NPS Form 10-900
(Oct. 1990)

OMB No. 10024-0018

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name Standard Adding Machine Building

other names/site number N/A

2. Location

street & number 3701 Forest Park Boulevard [n/a] not for publication

city or town St. Louis [n/a] vicinity

state Missouri code MO county St. Louis (Independent City) code 510 zip code 63108

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, 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. I recommend that this property be considered significant [_] nationally [_] statewide [X] locally. ([_] see continuation sheet for additional comments).

Mark A. Miles 04/OCT/05

Signature of certifying official/Title Mark A. Miles, Deputy SHPO Date

State or Federal agency and bureau Missouri Department of Natural Resources

In my opinion, the property [_] meets [_] does not meet the National Register criteria. ([_] See continuation sheet for additional comments.)

Signature of certifying official/Title Date

State or Federal agency and bureau

4. National Park Service Certification

I hereby certify that the 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

Standard Adding Machine Building
Name of Property

St. Louis (Independent City), MO
County and State

5. Classification

Ownership of Property
(Check as many boxes as apply)

[X] private
[ ] public-local
[ ] public-State
[ ] public-Federal

Category of Property
(Check only one box)

[X] building(s)
[ ] district
[ ] site
[ ] structure
[ ] object

Number of Resources within Property
(Do not include previously listed resources in the count.)

Contributing	Noncontributing	
1	0	buildings
		sites
		structures
		objects
1	0	Total

Name of related multiple property listing
(Enter "N/A" if property is not part of a multiple property listing.)

N/A

Number of contributing resources previously listed in the National Register

N/A

6. Function or Use

Historic Functions
(Enter categories from instructions)

INDUSTRY/PROCESSING/EXTRACTION/manufacturing facility
COMMERCE/TRADE/business
COMMERCE/TRADE/warehouse

Current Functions
(Enter categories from instructions)

WORK IN PROGRESS

7. Description

Architectural Classification
(Enter categories from instructions)

OTHER/Industrial

Materials
(Enter categories from instructions)

foundation LIMESTONE
walls BRICK
roof ASPHALT
other

Narrative Description
(Describe the historic and current condition of the property on one or more continuation sheets.)

8. Statement of Significance

Applicable National Register Criteria
(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

[X] **A** Property is associated with events that have made a significant contribution to the broad patterns of our history.

[_] **B** Property is associated with the lives of persons significant in our past.

[ ] **C** Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.

[_] **D** Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations
(Mark "x" in all the boxes that apply.)

Property is:

[_] **A** owned by a religious institution or used for religious purposes.

[_] **B** removed from its original location.

[_] **C** a birthplace or grave.

[_] **D** a cemetery.

[_] **E** a reconstructed building, object, or structure.

[_] **F** a commemorative property.

[_] **G** less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance
(Enter categories from instructions)

INDUSTRY

Period of Significance
1903-1955

Significant Dates

1903

Significant Person
(Complete if Criterion B is marked above)
N/A

Cultural Affiliation
N/A

Architect/Builder
Hinchman, G. N., Architect

Narrative Statement of Significance
(Explain the significance of the property on one or more continuation sheets.)

9. Major Bibliographical References

Bibliography
(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

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:
[X] State Historic Preservation Office
[_] Other State agency
[_] Federal agency
[_] Local government
[_] University
[_] Other
Name of repository:
_____

10. Geographical Data

Acreage of Property under 1 acre

UTM References
(Place additional UTM references on a continuation sheet.)

	Zone	Easting	Northing
1	15	740402	4272079
2			
3			
4			

☐ See continuation sheet

Verbal Boundary Description
(Describe the boundaries of the property on a continuation sheet.)

Boundary Justification
(Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title Karen Bode Baxter, Architectural Historian; Timothy P. Maloney and Mandy K. Ford, Research Associates

organization Karen Bode Baxter, Preservation Specialist date April 4, 2005

street & number 5811 Delor Street telephone (314) 353-0593

city or town St. Louis state Missouri zip code 63109-3108

Additional Documentation

Submit the following items with the complete form:

Continuation Sheets

Maps

A **USGS map** (7.5 or 15 minute series) indicating the property's location.

A **Sketch map** for historic districts and properties having large acreage or numerous resources.

Photographs

Representative **black and white photographs** of the property.

Additional items
(Check with the SHPO or FPO for any additional items)

Property Owner

(Complete this item at the request of SHPO or FPO.)

name Richard Yackey, Managing Member, Harrison Building LP

street & number 6336 Westminster Place telephone (314) 560-6566

city or town St. Louis state Missouri zip code 63130

Narrative Description

SUMMARY

Constructed in 1902, the Standard Adding Machine Building is located on the northwest corner of the intersection of Forest Park Boulevard and Spring Street (3701 Forest Park Boulevard) in Saint Louis, Missouri. The façade of this two-story brick, manufacturing building has large window bays framed by brick piers. A stepped parapet hides the monitor roof of the clerestory and flanking low pitched roof lines. It is nestled into a low sloping hill that covers the lower floor to the north (rear) side of the building. A narrow addition, constructed in 1946, flanks the front portion of the west elevation. Metal siding covers most window bays, though original and 1924 replacement windows are intact underneath and current rehabilitation efforts are uncovering these windows. Its current context, warehouse and manufacturing facilities, and its high degree of integrity of materials and workmanship convey its significance as an early twentieth century industrial building within the historic industrial district that was developing at that time around the rail lines running a block south and extending west from downtown. Today, commercial development on Forest Park Boulevard and Saint Louis University to the northeast have extended into this former manufacturing district, but surrounding properties retain their historic warehouse and manufacturing complexes.

EXTERIOR FEATURES

The south façade of the building contains five bays separated by brick piers. The fieldstone foundation of the building forms a water table below the brick line. The window openings are currently covered with metal panels, but the windows are still intact, also covered with drywall and studs from the interior. Most of the façade windows have brick segmental arched openings, although the outer two bays on the second floor are square headed. Exploratory removal of the panels over the windows revealed eight-over-eight industrial steel frame windows in each bay of the upper level, the steel windows having been installed within the original wood window openings during the 1924 renovations, after the Standard Adding Machine Company left the building and while Saint Louise Pump and Equipment Company leased the building from the new owners, Century Electric Company. The original wood sashed windows with corbel-like details on the mullion between the paired, two over two windows are still intact on the lower level on either side of the wood framed, transomed and sidelighted entry within the central, segmental arched opening. Above the five bays is a corbelled brick cornice that features three stepped bricks that repeat twenty times across each bay. In the center is a raised parapet to hide the elevated monitor roof above the center of the building. The brick walls are capped with clay coping tiles evenly spaced across the building's width.

The east elevation has twelve bays with the lower level only partially exposed due to the concrete sidewalk and change in grade from the southeast to northeast corners of the building. Although the windows on the east elevation are covered, they are still intact. Eleven of the bays repeat the same design pattern from the southeast corner of the building. The upper level windows are flat headed, but the lower level windows have brick segmental arched lintels. Both have cast concrete lug sills. On the lower level, only eight bays are above grade with the same window design as those on the façade, except for the smaller openings which are simple wood framed, multipaned awning windows. The upper floor windows are also eight-over-eight industrial steel windows added in the 1924 renovations. A small loading dock in the twelfth bay at the northeast corner of the building has an arch top brick lintel.

The north elevation has six unmatched openings. Only the upper level is visible due to the grade change. Starting in the northeast corner, two bays accommodate windows with brick arch top lintels. The third bay in the center under the raised parapet served as a freight door. To the west are two more windows and at the northwest corner is a ground level entrance to the boiler room.

The west elevation of the building originally had the same number of bays as the east elevation, but the modern addition at the southwest corner consumes two and a half bays at the south corner. The fourth bay has a nonhistoric garage door and freight dock in the historic opening. The ninth and tenth bays have nonhistoric garage door openings that enter at two different planes on the lower floor of the building. A raised concrete platform loading dock spans a portion of the elevation near the south end addition, with a retaining wall separating the lower level driveway from the rear lot on the west side of the building.

Narrative Description (continued)

INTERIOR FEATURES

The interior of the building features the original wood post and beam construction, with larger and shorter posts on the lower level. While the first floor primarily has concrete floors, the second floor is wood. Looking at the floorplan in plan view of the building, it is three bays wide, and twelve bays deep, creating a grid with thirty-six rectangles on both levels. Near the center of the building is a broad, enclosed, metal staircase that appears to be a later alteration. In the center bay at the eleventh bay of the building is a freight elevator that also appears to be a later modification, probably added during the 1946 renovations, since its shaft is wood with wired plaster walls around the modern steel freight cab. Near the elevator is another, enclosed staircase. On both levels the walls are exposed brick, which has been painted, although the limestone foundation is also visible on the lower level. The brick walled, two story, boiler room dominates the northwest corner of the building.

The lower level of the building currently has two floor planes since the original floor level was lowered at some point in the past to accommodate the west elevation, garage entry alterations, probably during the 1946 renovations that added the west addition as well. Starting at the south end of the building, the lower floor plane extends north three bays and then becomes approximately four feet higher and extends on this same plane to the north end of the building. The floor is a modern poured concrete floor in both sections encasing the base of the posts, which indicates that the concrete replaces the original flooring. Although most supports are massive wood posts, simple Doric order case iron columns raised on concrete piers span the front section. A brick, load bearing, east-west wall traverses the width of the building across the three bays separating the second and third bay of the building. and interrupting the use of the decorative columns. Modern interior partitions conceal the interior structure at the southeast corner of the lower level, but rest on the original wood floors, supported by wooden joists and footings resting on the dirt, not having been lowered with the other front bays.

On the upper level, the wood trusses of the roof structure are exposed, but the monitor roof structure is its most prominent feature. The industrial steel windows in the monitor roof are still intact, but boarded over currently on the interior. The support structure on the upper floor is similar to the lower floor with an open floor plate supported by the massive wood posts and beams, but the height is considerably taller. There is a mezzanine below the monitor style roof that extends north to south in the building. The three inch wood plank floor is laid in the east west orientation with north south oriented floor joists.

ALTERATIONS AND INTEGRITY ISSUES

Based upon building permits, the upper floor windows were converted to steel industrial sashes in 1924, but these were poorly installed, leaving intact the original wood window framing. The later installation of metal panels on the exterior and furred out drywall walls on the interior helped to stabilize these steel sashes, which rusted and became loose in the wood frames.

In 1946, the Central Electric Company added a modern narrow wing at the southwest corner of the building. This small, two story addition, which extends only two and a half bays deep on the west elevation, utilizes similar red brick, but its simple design does not match the architecture of the original building. Its poured concrete foundation is visible on the exterior. The façade of the addition consists of a single bay with a steel man door centered below an eight-over-eight industrial steel window on the upper level. The addition features two bays of windows on the north elevation of the addition, which faces the loading docks, but it has no penetrations on the west elevation. It has a clerestory providing light to the interior of the second floor.

The building presents a rare intact example of what was originally a common, early twentieth century, monitor type of industrial design. The original brickwork detailing, exposed stone foundation and fenestration pattern are still intact. The interior retains the wood posts and beams as well as the exposed stone and brick walls on the interior. It still has the open floor plates that are characteristic of factory designs at the turn of the twentieth century. The wood flooring upstairs is still in solid condition, although it is badly marred in places. The original wooden windows are largely intact on the lower level and the industrial steel sashes installed in the 1924 renovations are also intact upstairs.

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National Register of Historic Places Continuation Sheet

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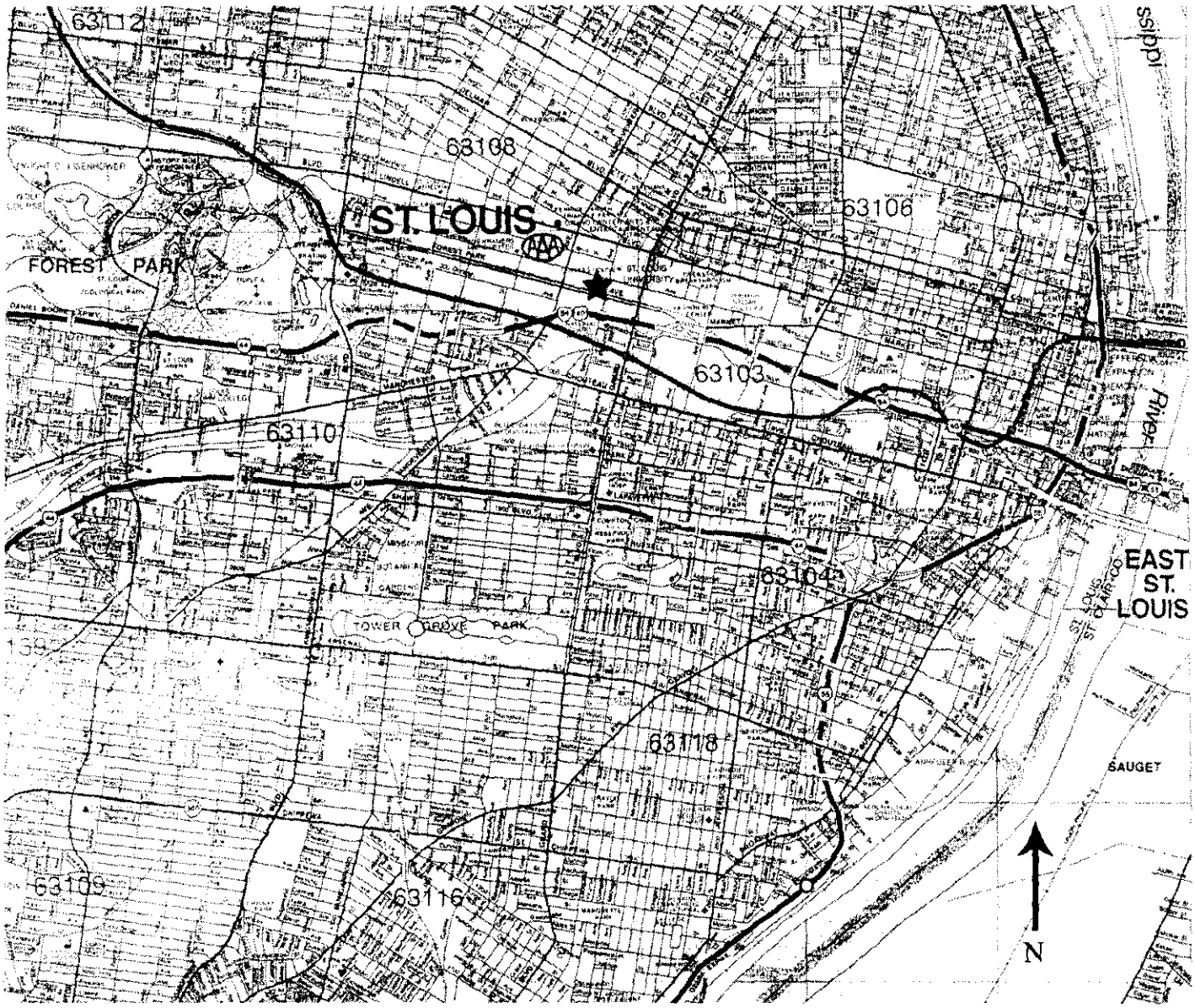
Standard Adding Machine Building
St. Louis (Independent City), MO

Map of City of St. Louis, MO **Locating Property**



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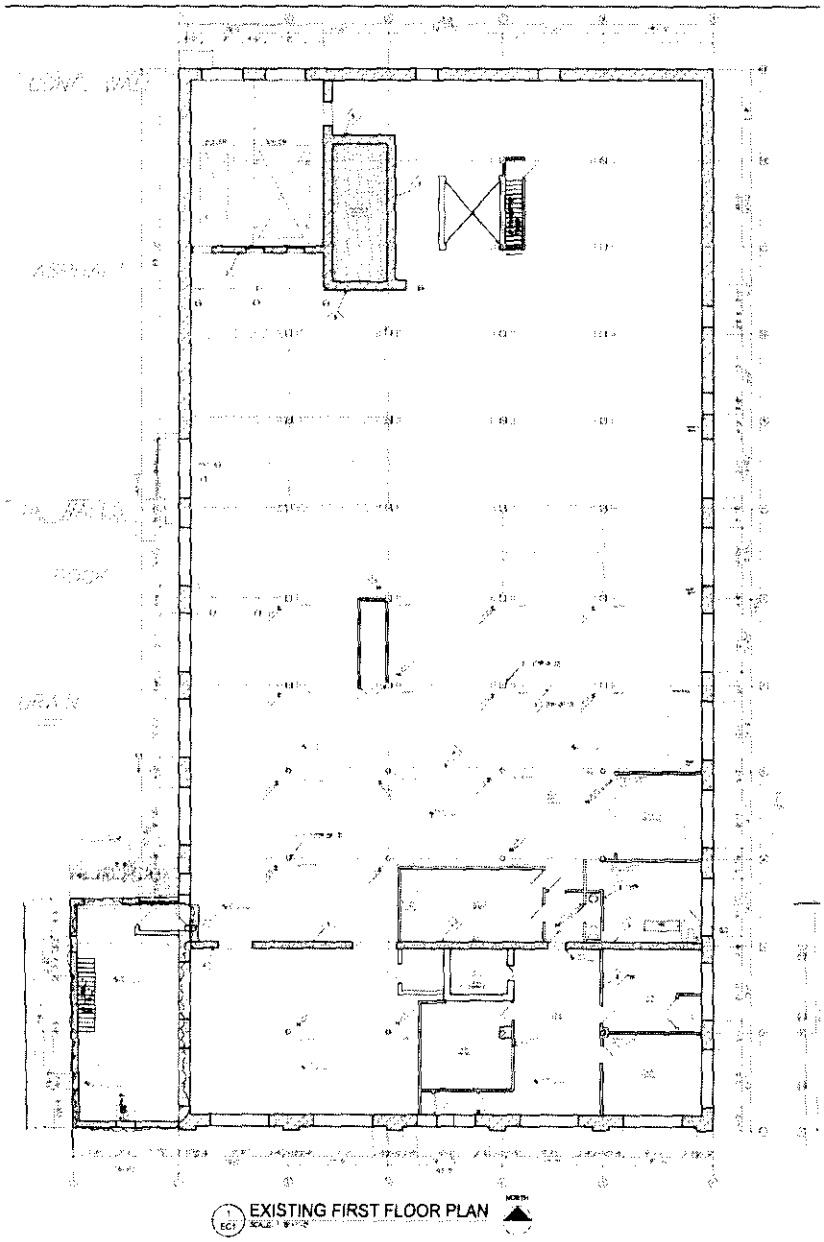
Standard Adding Machine Building
St. Louis (Independent City), MO

Courtesy of Klitzing-Welsch Architects

First Floor Plan

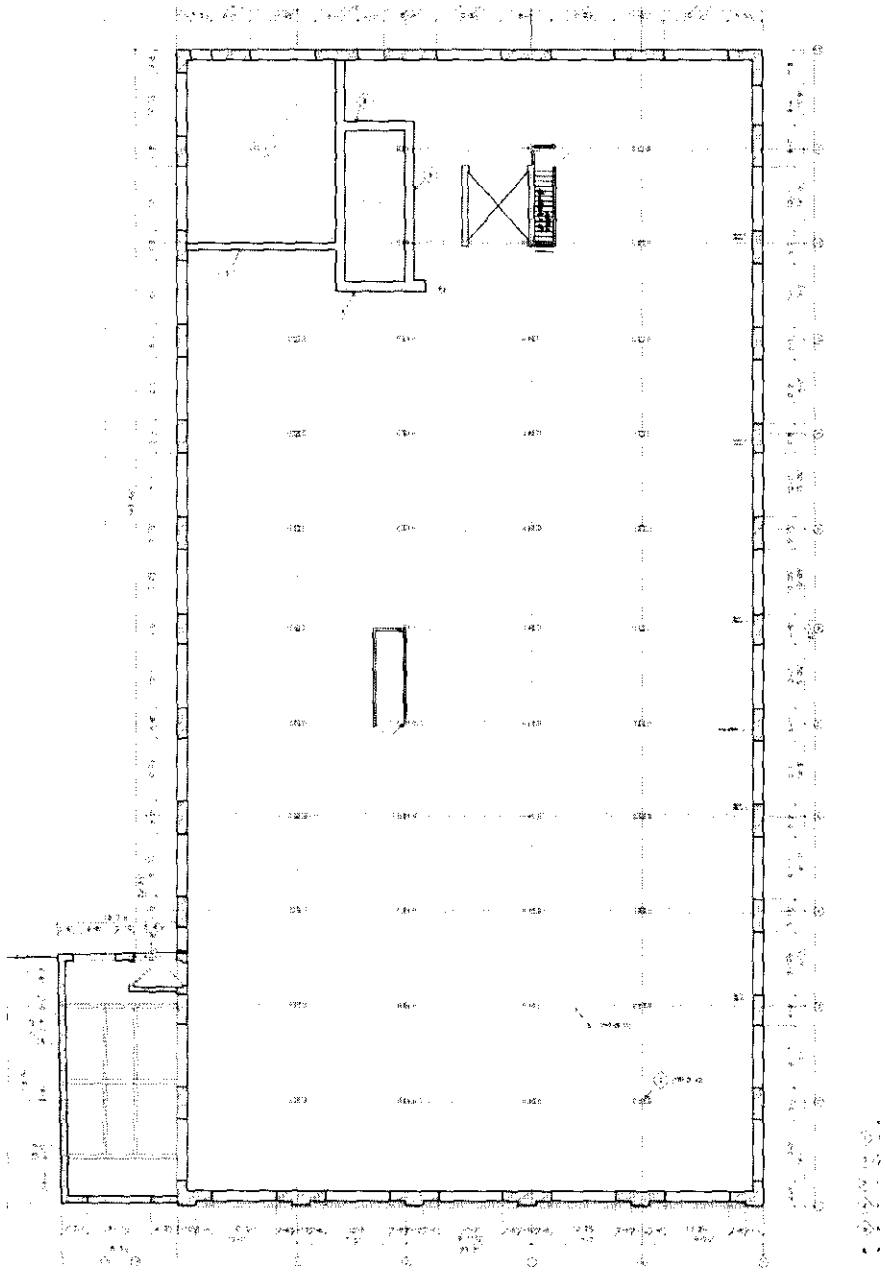


United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Courtesy of Klitzing-Welsch Architects

Second Floor Plan



Narrative Statement of Significance

Built in 1902-1903, the Standard Adding Machine Building, located at 3701 Forest Park Avenue in Saint Louis, Missouri, is eligible for listing in the National Register of Historic Places under Criterion A: Industry with a period of significance from 1903-1955. The Standard Adding Machine Company was one of the first adding machine companies in the world and was the third adding machine company to open in Saint Louis, at a time when Saint Louis was becoming a center for adding machine technology and manufacture. The Standard Adding Machine Company was an innovator in a field that was based on a new technology that became the forerunner to computers and the modern electronic age. As a company in a new industry, the Standard Adding Machine Company became an important component of the strength of Saint Louis in the adding machine industry; an industry that was one of the important industries in Saint Louis' manufacturing and industrial dominance at the turn of the twentieth century, a time when Saint Louis was known as the "Fourth City" in industry. The Standard Adding Machine Company Building's location also demonstrates a trend in Saint Louis industry; over time, industries began to move further and further west, away from the traditional economic center based in downtown Saint Louis and along the Mississippi River. This shift happened in part because land was less expensive further from the city center. It was made practical by the growth of the railroad, so easy shipping was available to companies even without easy access to transportation on the Mississippi River. The Standard Adding Machine Company was one of the early businesses to start this westward migration. Later, the Standard Adding Company Building was the site of one of the Century Electric Company's factories. This company also represents the westward migration of businesses in Saint Louis because not only did it have a factory in this building, the company itself expanded from a location in downtown Saint Louis to a multiple sites with holdings tracing a line to the west with each subsequent expansion. Both the Standard Adding Machine Company and the Century Electric Company were major economic contributors to Saint Louis' economy. In addition, both companies are examples of the shift in Saint Louis industry from locations based downtown near the river and the easy transportation of goods offered by river traffic to locations on less expensive land further west that relied on the railroads to distribute goods to the market.

Building History

The building was designed by architect G. N. Hinchman in 1902 and completed for service in 1903.[1] The Century Electric Company, a later owner of the building, had architect L. B. Pendleton alter the building in 1924, changing the second floor windows to industrial steel sashes[2] and had the renowned architectural firm of William B. Ittner, Inc. design a small addition for the building in 1946.[3] Although building permits in 1924 and 1925 list Century Electric as the owner of the building, city directories list the Saint Louis Pump and Equipment Company in the building throughout the 1920s, and building permits confirm the Saint Louis Pump and Equipment Company was in the building in the 1920s. Apparently, Century Electric Company purchased the building with an eye to future expansion and then leased the building to the Saint Louis Pump and Equipment Company for ten years.[4]

The Standard Adding Machine Company started construction on the new factory a year after selling its first machine in 1901 and then moved out of the company's old location at 3337 Franklin Avenue (non-extant) into the newly completed factory at 3701 Forest Park Parkway in 1903.[5] The Standard Adding Machine Company became the New Standard Adding Machine Company in 1912, but the successor company remained in the Standard Adding Machine Building until the company closed its doors for the last time in 1922, after the death of its owner and company founder, William W. Hopkins. After the New Standard Adding Company went out of business, the Saint Louis Pump and Equipment Company occupied the building from that year until 1931.[6] With the start of the Great Depression, the Standard Adding Machine Building was vacant from 1932 through 1938.[7] In 1939-1940 the Stout Sign Company occupied the building, but it was vacant again in 1941.[8] By 1942, the Century Electric Company occupied the building for use as its plant.[9] The Century Electric Company plant remained in the Standard Adding Machine Building into the 1960s.[10]

In the late nineteenth and early twentieth century, Saint Louis became one of the leading industrial cities in the United States.[11] From a settlement supporting only small industries prior to the Civil War, the city grew rapidly, especially after 1880, due to the rapid development of manufacturing enterprises. By 1892, Saint Louis was the fifth largest manufacturing city in the United States.[12] In that year, the Saint Louis Merchants' Exchange reported "unusual prosperity in business" across all branches of trade and industry, noting that a number of new manufacturing establishments had been erected and old ones extended.[13] From 612 manufacturing firms in 1865, the city's industrial base expanded to 5,732 manufacturers by 1900.[14] The industrial boom continued into the first two decades of the

Narrative Statement of Significance (continued)

Industrial Development in Saint Louis

twentieth century. During the first five years of the new century, factory output in Saint Louis increased over 57 percent.[15] By 1905, Saint Louis followed New York, Chicago and Philadelphia as the fourth largest wholesaling and manufacturing center in the United States, earning the city the nickname "The Fourth City".[16] In 1910, the value of products manufactured increased by 79 percent and the number of employees gained 30.7 percent, and then in 1913, the Merchants' Exchange reported two consecutive record breaking years for manufacturing in Saint Louis.[17] In the early 1910s, the city was still the nation's fourth largest manufacturing center, but its position slipped rapidly in the 1920s and by 1929 Saint Louis dropped to seventh in the nation, as industry moved away from the congested city.[18]

Ample and convenient supplies of two major raw materials, coal and iron, contributed to the growth of industry in Saint Louis after the Civil War, both of which were critical factors in the concentration of industry in Saint Louis. Repeatedly, city boosters pointed to what they termed the inexhaustible supply of nearby coal that was well suited for manufacturing purposes, providing Saint Louis with fuel cheaper than any other large city. Besides the ample supply of cheap Illinois coal, Missouri iron encouraged the development of iron product manufacturers in Saint Louis.

In addition, this rapid industrial growth resulted from the transportation connections and convenient freight facilities which made Saint Louis accessible to an immense sales territory, shipping ports, and the major markets throughout the United States. While the great Mississippi River and its tributaries had been the major factor in pre-Civil War development in Saint Louis, the railroads were quickly surpassing the steamboats in importance to manufacturers and wholesalers shipping from Saint Louis during the late nineteenth century. By 1890, Saint Louis was the chief distribution point for the center of the nation, with 25,678 miles of railroad lines centered in the city.[19] By 1892, 23 different railroad companies converged on the Union Depot (then still under construction) and lines radiated out to every point of the compass.[20] Before the Civil War, Saint Louis' commerce had not extended over a large territory, but the increasing influence of the railroad transformed the city into the major shipping metropolis of the Southwest.[21] At the turn of the century, no other city in the United States could boast of such advantages in river and rail mileage.[22] This transportation network was a major factor in the late nineteenth and early twentieth century industrial development of the community, providing access to every state and territory of the United States as well as Central and South America and Overseas markets and leading to the development of the burgeoning industrial district around the Standard Adding Machine Building.[23]

The industrial architecture of Saint Louis reflects these developments as well, with early industrial and commercial buildings centered near the riverfront, which provided easy access for the transportation of goods.[24] As industry increased the residential population proportionately decreased in these areas. Especially in the area along the riverfront south of downtown, industrial enterprises increasingly dominated the landscape in the late nineteenth century. While some industries continued to thrive in the area, most early twentieth century factories looked to the area west of the downtown commercial district (including the area around the Standard Adding Machine Building), moving away from the riverfront as the railroad became the dominant form of transportation for shipping manufactured products. Many of these industries closed during the Great Depression or in the decades following World War II while others moved further west to be closer to railroad lines and to have more land. Much of this westward movement of industry through the Saint Louis metropolitan region followed the railroad tracks from the river and through the Mill Creek Valley, an area that was taken over be rail lines and light industry after the Mill Creek was drained. The valley follows closely along Manchester Avenue and sections of the road from downtown to Forest Park housed new locations for industries moving out of downtown, although often only as a short stop to points further west in Saint Louis County. As the city continued to expand, and as industries grew, the need for land forced many of the early twentieth century Saint Louis industries to move outside the city limits, often into the less developed areas of Saint Louis County. Beginning in the late 1920s and continuing through World War II, many of the city's major industries left the city, in part due to tougher pollution controls and the need for more land to expand facilities.[25] Today much of the physical evidence of their existence is quickly disappearing.[26]

Narrative Statement of Significance (continued)

Adding Machine Development and the Standard Adding Machine Company

Although various forms of adding machines have existed since Babylonian times, the major advances were not made until the 1600s, and even these adding machines were massive, unwieldy, and extremely expensive. After these initial improvements over the abacus and similar tools, the next major advance in technology did not occur until the end of the nineteenth century, when Saint Louis became a center of innovation in adding machine technology. By 1880, the population of the United States had grown large enough that the ten-year census required by the Constitution of the United States had become an administrative nightmare. Completing the census calculations took over seven and a half years. The census bureau offered a prize to an inventor who designed a machine to help automate the census process. By the 1890 census, Herman Hollerith had won the prize, developing a machine based on the punch card technology that Frenchman Joseph-Marie Jacquard's powered loom utilized. Invented in 1801, this loom's punch card system became the basis for mid-twentieth century computer programming. Because of Hollerith's invention, the 1890 census was compiled in only three years. After the census, Hollerith started a private company called the Tabulating Machine Company. After a few buy-outs and name changes, the company became International Business Machines, better known today by its initials, IBM.[27]

Hollerith may have won the census bureau's competition, but he was far from the only person to invent new adding machines for the census contest. Many of these machines became the basis for new companies, offering different styles of adding machines with different features and options depending on the manufacturer. Some of the new machines included options to print out not only the total, but also the intermediate calculations. There were also more machines that offered four function calculations. Despite the availability of these options, many of the machines sold were still just adding machines (i.e., only performing addition functions) , although a printed register on adding machines was becoming more and more common and requested feature, since it made it easier to double check the entries and intermediate sums.[28]

The adding machine industry benefited from the growth of the American economy in general. As more and more companies entered the market place, selling more types of products and with ever increasing values, the need for accurate bookkeeping grew in importance. For every advance made in technology, new products were for sale; with every expansion of a business, more money needed to be accounted. The sheer volume of the task often made it extremely expensive for companies to hire all of the people necessary to track the transactions and process the information. With the new adding machines, much of the tedium of these bookkeeping jobs was eliminated, saving the company time and money. The growth of industry as a whole demanded more detailed and better methods of bookkeeping. Adding machines made this chore easier and considerably faster. As a result, the adding machine industry followed the growth of industry as a whole.

Saint Louis entered the adding machine industry in its infancy. In 1885, William Seward Burroughs of Saint Louis patented the first workable adding and listing machine (listing machines were adding machines that could also list goods in a storekeeper's register; it had a full keyboard as well as a number pad.) The company, originally the American Arithmometer Company, renamed the Burroughs Adding Machine Company, prospered but moved to Detroit from Saint Louis in 1904. By the time the company moved, Saint Louis already had two other very successful adding machine manufacturers located in the city, the National Manufacturing Company and the Standard Adding Machine Company.[29] The adding machine was so popular that by 1906 there were 13 different companies that had started manufacturing adding machines, although approximately half of the companies lasted less than five years before being acquired by another company, usually the Burroughs Adding Machine Company.[30] Saint Louis was a particularly important source of ideas and early models of adding machines, although not all of the machines invented in Saint Louis were manufactured in the city.[31]

Saint Louis was the original home to four of the largest adding machine companies in the beginning of the twentieth century. Beside the Burroughs Adding Machine Company, the National Manufacturing Company and the Addograph Manufacturing Company (later the Dalton Adding Machine Company) were also located in Saint Louis with the Standard Adding Machine Company. These four companies were not only four of the largest adding machine companies in the country, they were also four of the earliest companies to enter the industry.[32]

Narrative Statement of Significance (continued)

The National Manufacturing Company was one of the first companies to enter the adding machine business, opening its doors in 1881 as the first adding machine company in Saint Louis.[33] The company was founded by Frank Baldwin, a man who took out a patent on a new, more compact calculating machine in 1872, a pinwheel style machine that printed the results of the calculations on a register. He invented his machine after working with an arithometer at the Saint Louis Mutual Life Insurance Company and then went on to design a number of other machines, including improved versions of his pinwheel style adding machine. Besides adding machines, the company also made combination drawer locks, permutation locks, and a concrete mill. The company closed after only two years in business, but Baldwin was later instrumental in starting the Monroe Calculating Company.[34] Although the National Manufacturing Company only lasted for two years, it was the first adding machine company in Saint Louis, starting an industry that would be a key contributor to Saint Louis's economy for over fifty years.[35]

The Burroughs Adding Machine Company, one of the largest companies to make adding machines, was founded in 1886 by William Burroughs as the American Arithmometer Company. Burroughs focused on a machine that was just an adding machine, although it did have a printed register. The company quickly found success and within two years of starting business, Burroughs investors agreed to increase the capitalization of the company from $100,000 to $200,000.[36] The company went on to expand not only through its own growth but also by acquiring other companies, including the Pike Adding Machine Company, formed by a former Burroughs employee who designed his own adding machine, and the Universal Adding Machine Company. The Burroughs Adding Machine Company moved to Detroit in 1904, where it continued to grow and achieve a position of dominance in the adding machine industry.[37]

The Addograph Manufacturing Company was formed in 1903 by William W. Hopkins's (founder of the Standard Adding Machine Company, brother) Hubert. Hubert developed an adding machine after working as a machinist with his brother before William formed his company. The company had problems with its patent applications and was not able to have its machines patented until 1912, but the company still managed to become a flourishing enterprise with business capital between $500,000 and $1,000,000 and a "AAA" bond rating from the Thomas Register of American Manufacturers.[38]

The fourth major manufacturing firm, the Standard Adding Machine Company, developed one of the biggest technological advancements in the adding machine. William W. Hopkins, the company founder, was the first to invent a ten key adding machine.[39] This design was much less expensive to manufacture and simpler to use, helping propel the company to early success in the adding machine field. The Standard Adding Machine Company continued to improve its product, and by 1907 the company also offered machines that could add fractions, subtract, multiply and divide as well as complete simple addition functions. It was important for the Standard Adding Machine Company to continue to improve its product because within a year, the market began to expand and the these four companies were joined by the Universal Adding Machine and Cash Register Company, the Saint Louis Adding Machine Company, the New Hiett Machine Manufacturing Company, the Addograph Manufacturing Company, the Pike Adding Machine Company, the Ellis Adding-Typewriter Company, the Cram Writing Machine Company, the Moon-Hopkins Billing Machine Company (not William but Hubert Hopkins starting a second company after he was bought out of the Addograph Manufacturing Company in a dispute with the investor) and the Duplex Adding Machine Company.[40] Theses companies all had headquarters and manufacturing operations in Saint Louis, making Saint Louis the center for the burgeoning adding machine industry.[41] The existence of these companies in Saint Louis helped contribute to Saint Louis' status as the "Fourth City" at the turn of the century and helped strengthen Saint Louis' manufacturing base through the peak of Saint Louis' manufacturing height into the 1920s.

Despite this dramatic increase in competition, the Standard Adding Machine Company was able to successfully compete through the early years of the adding machine industry. Hopkins' machine, first sold commercially in 1901 after years of development and marketed as the Standard Adding Machine, was the first adding machine with a single set of ten digit keys, instead of a full keyboard. The operator would use a lever to distinguish the value of the digit.[42]

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Standard Adding Machine Building
St. Louis (Independent City), MO

From J. M. Goldman Private Collection

Standard Adding Machine [Advertisement]

Narrative Statement of Significance (continued)

The simpler design made the product less expensive than most other adding machines on the market. While the Comptometer ranged from $150-$315, a Comptograph cost $350, and the Burroughs Adding and Listing machine cost $375. In comparison, the Standard Adding Machine cost between $160-$250 for a machine.[43] In addition, the Standard Adding Machine was one of the few machines that not only printed a register, but did so with each line of calculation. Most other machines would only print the total, while the Standard Adding Machine printed a register with every line of calculations listed. Otherwise, if a mistake was made, there was no way to find out where and the entire process would have to be re-entered. The Standard Adding Machine corrected this problem by allowing the operator of the machine to review each line of the calculations, making it easier to double-check the work and making it easier to make corrections.[44]

The advantages in technical capability and price that the Standard Adding Machine Company's product offered in comparison to its competitors made the company a success. The Standard Adding Machine Company also benefited from the inclusion of one of its machines in a display of precision instruments at the 1904 Louisiana Purchase Exposition. The machine even won a grand prize from a panel of international authorities. By the beginning of 1905, the company had already sold over 3400 adding machines.[45] By 1906 the Standard Adding Machine Company was one of the leading adding machine companies in business. The company grew quickly but in 1912 the company changed names to become the New Standard Adding Machine Company as part of the company's corporate re-organization.

The company's success helped to lead to its own downfall. As demand for ten key machines grew, so did the competition the company faced. By 1912, competition from Dalton Adding Machine, Burroughs Adding Machine Company, and others, forced the Standard Adding Machine Company to reorganize its business to remain economically viable. It became the New Standard Adding Machine Company in 1912, but by 1922 this company was also unable to compete and had to close its doors for the last time.[46]

Electrical Manufacturing in Saint Louis and Century Electric Company

Taking advantage of Saint Louis' transportation network and leadership as a manufacturing center, Saint Louis also became a hub for young electrical manufacturing enterprises in the late nineteenth century. The establishment in Saint Louis in 1883 of only the third power station in the United States and the city's inclusion in the first census of the electrical industry in 1890, acknowledged Saint Louis as a viable resource for fledgling electrical enterprises. Because of the innovations and developments in the use of electricity as a source of power for machinery as well as for lighting, the early electrical products industry of the late nineteenth century rapidly developed into one of the most significant Saint Louis industries. Around this time, a few young engineers and entrepreneurs were leaving their positions with the utility companies and starting their own businesses. In 1890 two pioneering firms in the electrical industry, Wagner Electric and Emerson Electric, established themselves in small shops near the downtown area. Just six years later, two other young engineers established Moloney Electric Company and, in 1900, Century Electric Company had been organized. By the turn of the century, the manufacture of electrical components in Saint Louis was thriving and these four firms became the major electrical manufacturers in the region for the next half century.[47] Evidence of such progress is exemplified by the industrial production of electrical machinery, apparatus, and supplies that showed 16 establishments for the young industry in 1905, employing 242 workers.[48] Many of these companies became leaders in the electrical industry nationally, manufacturing motors, fans, transformers and related equipment. Sales and service branches of the "Big Three" (General Electric, Westinghouse, and Allis-Chalmers) were also located in Saint Louis, although only General Electric had a manufacturing plant. According to a Merchant's Exchange of Saint Louis, the 1913 sales for electric industries had reached $20,000,000.[49]

As electricity became more important in the lives of Americans, the electrical industry continued to expand in Saint Louis throughout the first half of the twentieth century. This growth however required larger and more complex factory sites and the main electrical industries in Saint Louis each moved from small start-up storefronts to actual factory sites either directly west or south of the central business district by the early twentieth century. They would continue to expand at these locations until the demand for space far exceeded the available land. Between World War I and World War II, each of the major electric industries moved to the outskirts of Saint Louis, ultimately abandoning their original factory sites in the city of Saint Louis. Even so, the electrical industry

Narrative Statement of Significance (continued)

remained an important component of the region's economy into the latter half of the twentieth century, and the Saint Louis metropolitan area remained a major center of the electrical industry for the United States.[50] Included in this migration of electrical manufacturers in Saint Louis away from the core of the city, the Century Electric Company, one of the city's major electrical manufacturers had started history as the H. E. Lindsey Electrical Supply Company of Saint Louis. It was organized in July of 1900 to manufacture and supply electrical equipment with $5,000 in capital.[51] Just two years later, Edwin S. Pillsbury, a former engineer for both the Emerson Electric Manufacturing Company (in 1894) and the Wagner Company (in 1896) bought an interest in the Lindsey Electrical Supply Company. The following year, Lindsey withdrew from the company, which reorganized as the Century Electric Company. Located at 1007-1011 Locust in an old church building, the company was so successful that by 1907 Century Electric's value had totaled $129,613.[52] This growth continued at a pace that allowed Century Electric to surpass $1,000,000 in sales by 1916, $10,000,000 by 1942, and $25,000,000 by 1953.[53]

Century Electric Company grew because it was continually developed new innovations in the electrical industry. In 1905, Century Electric was the first company to unveil a dual voltage motor, a motor that could be adapted to run on an AC or DC power supply.[54] In 1911, the company introduced a desk fan with inherent thermal winding, a property that protected the fan from "burnout of the winding". By 1914, Century had also developed the first appliance-repulsion start motors that had fractional amounts of horse power but could generate high torque, a combination repeated in the invention of the first double rotor polyphase motor, a motor with a very low starting power requirement but that produced lots of torque, a combination that made it perfect for use on refrigerator compressors that started from a thermostat's signal. [55] The company followed up on these developments with many refinements over the years, including new lubrication systems and more varied power requirements.[56] Despite these improvements and innovations, Century would continued to derive the majority of its business from the sale of fans and small motors, particularly motors for appliances.[57]

The growth of the Century Electric Company can be seen even more directly in the buildings it occupied than in its sales or inventions. After its start in an abandoned church at 1007-1011 Locust, by 1905 the company expanded to the Monita Building at 404 North Fourth Street (a rare move by any manufacturing concern east of their existing location) but the company only occupied the fourth floor and parts of the basement.[58] In 1907, the company purchased a five story building on the southeast corner of 19th and Olive Streets, to which they later added two stories. [59] Four years later, the company added a three story building to this property on Olive, and then in 1914 an eight story building was constructed on the northeast corner of Pine and 19th Streets, followed in 1916 by the purchase of a five story building immediately east on Pine and a warehouse was constructed at Adams and 21st Streets in 1917.[60] In 1919, the company added two buildings on Pine, west of the existing locations, and purchased a lot on Chestnut for future expansion.[61] In 1920 Century Electric purchased the entire half block on the south side of Pine from 18th to 19th streets.[62] That year the company also purchased the Standard Adding Machine Company Building, although the company leased it out for ten years and left the building empty for most of the 1930s. Century Electric did not occupy the building until 1942, holding this property for the company's future expansion requirements for nearly twenty years before the company refitted the building to manufacture motors.[63] In 1926 a new Century Electric factory was completed at 1922 Pine Street and in 1930 the company built a foundry west of Spring Avenue on Market Street, (a block south of the Standard Adding Machine Company Building).[64] In 1942, Century Electric Company constructed a new building on Chestnut Street to act as its headquarters the same year the Century Electric Company opened the motor factory in the old Standard Adding Machine Company Building.[65] Even after the construction of the headquarters, Century Electric purchased two more buildings across the street from the Standard Adding Machine Company Building by 1952 and Century Electric continued to expand its physical capacity by purchasing new sites.[66]

All but one of these sites demonstrate a movement west from the company's original downtown location. The company attempted to remain in the area around Olive and Pine streets between 18th and 20th Streets, but as time passed, the company had to find other areas of the city for its new site. By the early 1920s, the company had purchased empty land on Chestnut Street a few blocks west and the Standard Adding Machine Company Building a few miles to the west. Both of these purchases were made with future expansion in mind, and with the knowledge that the demand for land in these areas would be increasing, making it important for the company to

Narrative Statement of Significance (continued)

anticipate its needs for growth at least a decade into the future. Having correctly forecasted this pattern of industrial growth, and helping lead the way, the Century Electric Company occupied the former home of the Standard Adding Machine Company, remaining in that building well into the 1960s.

Conclusion

The Standard Adding Machine Company was one of the first adding machine companies in the country. The company represents an important part of the Saint Louis manufacturing landscape as one of the first and leading adding machine companies in Saint Louis at a time when Saint Louis, the "Fourth City" was one of the leading industrial cities in the nation. The company's location also demonstrates the changing geography of the Saint Louis economy at the beginning of the twentieth century when businesses started moving away from downtown Saint Louis to areas further west that had less expensive land and relied on the railroads for transportation instead of the Mississippi River. The building's next tenant the Century Electric Company was one of the largest Saint Louis companies in the electrical manufacturing fields. Its migration westward, as well as its growth and development into a multi-national company echoed the growth of not only other electrical manufacturing concerns, but many of Saint Louis' industries. The Century Electric Company was a major contributor in an important Saint Louis industry and the Standard Adding Machine Company Building is one of the few sites connected with the Century Electric Company left extant but it is also the only tangible connection to the innovative Standard Adding Machine Company.

ENDNOTES

[1]"Building News. Building Permits. Brick," *St. Louis Daily Record*, 20 November 1902, p. 3; *Gould's St. Louis Directory for 1903* (St. Louis: Gould Directory Co., 1903), 1799; Permit No. D-7368, 18 November 1902, City Block 3919-E, Inactive Building Permits, Microfilm Room, Division of Building and Inspection, City of St. Louis, St. Louis, Missouri.

[2]"Building News. St. Louis Building Permits. Brick," *St. Louis Daily Record*, 24 June 1924, p. 4.

[3]"Building News. St. Louis City. St. Louis Building Permits. Brick," *St. Louis Daily Record*, 16 March 1946, p. 4; Permit No. R-2453, 15 March 1946, Active Building Permits.

[4]*Gould's St. Louis Directory* (St. Louis: Polk-Gould Directory Co., 1921), 1777; *Gould's St. Louis Directory* (1922), 2141; *Gould's St. Louis (Missouri) City Directory* (St. Louis: Polk-Gould Directory Co., 1942), 1807; Permit No. B-7816, 7 August 1923, Inactive Building Permits; Permit No. C-3348, 23 June 1924, Inactive Building Permits.

[5]*Gould's St. Louis Directory for 1903*, 1799.

[6]*Gould's St. Louis Directory* (1922), 2141; *Gould's St. Louis (Missouri) City Directory* (1931), 1777; *Gould's St. Louis (Missouri) City Directory* (1932), 1548.

[7]*Gould's St. Louis (Missouri) City Directory* (1932), 1548; (1933-34), 1518; (1935), 1613; (1936), 1604; (1937), 1632; (1938), 1577.

[8]Ibid. (1939), 1641; (1940), 1644; (1941), 1654.

[9]Ibid. (1942), 1807.

[10]Ibid. (1947-48), 1792; (1955), p177; *Polk's St. Louis (Missouri) City Directory* (St. Louis: R. L. Polk & Co., 1960), 257.

Narrative Statement of Significance (continued)

[11]Jeffrey E. Smith, "St. Louis Historic Contexts," in *A Preservation Plan for St. Louis, Volume I* (Saint Louis: The Heritage and Urban Design Division, Preservation Section, [1995]), 26-27; Marshall S. Snow, ed., *History of the Development of Missouri and Particularly of Saint Louis, Vol. II,* (Saint Louis: National Press Bureau, Publishers, 1908), 348, 363.

Saint Louis' Heritage and Urban Design Division is in the process of developing a preservation plan for the city which in part is identifying historic contexts to utilize in identifying significant historic properties in the city. At the present time, "Business, Commerce, and Industry" has been designated as one of eleven historic contexts for the city, but it has yet to be fully researched and documented. (See Smith, 26-27; Heritage and Urban Design Division, City of Saint Louis, Missouri, "St. Louis Property Types," in *A Preservation Plan for St. Louis, Volume I,* (Saint Louis: The Heritage and Urban Design Division Section, 1995), 225, 282.) As such, the following historical summary of the city's late nineteenth and early twentieth century development is provided to show both the importance of industry in Saint Louis' development and the role of electrical manufacturing as part of that development.

[12] George H. Morgan, Annual Statement of the Trade and Commerce of St. Louis, for the Year 1892, Reported to the Merchants' Exchange of St. Louis (Saint Louis: R. P. Studley and Company, Printers, 1893), 36-38; Marshall S. Snow, ed., History of the Development of Missouri and Particularly of Saint Louis, Volume 2 (Saint Louis: National Press Bureau, 1908), 363.

[13]Morgan, 32.

[14] Snow, 365.

[15] William Flewellyn Saunders and W. V. Byars, *The Reasons Why it Pays to Manufacture in Saint Louis,* prepared for the Business Men's League of St. Louis (n.p.: 1906), 6.

[16] Why it Pays, 6; Snow, 375; William Flewellyn Saunders, *St. Louis Today,* published under the Auspices of the Business Men's League of Saint Louis (Saint Louis: Robert A. Reid, Publisher, [1906]), 26.

[17] James Neal Primm, *Lion of the Valley: St. Louis, Missouri* (Boulder, Colorado: Pruett Publishing Company, 1981), 418; Merchants' Exchange of St. Louis, *Annual Statement of the Trade and Commerce of Saint Louis for the Year 1913* (Saint Louis: R. P. Studley and Company, 1914), 59.

[18] Primm, 418, 463; Saunders and Byars, 6; Merchants' Exchange, 33,59; Lewis F. Thomas, *The Localization of Business Activities in Metropolitan St. Louis,* Washington University Studies -- New Series Social and Philosophical Sciences -- No. 1 (Saint Louis: n.p., 1927), 5.

[19] Morgan, 33; Smith, 26; Snow, 372.

[20] Morgan, 32.

[21] Saunders and Byars, 9; Snow, 346-348.

[22] Saunders and Byars, 13.

[23] Morgan, 38.

[24] *Final Report of Chouteau's Landing Survey,* 3.

[25] Ibid., 3-6.

[26] This conclusion is based upon a comparison of the Sanborn fire insurance maps over the years, a visual inspection of the Light Manufacturing District and the riverfront, and informal conversations with developers and preservationists in Saint Louis as well as consulting Landmarks Surveys; "Fire Insurance Map of Saint Louis, Missouri" (NY: Sanborn Map Company, 1908, 1909, 1932 corrected to 1951, 1979, 1989, 1990, 1992, 1993, 1994, and 1995; *Final Report of Chouteau's Landing Survey,* 3-6.

Narrative Statement of Significance (continued)

[27] John Kopplin, "An Illustrated History of Computers," *Computer Science Lab*, 2002 <http://www.computersciencelab.com/ComputerHistory/History.htm> (23 November 2004), 10-12.

[28]Kopplin, 10-12; J.A.N. Lee and Stanley Winkler, with copy by Merlin Smith, "Key Events in the History of Computing; prepared for the IEEE Computer Society for Distribution in 1996 as Part of the 50th Anniversary Activities," *IEEE Computer Society*, 2004 <http://www.computer.org/history/> (21 March 2005), 4-5.

[29]Peggy Aldrich Kidwell, "The Adding Machine Fraternity at St. Louis: Creating a Center of Invention, 1880-1920," *IEEE Annals of the History of Computing* vol. 22, no. 2 (April-June 2000): 8, 12.

[30] Ibid, 5.

[31] Ibid, 4.

[32] Ibid, 6-7.

[33] Ibid,

[34] Ibid, 7-8.

[35] Ibid, 6-8.

[36] Ibid, 8.

[37] Ibid, 8-11.

[38] Ibid, 14-15.

[39] Ibid, 13.

[40] Ibid,5.

[41] Ibid.

[42] Ibid, 13.

[43] Ibid, 13.

[44] Ibid, 14.

[45] Ibid.

[46] Gould's St. Louis Directory (1912), 1955; (1913), 1568; (1922), 2141.

[47] American Institute of Electrical Engineers. St. Louis Section. *St. Louis Section Through Fifty Years* (Saint Louis: American Institute of Electrical Engineers, 1954), 17.

[48] Saunders and Byars, 24.

[49] Merchants' Exchange of St. Louis, *Annual Statement of the Trade and Commerce of Saint Louis for the Year 1913* (Saint Louis: R. P. Studley and Company, 1914), 59.

[50]"Electrical Manufacturing Known Around the World; Emerson Gave His Name To Fans; Century Claims Firsts, Moloney Makes Transformers," Special Section, *St. Louis Post Dispatch* (25 December 1949), 17-18.

[51]Missouri Historical Society (Saint Louis, Missouri), Business and Industry Archives, Century Electric Company Clippings Folder.

Narrative Statement of Significance (continued)

[52] Ibid; Saint Louis Electrical Board. *A 'Century' Plus of Electrical Progress: The History of the Electrical Industrial in Metropolitan Saint Louis,* (Saint Louis: Published under the auspices of the Saint Louis Electrical Board, N. D.), 21.

[53] Saint Louis Electrical Board. *A 'Century' Plus of Electrical Progress,* 21.

[54] Missouri Historical Society, Century Electric Company Clippings Folder.

[55] Ibid.

[56] Ibid.

[57] Ibid.

[58] Ibid; Saint Louis Electrical Board, 20.

[59] Ibid.

[60] Ibid; Saint Louis Electrical Board, 21.

[61] Ibid.

[62] Ibid.

[63] Ibid.

[64] Ibid.

[65] Ibid; Saint Louis Electrical Board, 20.

[66] Ibid.

Major Bibliographic References

American Institute of Electrical Engineers. St. Louis Section. *St. Louis Section Through Fifty Years*. Saint Louis: American Institute of Electrical Engineers, 1954.

American Institute of Electrical Engineers. *The St. Louis Electrical Handbook; being a guide for visitors from abroad attending the International Electrical Congress, Saint Louis, Missouri, September 1904*. Saint Louis: Published under the auspices of the American Institute of Electrical Engineers, 1904.

"Antique Adding and Calculating Machines." *Early Office Museum*, 2002-2004. <www.officemuseum.com> (23 November 2004).

Baxter, Karen Bode and Mandy K. Wagoner. Electric Company Buildings in Saint Louis. Informal Windshield Survey. 9 August 2001.

"Building News. Building Permits. Brick" [building construction, $20,000]. *St. Louis Daily Record*, 20 November 1902, p. 3.

"Building News. St. Louis Building Permits. Brick" [major alteration, $14,000]. *St. Louis Daily Record*, 24 June 1924, p. 4.

Building News. St. Louis City. St. Louis Building Permits. Brick" [1-story addition, $10,000]. *St. Louis Daily Record*, 16 March 1946, p. 4.

"Century Electric Co. Another Pioneer Firm" In "Electrical Manufacturing Known Around the World; Emerson Gave His Name To Fans; Century Claims Firsts, Moloney Makes Transformers." Special Section. *St. Louis Post-Dispatch*. 25 December 1949, 13G.

"A Chronology of Computer History." *HCS Virtual Computer History Museum*, 1996. <http://www.cyberstreet.com/hcs/museum/chron.htm> (6 March 2005).

"Electrical Firm Begun In Small Shop 28 Years Ago Sells For Millions." *St. Louis Post-Dispatch*. 25 June 1925, 8. "Electrical Manufacturing Known Around the World; Emerson Gave His Name To Fans; Century Claims Firsts, Moloney Makes Transformers." Special Section. *St. Louis Post-Dispatch*. 25 December 1949, pp. 12-14 G.

"Emerson History." In Emerson [company web page] Saint Louis, Missouri: Emerson, cited 8 August 2001 Available from http://www.gotoemerson.com/about_em/history.htm.

Faherty, William Barnaby. *St. Louis, A Concise History*. Assisted by NiNi Harris. St. Louis: Print Graphics Inc., 1989.

Fire Insurance Maps of Saint Louis, MO. Vol. 5. New York: Sanborn Map Company, 1909, 1932 corrected to 1951.

Gould's St. Louis Blue Book. St. Louis: Gould Directory Co., 1911-1915.

Gould's St. Louis Directory. St. Louis: Gould Directory Co., 1902-1917.

Gould's St. Louis Directory. St. Louis: Polk-Gould Directory Co., 1918-1922.

Gould's St. Louis (Missouri) City Directory. St. Louis: Polk-Gould Directory Co., 1928-1956.

Gould's St. Louis Red Book. St. Louis: Gould Directory Co., 1911-1916.

Gould's St. Louis Red-Blue Book. St. Louis: Polk-Gould Directory Company, 1918-1929.

"H. A. Wagner, F. C. Schwedtmann Partnership Became Wagner Electric" In "Electrical Manufacturing Known Around the World; Emerson Gave His Name To Fans; Century Claims Firsts, Moloney Makes Transformers." Special Section. *St. Louis Post-Dispatch*. 25 December 1949, 12G.

Hancock, Michael. "Burroughs Adding Machine Company. Glimpses into the Past. History-1857-1953." *X-Number World*, January 1988. <http://www.xnumber.com/xnumber/hancock7.htm> (23 November 2004).

Major Bibliographic References

Heritage and Urban Design Division. City of Saint Louis, Missouri. "St. Louis Property Types." In *A Preservation Plan for St. Louis.* Volume 1, pp. 127-302. Saint Louis: The Heritage and Urban Design Division. Preservation Section, 1995.

Hillstrom, Kevin, ed. *Encyclopedia of American Industries. Vol. 1: Manufacturing Industries.* New York: Gale Research Inc., 1994.

Historic American Buildings Survey: St. Louis City Hall. MO-265. Saint Louis. Saint Louis County, Missouri. [n.d.].

"Industrial Notes." *Southwest-Southeast Business, Monthly Report of the Industrial Bureau of the Industrial Club of St. Louis.* September 22, 1932. p. 10.

Goldman, J. M. "J. M. Goldman Private Collection." "Standard Adding Machine" [Advertisement] <http://www.jmgoldman.com/adpages/standard_.jpg> (21 March, 2005).

Kargau, E. D. *Mercantile, Industrial and Professional Saint Louis.* Saint Louis: Nixon-Jones Printing Company, Printers, [1902].

Kidwell, Peggy Aldrich. "The Adding Machine Fraternity at St. Louis: Creating a Center of Invention, 1880-1920." *IEEE Annals of the History of Computing* vol. 22, no. 2 (April-June 2000): 4-21.

Kopplin, John. "An Illustrated History of Computers." *Computer Science Lab*, 2002 <http://www.computersciencelab.com/ComputerHistory/History.htm> (23 November 2004).

Landmarks Association of St. Louis. *Final Report –Chouteau's Landing Survey.* September 1988.

_____. Final Report/Property Type Analysis for Phase I, II, and III of Landmarks Association's Industrial Survey of the St. Louis Riverfront. December 1990.

_____. Research Design: Survey of North Broadway Industrial Area, St. Louis, Missouri. July 1989.

_____. Research Design: Survey of North Broadway Industrial Area II, St. Louis, Missouri. July 1990.

Lee, J.A.N. and Stanley Winkler, with copy by Merlin Smith. "Key Events in the History of Computing; prepared for the IEEE Computer Society for Distribution in 1996 as Part of the 50th Anniversary Activities." *IEEE Computer Society*, 2004. <http://www.computer.org/history/> (21 March 2005).

"Louis Pendelton Is Dead at 89." *St. Louis Globe-Democrat*, 30-31 May 1963. Clipping in St. Louis Architects Files. Fine Arts Department, Central Branch, St. Louis Public Library. St. Louis, Missouri.

Merchants' Exchange of St. Louis. *Annual Statement of the Trade and Commerce of Saint Louis for the Year 1913.* Saint Louis: R. P. Studley and Company, 1914.

Merzbach, Uta C. *George Scheutz and the First Printing Calculator.* Washington, D. C.: Smithsonian Institution Press, 1977.

Meyers, Jeremy. "A Short History of the Computer." *Computer History*, 2001. <http://www.softlord.com/comp/> (18 June 2001).

Missouri Historical Society (Saint. Louis). Mercantile and Manufacturing Scrapbook. Vol. III, 134.

Missouri Historical Society (Saint. Louis). Business and Industry Archives. Century Electric Folder.

Morgan, George H. *Annual Statement of the Trade and Commerce of St. Louis, for the Year 1892, Reported to the Merchants' Exchange of St. Louis.* Saint Louis: R. P. Studley and Company, Printers, 1893.

"New Industries, New Warehouses and Expansions for the St. Louis Industrial District Are Summarized for the Year 1927." *St. Louis Business.* 1. (10 January 1928): 11.

Major Bibliographic References

"Plant Produced Electronics Equipment for U. S. in Wartime" In "Electrical Manufacturing Known Around the World; Emerson Gave His Name To Fans; Century Claims Firsts, Moloney Makes Transformers." Special Section. *St. Louis Post-Dispatch*. 25 December 1949, 14G.

Polk-Gould's St. Louis Directory. St. Louis: Polk-Gould Directory Co., 1923-1927.

Polk's St. Louis (Missouri) City Directory. St. Louis: R. L. Polk & Co., 1957-1968.

Primm, James Neal. *Lion of the Valley: St. Louis, Missouri.* Boulder, Colorado: Pruett Publishing Company, 1981.

Redin, James. "A Brief History of Mechanical Calculators. Part III Getting Ready for the 20th Century." *X-Number World*, October 2003. <http://www.dotpoint.com/xnumber/mechanical3.htm> (24 November 2004).

_____. "A Brief History of Mechanical Calculators. Part I: The Age of the Polymaths." *X-Number World*, July 2004. <http://www.dotpoint.com/xnumber/mechanical1.htm> (24 November 2004).

St. Louis Chamber of Commerce. Industrial Bureau. *Industrial Report on Saint Louis*. n.p. [1939].

St. Louis, Missouri. City of St. Louis. Division of Building and Inspection. Microfilm Room. Inactive and Active Building Permits, City Block 3919-E. St. Louis, Missouri. St. Louis Public Library, Central Branch, Local History Department. Vertical Files.

Saint Louis Electrical Board. *A 'Century' Plus of Electrical Progress: The History of the Electrical Industrial in Metropolitan Saint Louis*. Saint Louis: Published under the auspices of the Saint Louis Electrical Board. n. d.

Saunders, William Flewellyn and Byars, W. V. *The Reasons Why It Pays to Manufacture in Saint Louis*. Prepared for the Business Men's League of St. Louis. n.p.: 1906.

_____ and Byars, W. V. *The Reasons Why it Pays to Manufacture in Saint Louis*. Prepared for the Business Men's League of St. Louis. n.p.: 1906.

Smith, Jeffery E. "St. Louis Historic Contexts." *In A Preservation Plan for St. Louis*. Vol. 1, pp. 1-126. Saint Louis: The Heritage ad Urban Design Division. Preservations Section, [1995].

Snow, Marshall S.. ed. *History of the Development of Missouri and Particularly of Saint Louis*. Vol. 2. Saint Louis: National Press Bureau, 1908.

Stevens. Walter B. *St. Louis, History of the Fourth City, 1793-1909*. Vol. II. Chicago-Saint Louis: The S. J. Clarke Publishing Company, 1909.

Thomas, Lewis F. *The Localization of Business Activities in Metropolitan St. Louis*. Washington University Studies – New Series Social and Philosophical Sciences – No. 1. Saint Louis: n.p., 1927.

Toft, Carolyn Hewes. *St. Louis: Landmarks & Historic Districts*. [Saint Louis]: Landmarks Association of St. Louis, Inc., 1988.

Wagner, Theodore P. "Wagner, Emerson, Century and Moloney Lead in Fields; They Date from 1890s and Early 1900s" in "Electrical Manufacturing Known Around the World; Emerson Gave His Name To Fans; Century Claims Firsts, Moloney Makes Transformers." Special Section. *St. Louis Post-Dispatch*. 25 December 1949, 12G.

Walton, Clarence C. and Cleveland, Frederick W., Jr. Corporations On Trial: The Electric Cases. Belmont, California: Wadsworth Publishing Company.

White, Stephen. "A Brief History of Computing - Mechanical Computing Devices. *Stephen's Homepage*, 1996-2004. <http://www.ox.compsoc.net/~swhite/> (6 March 2005).

Winters, Jeffrey. "Remember the Adding Machine." *Mechanical Engineering* (September 2003). *Mechanical Engineering Magazine Online*, 2003. <http://www.memagazine.org/backissues/sept03/features/adding/adding.html> (23 November 2004).

Verbal Boundary Description

A lot in Block 3919-E of the City of St. Louis, fronting 130 feet 0-1/8 inches on the north line of Forest Park Avenue, by a depth northwardly of 18.2 feet 8 inches to an alley; bounded east by Spring Avenue.

Boundary Justification

The boundaries incorporate all of the property that has been historically associated with this property.

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Photo Log

Photographer: Karen Bode Baxter
April 2004
Negatives with preparer: Karen Bode Baxter, 5811 Delor Street, St. Louis, MO 63109

Photo #1: Exterior, looking northwest at south façade and east elevation

Photo #5: Exterior, detail of first floor window, east bay of facade

Photographer: Matt Cerny
December 2003
Negatives with preparer: Karen Bode Baxter, 5811 Delor Street, St. Louis, MO 63109

Photo #2: Exterior, looking west southwest at north (alley) elevation

Photo #3: Exterior, looking southeast at west elevation and back of addition

Photo #4: Exterior, looking northeast at façade and west elevation of addition

Photo #6: Interior, first floor, third bay from front, looking east from west

Photo #7: Interior, first floor, looking north northwest from central stairs at fourth bay

Photo #8: Interior, first floor, looking northwest behind central stairs

Photo #9: Interior, first floor, looking northeast toward northeast corner

Photo #10: Interior, second floor, looking south through middle bay

Photo #11: Interior, second floor looking north through bay west of center

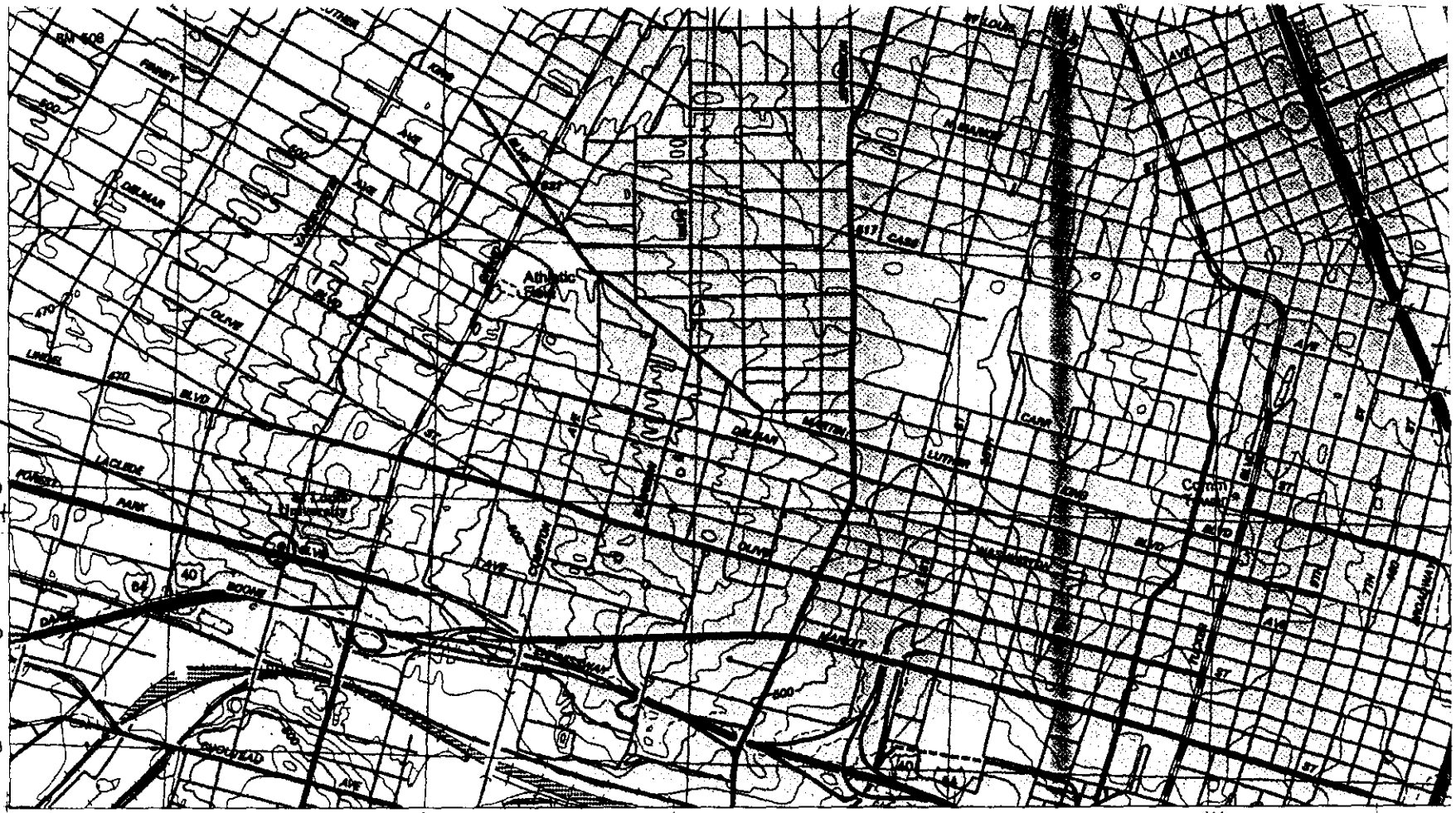
Photo #12: Interior, mezzanine (inside monitor clerestory) at rear of building, looking north

Photo #13: Interior, addition, looking up and south at clerestory above second floor

Photo #14: Interior, second floor, looking south from north wall

Photo #15: Interior, second floor, looking southwest from north wall

Photo #16: Interior, second floor, looking northwest from south wall



Standard Folding Machine Building
St. Louis Independant City, Mo.
UTM Reference:
15 740420 4279790

SCALE 1:2

Produced by the United States Geological Survey

Topography compiled 1952. Planimetry derived from imagery taken 1993 and other sources. Photoinspected using imagery dated 1998; no major culture or drainage changes observed. PLSS and survey control current as of 1954. Boundaries, other than corporate, verified 1999

North American Datum of 1983 (NAD 83). Projection and 1000-meter grid: Universal Transverse Mercator, zone 15
10 000-foot ticks: Illinois (west zone) and Missouri (east zone) Coordinate Systems of 1983

North American Datum of 1927 (NAD 27) is shown by dashed corner ticks. The values of the shift between NAD 83 and NAD 27 for 7.5-minute intersections are obtainable from National Geodetic Survey NADCON software

Contours that conflict with revised planimetry are dashed

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

MN
GN
½°
9 MILS
1°45'
31 MILS

UTM GRID AND 1999 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

20%
TOTAL RECOVERED FIBER

1 0.5 0 KILOMETER
1000 0 METERS
1 0.5 0 MILES
1000 0 1000 2000 3000 4000 FEET

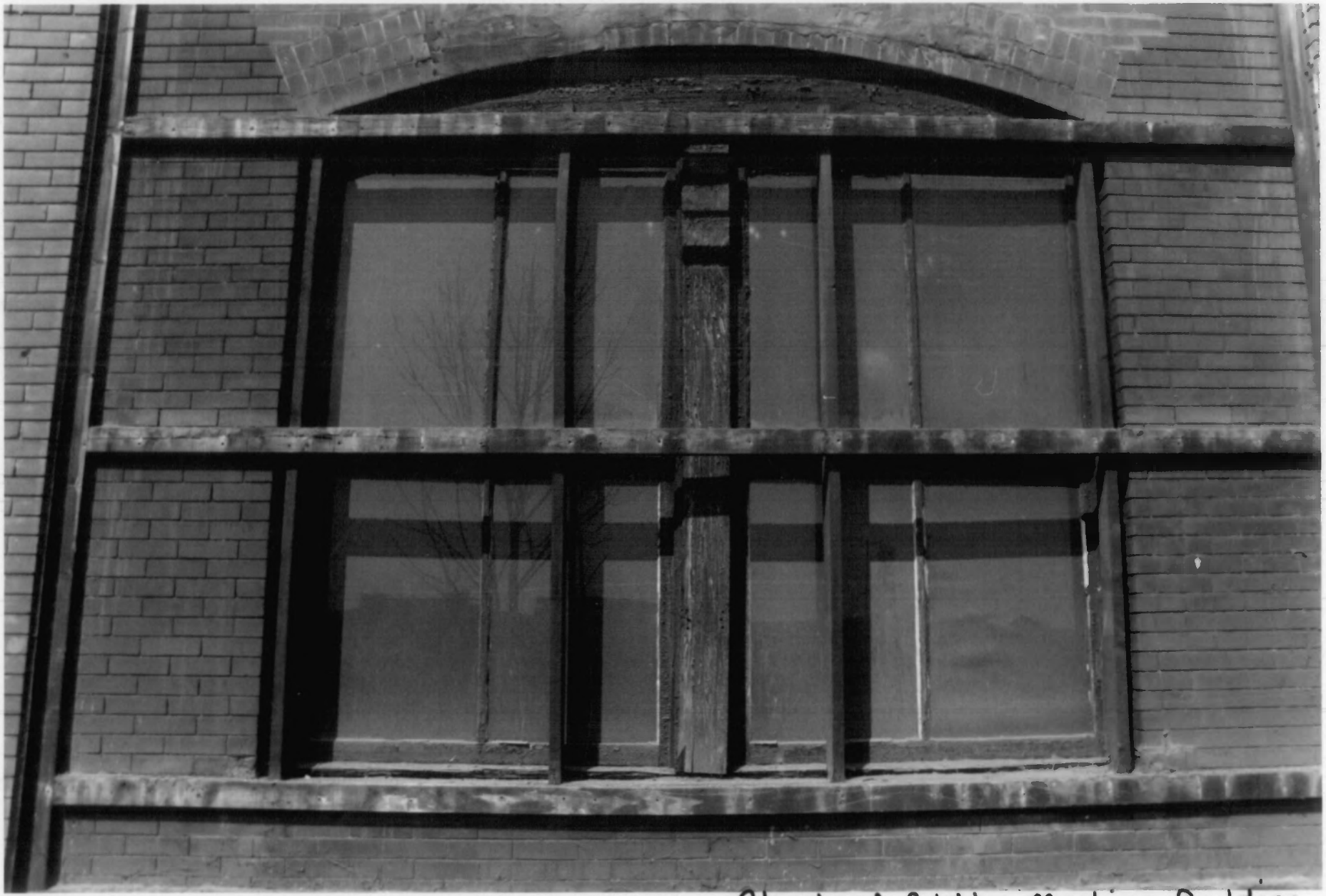
CONTOUR INTER
SUPPLEMENTARY CONTOU
NATIONAL GEODETIC VERT
TO CONVERT FROM FEET TO MET
THIS MAP COMPLIES WITH NATIONAL
FOR SALE BY U.S. GEOLOGICAL SURVEY, P.O.
AND ILLINOIS GEOLOGICAL SURVEY
AND DIVISION OF GEOLOG
MISSOURI DEPARTMENT OF NATURAL RE
A FOLDER DESCRIBING TOPOGRAPHIC MAPS A

Standard Adding Machine Building
St. Louis (Independent City), Mo.
Photo # 1

Standard Adding Machine Building
St. Louis (Independent City), MO.
Photo# 2

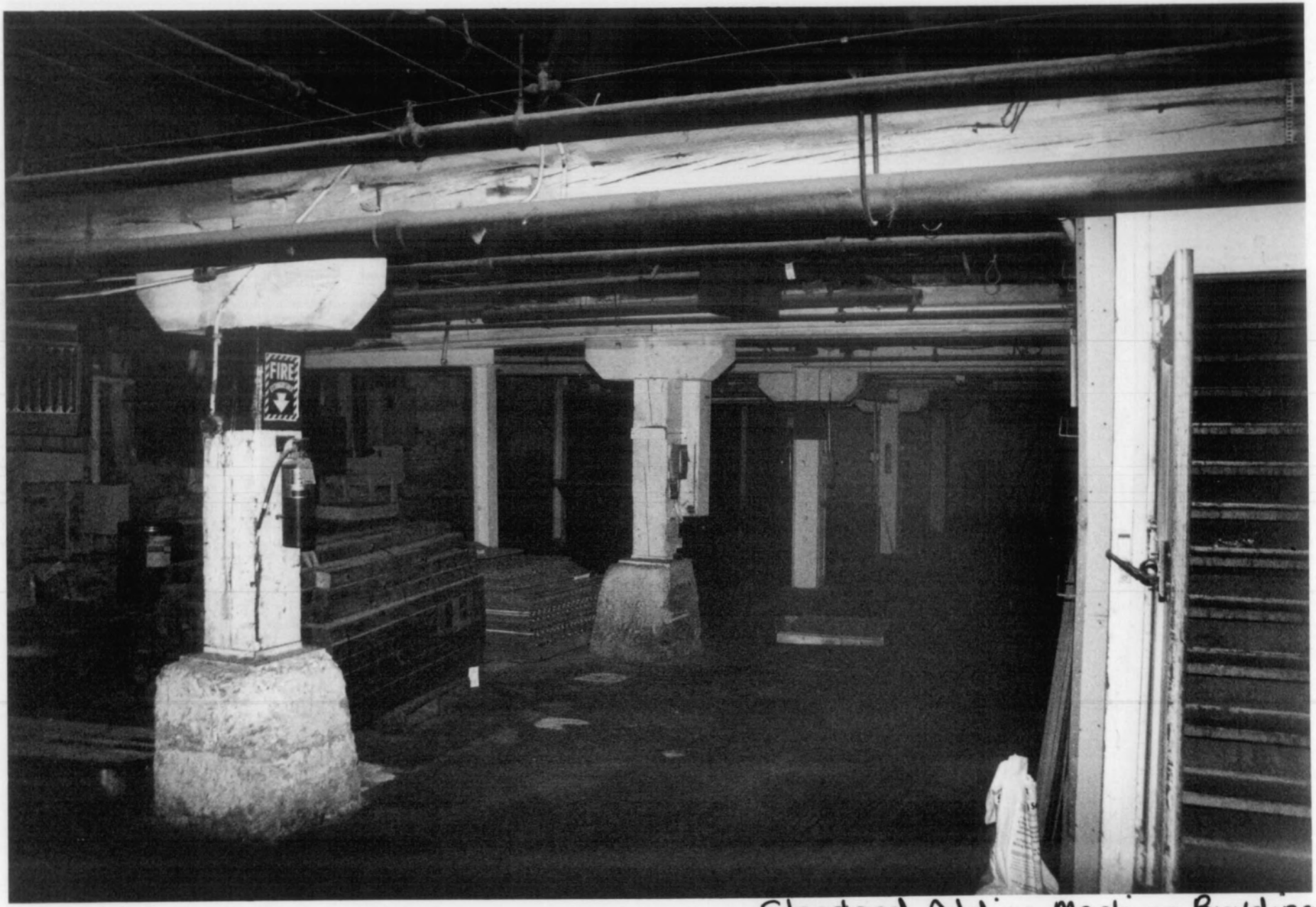
Standard Adding Machine Building
St. Louis (Independent City), Mo.
Photo # 3

Standard Adding Machine Building
St. Louis (Independent City), MO
Photo # 4



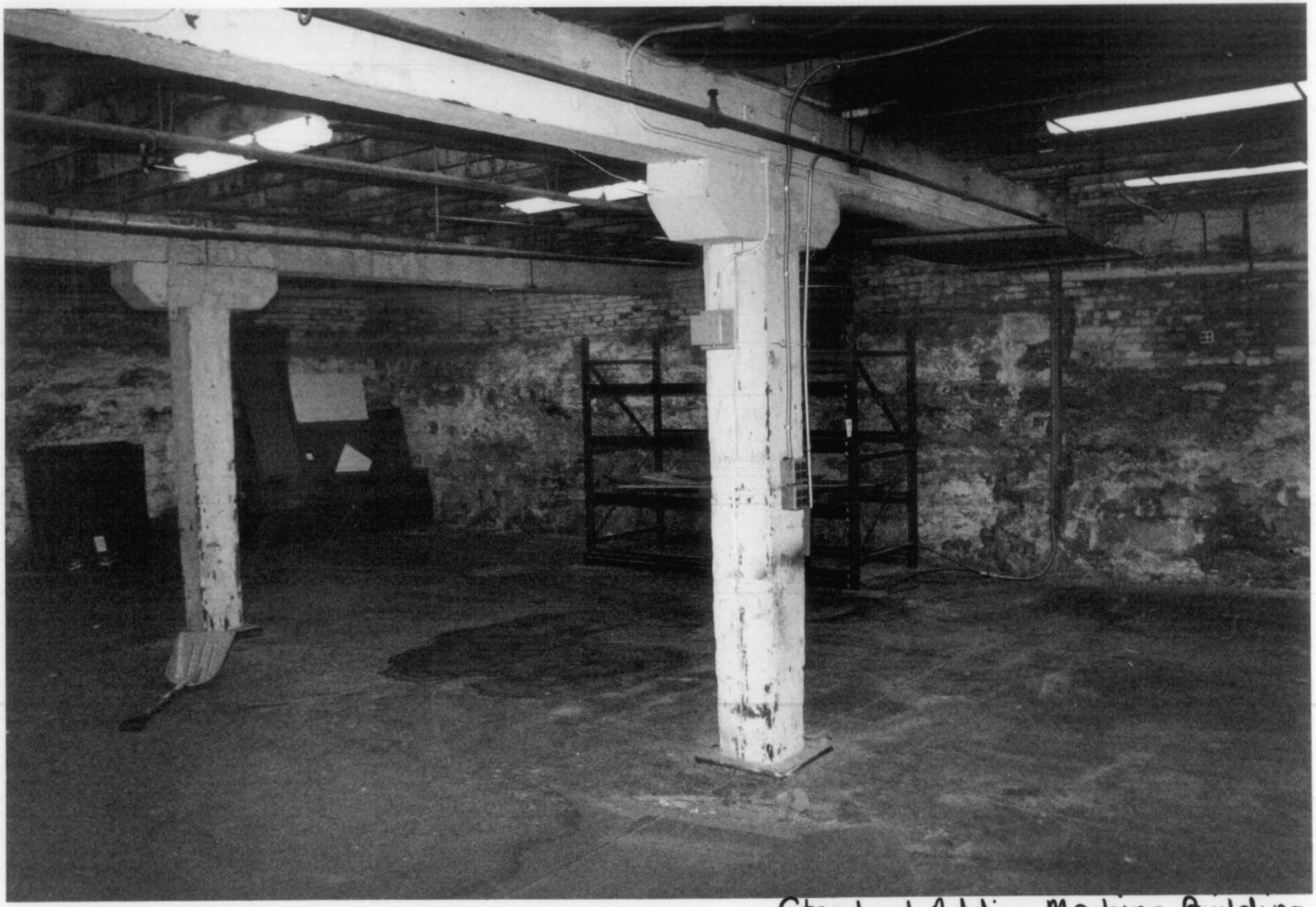
Standard Adding Machine Building
St. Louis (Independent City), MO.
Photo # 5

Standard Adding Machine Building
St. Louis (Independent City), MO.
Photo # 6



Standard Adding Machine Building
St. Louis (Independent City), MO.
Photo # 7

Standard Adding Machine Building
St. Louis (Independent City), Mo.
Photo # 8

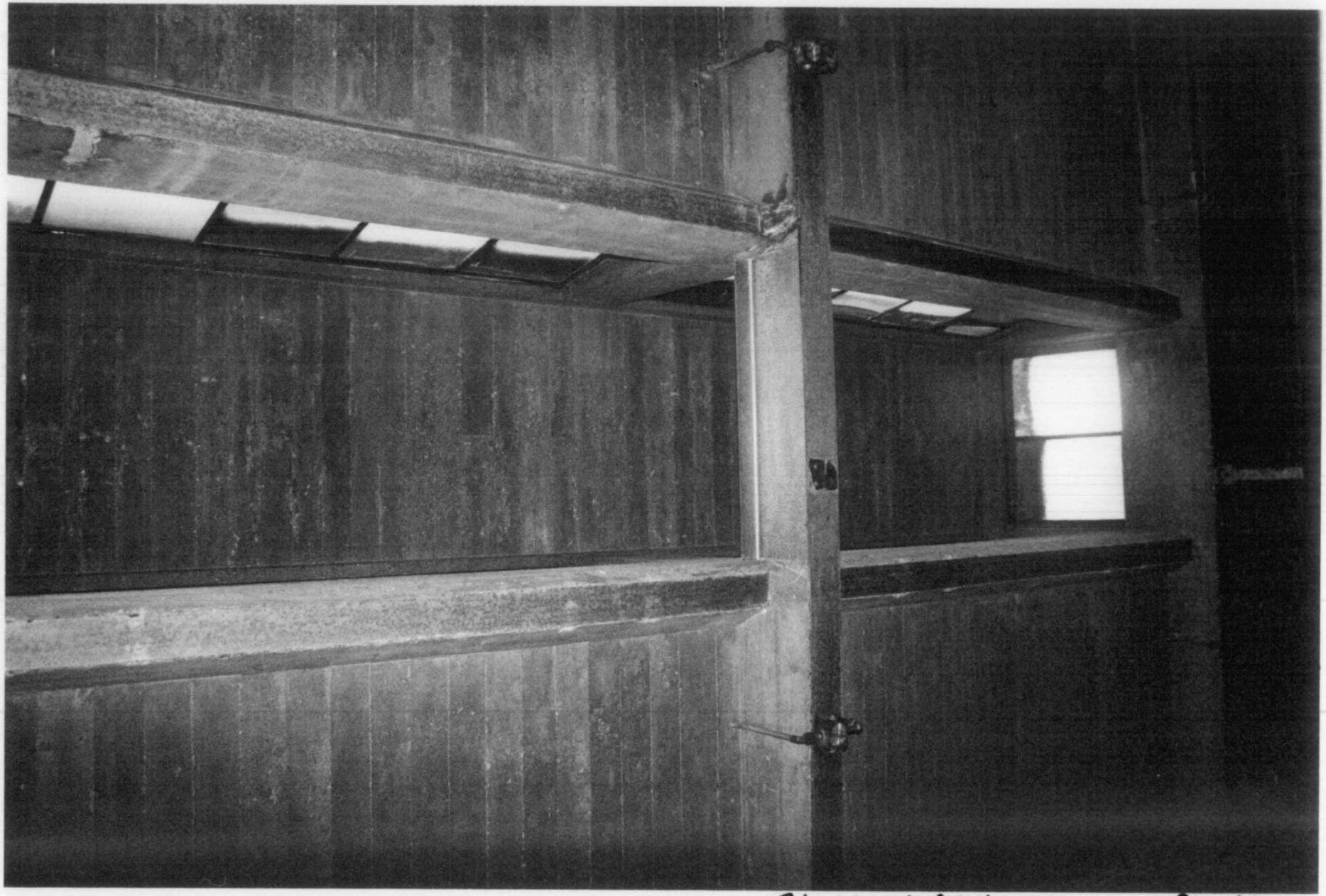


Standard Adding Machine Building
St Louis (Independent City), Mo.
Photo # 9

Standard Adding Machine Building
St. Louis (Independent City), MO.
Photo # 10

Standard Adding Machine Building
St. Louis (Independent City), MO.
Photo# 11

Standard Adding Machine Building
St. Louis (Independent City), MO.
Photo # 12



Standard Adding Machine Building
St. Louis (Independent City), Mo.
Photo # 13

Standard Adding Machine Building
St. Louis (Independent City), Mo.
Photo #14

Standard Adding Machine Building
St. Louis (Independent City), MO.
Photo #15

Standard Adding Machine Building
St. Louis (Independent City), MO.
Photo #16