	2.4	****
Calibration	N/A	N/A	N/A	N/A	N/A	2.2	****
Basement	C	Support Column	Wood	Poor	White	0.5	N
Basement	C	Wall	Concrete	Fair	Green	0.0	N
Basement	C	Floor	Concrete	Poor	Green	-0.3	N
Basement	A	Support Column	Wood	Poor	White	-0.1	N
Basement	C	Joist	Wood	Poor	White	-0.3	N
Basement Stairwell	A	Wall	Plaster	Poor	Green	-0.5	N
Basement Stairwell	A	Door Jamb	Wood	Fair	Gray	-0.3	N
Basement Stairwell	A	Door	Wood	Good	Gray	-0.2	N
Basement Stairwell	A	Ceiling	Plaster	Poor	Green	0.3	N
Basement Stairwell	A	Ceiling	Wood	Fair	White	-0.2	N
Main Room First Floor	A	Door	Wood	Good	Gray	0.0	N
Main Room First Floor	A	Door Casing	Wood	Good	Gray	-0.1	N
Main Room First Floor	D	Floor	Wood	Fair	Green	-0.1	N
Main Room First Floor	D	Floor	Wood	Poor	Yellow	1.8	P
Main Room First Floor	D	Floor	Wood	Fair	Red	-0.1	N
Main Room First Floor	A	Wall	Plaster	Fair	Yellow	>9.9	N
Main Room First Floor	B	Wall	Plaster	Fair	Yellow	-0.1	N
Main Room First Floor	C	Wall	Plaster	Fair	Yellow	-0.1	N
Main Room First Floor	D	Wall	Plaster	Poor	Yellow	0.0	N
Main Room First Floor	A	Ceiling	Wood	Good	Yellow	-0.1	N
Main Room First Floor	C	Floor	Wood	Fair	Brown	1.2	P
Main Room First Floor	C	Door Casing	Wood	Good	Gray	0	N
Main Room First Floor	C	Door Jamb	Wood	Good	Gray	-0.1	N
Main Room First Floor	B	Floor	Wood	Poor	White	2.6	P
Main Room First Floor	B	Door	Wood	Good	Gray	0.0	N
Main Room First Floor	D	Baseboard	Wood	Good	Gray	-0.3	N
Main Room First Floor	D	Window Sill	Wood	Good	Gray	-0.2	N
Main Room First Floor	D	Window Casing	Wood	Good	Gray	-.1	N
Main Room First Floor	D	Window Sash	Wood	Good	Gray	-0.1	N
Main Room First Floor	D	Window Well	Wood	Good	Gray	No Access	****
Main Room First Floor	D	Wall Divider	Wood	Good	White	0	N
Main Room First Floor	D	Wall Divider Trim	Wood	Good	Gray	-0.1	N
Main Room First Floor	D	Window From Wall Divider	Wood	Good	White	-.2	N
First Floor R.R.	A	Wall	Drywall	Good	Cream	0.0	N
First Floor R.R.	D	Wall	Drywall	Good	Cream	-0.4	N
First Floor R.R.	C	Wall	Drywall	Good	Cream	-0.3	N

ATC Associates Inc. Lead Based Paint Survey Data Record

Date:1/26/98 Client: Quinn Evans Architects Inspector: Todd Taylor
Client # 17960.0001 Project Name/Location: 22 South Williams Street
Survey Site: The Wright Cycle Shop RMD; LPA-1-#1221

Room Type	Wall	Component	Substrate	Condition	Color	Initial K.Shell	POSITIVE NEGATIVE
First Floor R.R.	D	Wall	Drywall	Good	Cream	-0.5	N
First Floor R.R.	C	Window Sill	Wood	Good	Gray	-0.1	N
First Floor R.R.	C	Window Casing	Wood	Good	Gray	-0.4	N
First Floor R.R.	C	Window Sash	Wood	Good	Gray	0.0	N
First Floor R.R.	D	Door	Wood	Good	Gray	0.3	N
First Floor R.R.	D	Door Casing	Wood	Good	Gray	-0.1	N
First Floor R.R.	A	Ceiling	Wood	Good	Cream	-0.1	N
Office First Floor	A	Wall	Drywall	Good	Cream	-0.2	N
Office First Floor	B	Wall	Drywall	Good	Cream	0.0	N
Office First Floor	C	Wall	Drywall	Good	Cream	0.0	N
Office First Floor	D	Wall	Drywall	Good	Cream	0.0	N
Office First Floor	D	Ceiling	Drywall	Good	Gray	0.0	N
Office First Floor	B	Baseboard	Wood	Good	Gray	-0.4	N
Office First Floor	B	Window Casing	Wood	Good	Gray	-0.1	N
Office First Floor	B	Window Sash	Wood	Good	Gray	-0.1	N
Office First Floor	B	Window Sill	Wood	Good	Gray	No Access	****
Office First Floor	D	Door	Wood	Good	Gray	0.0	N
Office First Floor	D	Door Casing	Wood	Good	Gray	0.1	N
Office First Floor	A	Lower Wall	Wood	Good	Gray	-0.2	N
Office First Floor	A	Lower Wall Trim	Wood	Good	Gray	-0.1	N
Stairwell to Second Floor	B	Wall	Drywall	Good	Cream	-0.3	N
Stairwell to Second Floor	D	Wall	Plaster	Poor	Cream	-0.3	N
Stairwell to Second Floor	B	Stair Stringer	Wood	Good	Tan	0.1	N
Stairwell to Second Floor	B	Door	Metal	Good	Tan	-0.1	N
Stairwell to Second Floor	B	Door Frame	Metal	Good	Tan	-0.1	N
Stairwell to Second Floor	B	Handrail Support	Wood	Fair	Cream	-0.1	N
Stairwell to Second Floor	D	Wall Divider	Wood	Good	Tan	-0.1	N
Stairwell to Second Floor	D	Baseboard	Wood	Food	Tan	-0.2	N
Stairwell to Second Floor	D	Wall	Plaster	Fair	White	-0.1	N
Stairwell to Second Floor	B	Wall	Plaster	Fair	White	-0.4	N
Stairwell to Second Floor	D	Window Sill	Wood	Good	Tan	0.2	N
Stairwell to Second Floor	D	Window Apron	Wood	Good	Tan	-0.1	N
Stairwell to Second Floor	D	Window Sash	Wood	Good	Tan	-0.6	N
Stairwell to Second Floor	D	Window Well	Wood	Poor	Tan	-0.1	N
Front Room Second Floor	B	Window Sill	Wood	Fair	Tan	0.2	N
Front Room Second Floor	B	Window Casing	Wood	Good	Tan	-0.1	N
Front Room Second Floor	A	Wall	Plaster	Good	Cream	0.0	N
Front Room Second Floor	B	Wall	Plaster	Good	Cream	0.0	N
Front Room Second Floor	C	Wall	Drywall	Good	Cream	0.0	N
Front Room Second Floor	D	Wall	Plaster	Good	Cream	-0.1	N
Front Room Second Floor	B	Ceiling	Drywall	Good	White	-0.2	N

ATC Associates Inc. Lead Based Paint Survey Data Record

Date:1/26/98 Client: Quinn Evans Architects Inspector: Todd Taylor
Client # 17960.0001 Project Name/Location: 22 South Williams Street
Survey Site: The Wright Cycle Shop RMD; LPA-1- #1221

Room Type	Wall	Component	Substrate	Condition	Color	Initial K.Shell	POSITIVE NEGATIVE
Front Room Second Floor	C	Baseboard	Wood	Good	Tan	0.1	N
Front Room Second Floor	B	Window Well	Wood	Fair	Red	>9.9	P
Front Room Second Floor	B	Window Track (exterior)	Wood	Fair	Red	>9.9	P
Front Room Second Floor	B	Exterior Shutter	Wood	Fair	Red	-0.2	N
Center Offices 2nd Floor	A	Ceiling	Drywall	Good	White	-0.1	N
Center Offices 2nd Floor	A	Wall	Drywall	Good	Cream	-0.1	N
Center Offices 2nd Floor	B	Wall	Plaster	Good	Cream	-0.3	N
Center Offices 2nd Floor	C	Wall	Plaster	Good	Cream	-0.2	N
Center Offices 2nd Floor	D	Wall	Plaster	Good	Cream	0.0	N
Center Offices 2nd Floor	B	Window Sill	Wood	Good	Tan	-0.1	N
Center Offices 2nd Floor	B	Window Casing	Wood	Good	Tan	0.0	N
Center Offices 2nd Floor	A	Window Sash	Wood	Good	Tan	-0.1	N
Center Offices 2nd Floor	B	Window Well	Wood	Good	Red	0.1	N
Center Offices 2nd Floor	B	Window Track	Wood	Fair	Red	>9.9	P
Center Offices 2nd Floor	C	Baseboard	Wood	Good	Tan	0.0	N
Center Offices 2nd Floor	B	Door	Wood	Good	Tan	-0.1	N
Center Offices 2nd Floor	B	Door Jamb	Wood	Good	Tan	0.2	N
Exterior Balcony	B	Exterior Door	Wood	Good	Red	-0.2	N
Exterior Balcony	B	Exterior Handrail	Wood	Good	Red	0.0	N
Second Floor, Rear Offices	A	Wall	Drywall	Good	Cream	0.0	N
Second Floor, Rear Offices	B	Wall	Drywall	Good	Cream	0.2	N
Second Floor, Rear Offices	C	Wall	Drywall	Good	Cream	-0.1	N
Second Floor, Rear Offices	D	Wall	Drywall	Good	Cream	0.0	N
Second Floor, Rear Offices	A	Ceiling	Drywall	Good	White	0.0	N
Second Floor, Rear Offices	C	Door	Wood	Good	Tan	0.1	N
Second Floor, Rear Offices	C	Door Casing	Wood	Good	Tan	0.0	N
Second Floor, Rear Offices	A	Ceiling	Drywall	Good	White	-0.1	N
Second Floor, Rear Offices	A	Wall	Drywall	Good	Cream	0.0	N
Second Floor, Rear Offices	B	Wall	Plaster	Good	Cream	0.0	N
Second Floor, Rear Offices	C	Wall	Plaster	Good	Cream	0.0	N
Second Floor, Rear Offices	D	Wall	Plaster	Good	Cream	-0.1	N
Second Floor, Rear Offices	A	Door	Wood	Fair	Tan	-0.1	N
Second Floor, Rear Offices	A	Door Jamb	Wood	Fair	Tan	-0.2	N
Second Floor, Rear Offices	B	Window Sill	Wood	Fair	Tan	-0.3	N
Second Floor, Rear Offices	B	Window Casing	Wood	Good	Tan	0.3	N
Second Floor, Rear Offices	B	Window Sash	Wood	Good	Tan	0.3	N
Second Floor, Rear Offices	B	Exterior Window Well	Wood	Fair	Red	-0.5	N
Second Floor, Rear Offices	B	Exterior Window Track	Wood	Fair	Red	>9.9	P
Exterior	A	Exterior Front Door	Wood	Good	Red	-0.2	N
Exterior	A	Exterior Window Sill	Wood	Fair	Red	0.3	N
Exterior	A	Exterior Posts	Wood	Fair	Red	0.0	N

ATC Associates Inc. Lead Based Paint Survey Data Record

)ate:1/26/98 Client: Quinn Evans Architects Inspector: Todd Taylor
Client # 17960.0001 Project Name/Location: 22 South Williams Street
;urvey Site: The Wright Cycle Shop RMD; LPA-1- #1221

						Initial	POSITIVE
Room Type	Wall	Component	Substrate	Condition	Color	K.Shell	NEGATIVE
Exterior	A	Stair Riser	Wood	Fair	Red	-0.2	N
Exterior	B	Porch Ceiling Support	Wood	Fair	Red	>9.9	P
Exterior	B	Porch Ceiling	Wood	Fair	White	>9.9	P
Exterior	B	Ceiling	Wood	Fair	Red	>9.9	P
Exterior	B	Threshold	Wood	Poor	Red	>9.9	P
Exterior	B	Corner Board	Wood	Good	Red	0.0	N
Exterior	B	Exterior Window Casing	Wood	Fair	Red	0.2	N
Exterior	B	Exterior Window Sash	Wood	Fair	Red	0.2	N
Exterior	B	Exterior Window Sill	Wood	Fair	Red	-0.1	N
Calibration	N/A	N/A	N/A	N/A	N/A	2.5	****
Calibration	N/A	N/A	N/A	N/A	N/A	1.9	****
Calibration	N/A	N/A	N/A	N/A	N/A	2.0	****

ATC Associates Inc. Lead Based Paint Survey Data Record

Date:1/28/98 Client: Quinn Evans Architects Inspector: Todd Taylor
Client # 17960.0001 Project Name/Location: 1060 West Third Street
Survey Site: Hoover Building RMD; LPA-1- #1221

Room Type	Wall	Component	Substrate	Condition	Color	Initial K.Shell	POSITIVE NEGATIVE
Calibration	N/A	N/A	N/A	N/A	N/A	2.1	****
Calibration	N/A	N/A	N/A	N/A	N/A	2.3	****
Calibration	N/A	N/A	N/A	N/A	N/A	1.8	****
Calibration	N/A	N/A	N/A	N/A	N/A	1.8	****
Calibration	N/A	N/A	N/A	N/A	N/A	2.1	****
First Floor	C	Wall	Plaster	Poor	Green	0.6	N
First Floor	D	Wall	Plaster	Poor	Yellow	-0.4	N
First Floor	D	Ceiling	Plaster	Poor	Yellow	-0.1	N
First Floor	A	Wall	Plaster	Poor	Yellow	-0.1	N
First Floor	B	Wall	Plaster	Poor	Green	-0.1	N
First Floor	A	Baseboard	Wood	Poor	Green	-0.3	N
First Floor	B	Support Post	Metal	Poor	Green	0.0	N
First Floor	D	Door	Wood	Poor	Varnish	0.0	N
Second Floor	D	Door	Wood	Fair	Varnish	0.1	N
Second Floor	D	Door Casing	Wood	Fair	Varnish	-0.2	N
Second Floor	B	Chair Rail	Wood	Fair	Green	0.3	N
Second Floor	B	Wall	Plaster	Fair	Yellow	-0.3	N
Second Floor	B	Wall	Plaster	Poor	Yellow	0.0	N
Second Floor	C	Cupboard	Wood	Fair	Yellow	-0.1	N
Second Floor	D	Window Casing	Wood	Fair	Varnish	-0.1	N
Second Floor	B	Shelf Support	Wood	Fair	Varnish	0.2	N
Second Floor	A	Floor	Wood	Fair	Brown	-0.2	N
Second Floor	D	Baseboard	Wood	Fair	Varnish	0.0	N
Second Floor	D	Pillar	Wood	Fair	Varnish	-0.1	N
Second Floor	D	Wall	Plaster	Poor	Yellow	2.2	P
Second Floor	D	Bathroom Chair Rail	Wood	Fair	Yellow	0.7	N
Second Floor	C	Wall	Plaster	Poor	Green	0.5	N
Second Floor	C	Baseboard	Wood	Poor	White	-0.4	N
Second Floor	C	Cupboard	Wood	Fair	White	1.4	P
Second Floor	B	Wall	Plaster	Poor	Pink	-0.1	N
Second Floor	D	Door	Wood	Poor	Green	0.0	N
Second Floor	B	Pillar	Wood	Fair	Varnish	-0.1	N
Second Floor	D	Shelf Support	Wood	Fair	Varnish	-0.4	N
Second Floor	C	Door Casing	Wood	Fair	Varnish	0.0	N
Second Floor	D	Ceiling	Plaster	Poor	Yellow	-0.3	N
Third Floor	D	Door Casing	Wood	Poor	Green/Blue	-0.1	N
Third Floor	D	Door	Wood	Fair	Green/Blue	0.0	N
Third Floor	A	Wall	Plaster	Poor	Pink	2.6	P
Third Floor	C	Wall	Plaster	Fair	Tan	>9.9	P
Third Floor	B	Wall	Plaster	Poor	Blue	1.6	P
Third Floor	B	Baseboard	Wood	Fair	Blue	-0.1	N

ATC Associates Inc. Lead Based Paint Survey Data Record

Date: 1/28/98 Client: Quinn Evans Architects Inspector: Todd Taylor
Client # 17960.0001 Project Name/Location: 1060 West Third Street
Survey Site: Hoover Building RMD; LPA-1-#1221

Room Type	Wall	Component	Substrate	Condition	Color	Initial K.Shell	POSITIVE NEGATIVE
Third Floor	A	Door Casing	Wood	Fair	Brown	-0.2	N
Third Floor	D	Chair Rail	Wood	Fair	Blue	-0.2	N
Third Floor	D	Wall	Plaster	Poor	Pink	0.5	N
Third Floor	D	Cupboard	Wood	Fair	Green	0.0	N
Third Floor	C	Door	Wood	Fair	Brown	0.3	N
Third Floor	A	Stairwell Ceiling	Plaster	Poor	Yellow	0.0	N
Third Floor	D	Stairwell Wall	Plaster	Poor	Yellow	1.3	P
Third Floor	D	Handrail	Wood	Fair	Varnish	-0.1	N
Third Floor	D	Chair Rail	Wood	Fair	Varnish	0.2	N
Third Floor	D	Stair Tread	Wood	Fair	Tan	-0.2	N
Third Floor	D	Stair Riser	Wood	Fair	Tan	-0.1	N
Third Floor	D	Stair Stringer	Wood	Fair	Tan	0.0	N
Third Floor	B	Stairwell Wall	Plaster	Fair	Yellow	0.0	N
Exterior	A	Mural Picture	Wood	Fair	All Colors	0.3	N
Exterior	D	Wall	Brick	Poor	White	-0.2	N
Calibration	N/A	N/A	N/A	N/A	N/A	2.0	****
Calibration	N/A	N/A	N/A	N/A	N/A	1.9	****
Calibration	N/A	N/A	N/A	N/A	N/A	2.1	****

Inspectors Certifications

GEORGIA INSTITUTE OF TECHNOLOGY

This is to certify that

Todd Taylor

has successfully completed

Lead-Based Paint
Detection and Abatement

conducted by
GEORGIA TECH
CONTINUING EDUCATION
Atlanta, Georgia
June 22-26, 1992

John P. Crecine
President

W. Denney Freeston
Director, Continuing Education

The Georgia Institute of Technology

This is to certify that

Todd Taylor

has attended and satisfactorily passed an examination covering the contents of a continuing education course entitled:

LEAD-BASED PAINT DETECTION AND ABATEMENT

676

Certificate Number

June 22-26, 1992

Dates of Attendance

Georgia Tech Research Institute
Environmental Science and Technology Laboratory
Training Programs Office
Atlanta, GA 30332
Phone: (404) 894-7430; FAX: (404) 894-8281

Course Director

Exam Administrator

Certificate of Achievement

This is to certify that

Todd Taylor
of Lead Safe Home, Inc.

on the 11th day of February 1997 successfully completed the factory training for

RMD's LPA-1 Lead Paint Inspection System

including, but not limited to, the topics of Radiation Safety
and the Proper Use of the Instrument.

Jacob Paster, Vice-President of RMD
44 Hunt St., Watertown, Massachusetts

State of Ohio

Department of Health
Lead Poisoning Prevention Program

BE IT KNOWN THAT

TODD TAYLOR

has successfully completed the requirements to be licensed as a
Lead Risk Assessor in the State of Ohio

License No.
OH 000137

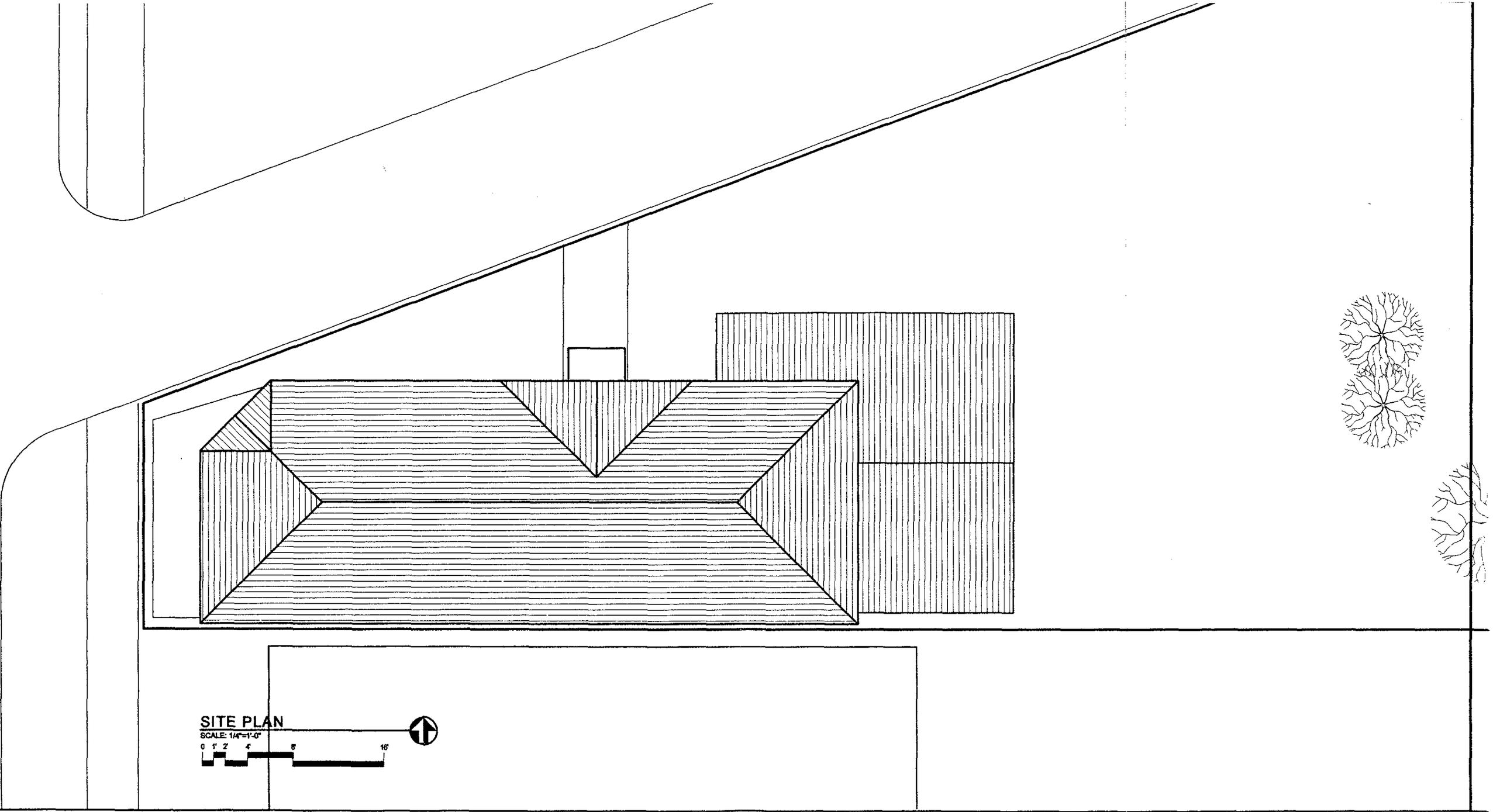
Issue Date
November 24, 1997

Expiration Date
October 2, 1999

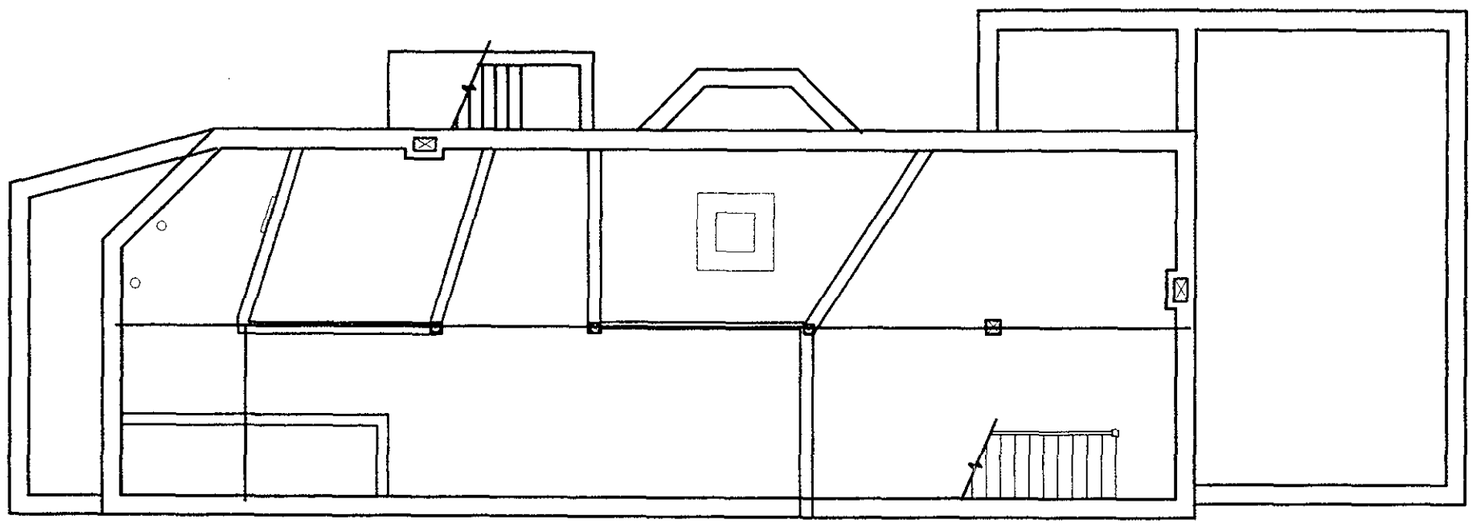
PROGRAM ADMINISTRATOR, OH DEPT. OF HEALTH

VOID IF ALTERED NON-TRANSFERABLE

Existing Condition Drawings



QUINN EVANS ARCHITECTS 219 1/2 N. Main Street Ann Arbor, Michigan 48104 313 663 5888	DESIGNED: DAR DRAWN: DAR TECH REVIEW: SCJ DATE: 04/29/97	SUB SHEET NO. A000	TITLE OF SHEET SITE PLAN EXISTING CONDITION WRIGHT CYCLE COMPANY BUILDING DAYTON AVIATION HERITAGE NATIONAL HISTORIC PARK	DRAWING NO. 833SITE 362 20017 PKG. NO. — SHEET 1 OF 7

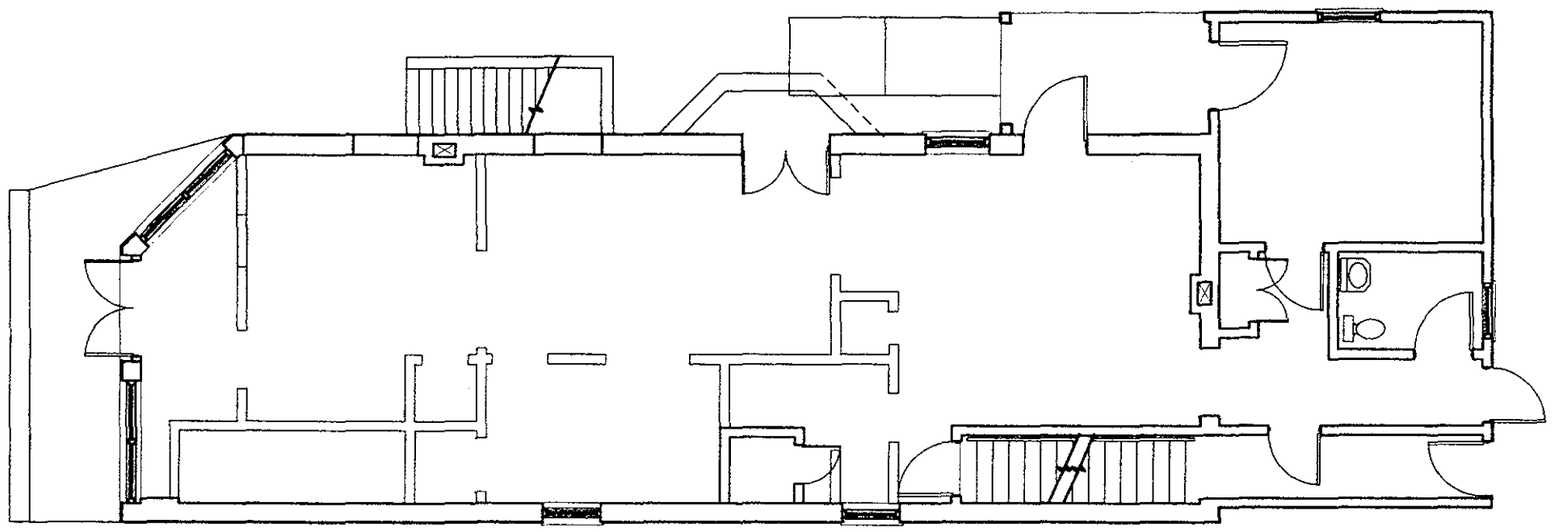


BASEMENT FLOOR PLAN

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

0 1' 2' 4' 8' 16'

QUINN EVANS ARCHITECTS 219 1/2 N. Main Street Ann Arbor, Michigan 48104 313 663 5888	DESIGNED: DAR DRAWN: DAR TECH REVIEW: SCJ DATE: 04/29/97	SUB SHEET NO. A100	TITLE OF SHEET BASEMENT FLOOR PLAN EXISTING CONDITION WRIGHT CYCLE COMPANY BUILDING DAYTON AVIATION HERITAGE NATIONAL HISTORIC PARK	DRAWING NO. 633EX-0 2017 PKG. NO. — SHEET 2 OF 2

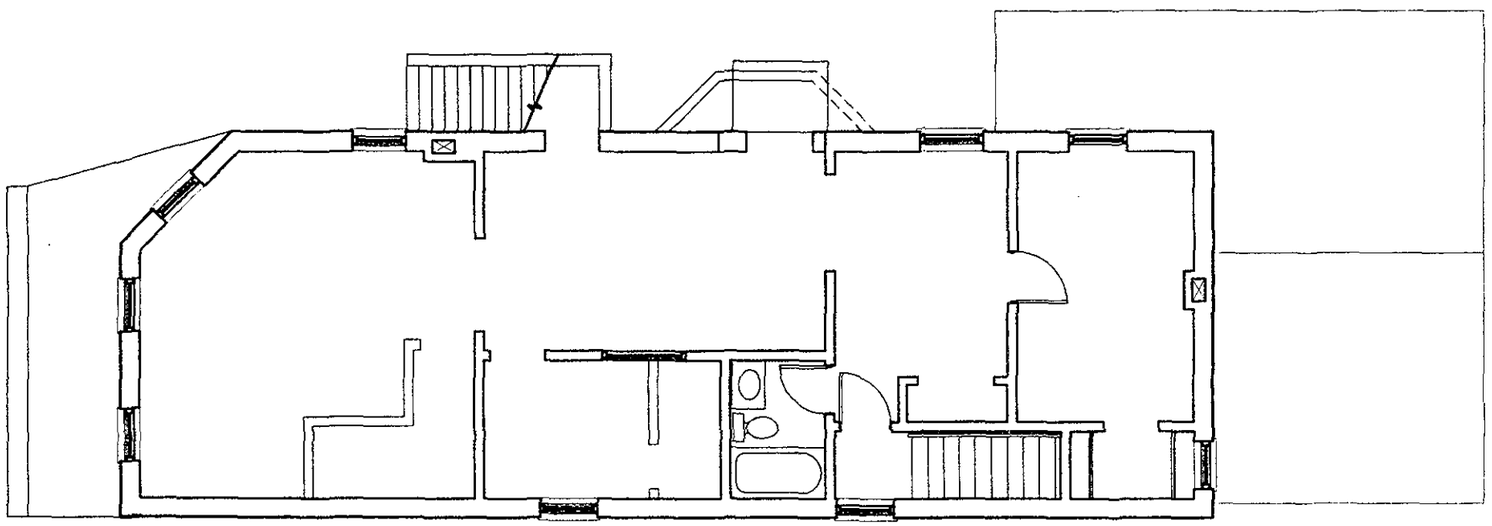


FIRST FLOOR PLAN

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

0 1' 2' 4' 8' 16'

QUINN EVANS ARCHITECTS 219 1/2 N. Main Street Ann Arbor, Michigan 48104 313 663 5888	DESIGNED: DAR DRAWN: DAR TECH REVIEW: SCJ DATE: 04/29/97	SUB SHEET NO. A101	TITLE OF SHEET FIRST FLOOR PLAN EXISTING CONDITION WRIGHT CYCLE COMPANY BUILDING DAYTON AVIATION HERITAGE NATIONAL HISTORIC PARK	DRAWING NO. 633EX-1 20017 PKG. NO. — SHEET 3 OF 7



SECOND FLOOR PLAN

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

0 1' 2' 4' 8' 16'

QUINN EVANS ARCHITECTS 219 1/2 N. Main Street Ann Arbor, Michigan 48104 313 663 5888	DESIGNED: DAR DRAWN: DAR TECH REVIEW: SCJ DATE: 04/28/97	SUB SHEET NO. A102	TITLE OF SHEET SECOND FLOOR PLAN EXISTING CONDITION WRIGHT CYCLE COMPANY BUILDING DAYTON AVIATION HERITAGE NATIONAL HISTORIC PARK	DRAWING NO. 633EX-2 20017 PKG. NO. SHEET 4 OF 7	

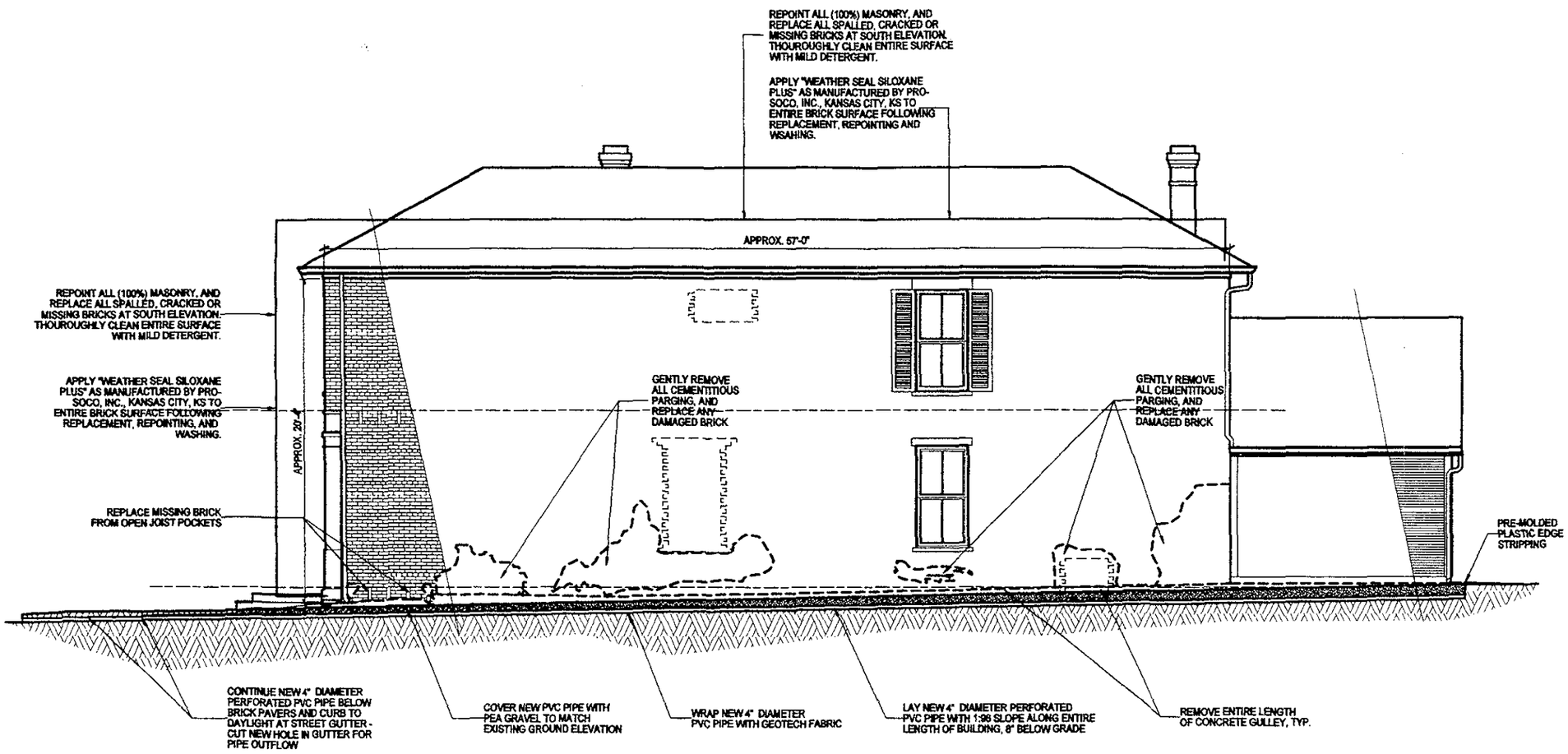
NORTH ELEVATION

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

0 1' 2' 4' 8' 16'

01 / A200

QUINN EVANS ARCHITECTS 219 1/2 N. Main Street Ann Arbor, Michigan 48104 313 663 5888	DESIGNED: DAR DRAWN: DAR TECH REVIEW: SCJ DATE: 04/29/97	SUB SHEET NO. A200	TITLE OF SHEET NORTH ELEVATION EXISTING CONDITION WRIGHT CYCLE COMPANY BUILDING DAYTON AVIATION HERITAGE NATIONAL HISTORIC PARK	DRAWING NO. 833-A200 28017 PKG. NO. — SHEET 5 OF 7	



GENERAL NOTES:

1.) MATCH EXISTING BRICK AND MORTAR SIZE, TEXTURE & COLOR TO GREATEST EXTENT POSSIBLE

2.) APPROXIMATELY 2' TO 3' CLEARANCE BETWEEN SOUTH ELEVATION AND NEIGHBORING BUILDING

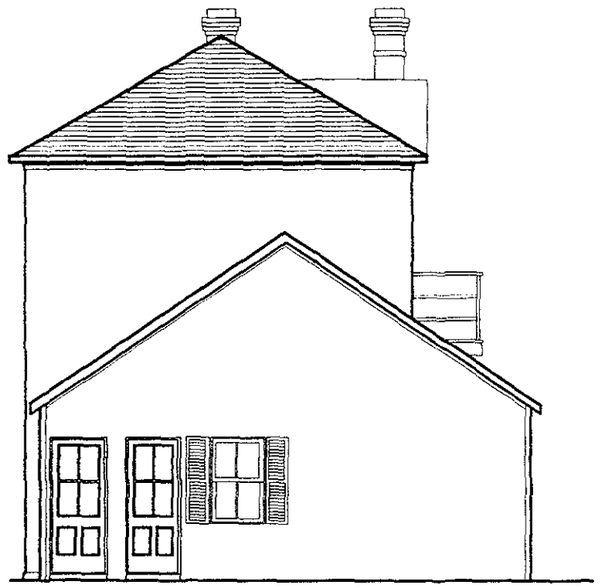
SOUTH ELEVATION

01 / A201

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

0 1' 2' 4' 8' 16'

QUINN EVANS ARCHITECTS 219 1/2 N. Main Street Ann Arbor, Michigan 48104 313 663 5888	DESIGNED: DAR DRAWN: DAR TECH REVIEW: SCJ DATE: 04/29/97	SUB SHEET NO. A201	TITLE OF SHEET SOUTH ELEVATION EXISTING CONDITION WRIGHT CYCLE COMPANY BUILDING DAYTON AVIATION HERITAGE NATIONAL HISTORIC PARK	DRAWING NO. 633-A201 PKG. NO. SHEET 6 OF 7



EAST ELEVATION (02 / A202)
SCALE: 1/4"=1'-0"

WEST ELEVATION (01 / A202)
SCALE: 1/4"=1'-0"

0 1' 2' 4' 8' 16'

QUINN EVANS ARCHITECTS 219 1/2 N. Main Street Ann Arbor, Michigan 48104 313 663 5888	DESIGNED: DAR DRAWN: DAR TECH REVIEW: SCJ DATE: 04/29/97	SUB SHEET NO. A202	TITLE OF SHEET EAST & WEST ELEVATIONS EXISTING CONDITIONS WRIGHT CYCLE COMPANY BUILDING DAYTON AVIATION HERITAGE NATIONAL HISTORIC PARK	DRAWING NO. 633-A202 3602 2001 7 PKG. NO. — SHEET 7 OF 7