

**ADDRESS: 1045-49 SARAH ST**

Name of Resource: Otis Elevator Company Boiler and Engine House

Proposed Action: Designation

Property Owner: Antal Group Inc.

Nominator: The Keeping Society of Philadelphia

Staff Contact: Laura DiPasquale, [laura.dipasquale@phila.gov](mailto:laura.dipasquale@phila.gov), 215-686-7660

**OVERVIEW:** This nomination proposes to designate the property at 1045-29 Sarah Street and list it on the Philadelphia Register of Historic Places. The nomination contends that the former boiler and engine house of the Otis Elevator Company, built in 1904, satisfies Criteria for Designation A, C, G, and J. Under Criteria A and J, the nomination argues that the property is significant in the development of Fishtown/Kensington as part of the Morse Elevator Works and the Otis Elevator Company. Under Criterion C, the nomination contends that the building is representative of industrial power plant design of the early twentieth century. Under Criterion G, the nomination argues that the building is part of the earliest, extent, coherent industrial complexes in Fishtown, but does not propose to designate the complex as a district. Many of the other properties associated with the former Morse and Otis Elevator Companies were individually designated in 2015 and 2016.

**STAFF RECOMMENDATION:** The staff recommends that the nomination demonstrates that the property at 1045-49 Sarah Street satisfies Criteria for Designation A, C. and J, but not Criterion G.

<https://www.phila.gov/historical/Documents/1045-49-Sarah-St-Nomination.pdf>



**NOMINATION OF HISTORIC BUILDING, STRUCTURE, SITE, OR OBJECT  
PHILADELPHIA REGISTER OF HISTORIC PLACES  
PHILADELPHIA HISTORICAL COMMISSION**

SUBMIT ALL ATTACHED MATERIALS ON PAPER AND IN ELECTRONIC FORM (CD, EMAIL, FLASH DRIVE)  
ELECTRONIC FILES MUST BE WORD OR WORD COMPATIBLE

**1. ADDRESS OF HISTORIC RESOURCE** *(must comply with an Office of Property Assessment address)*

Street address: 1045-49 Sarah Street

Postal code: 19125

**2. NAME OF HISTORIC RESOURCE**

Historic Name: Building 10: Boiler & Engine House of the Otis Elevator Company

Current/Common Name: Unknown

**3. TYPE OF HISTORIC RESOURCE**

Building       Structure       Site       Object

**4. PROPERTY INFORMATION**

Condition:     excellent     good     fair     poor     ruins

Occupancy:     occupied     vacant     under construction     unknown

Current use: Unknown

**5. BOUNDARY DESCRIPTION**

*Please attach a narrative description and site/plot plan of the resource's boundaries.*

**6. DESCRIPTION**

*Please attach a narrative description and photographs of the resource's physical appearance, site, setting, and surroundings.*

**7. SIGNIFICANCE**

*Please attach a narrative Statement of Significance citing the Criteria for Designation the resource satisfies.*

Period of Significance (from year to year): from 1904 to 1943

Date(s) of construction and/or alteration: 1904

Architect, engineer, and/or designer: Unknown

Builder, contractor, and/or artisan: The Charles McCaul Company

Original owner: Morse Elevator Works/Morse, Williams & Co.

Other significant persons: \_\_\_\_\_

**CRITERIA FOR DESIGNATION:**

The historic resource satisfies the following criteria for designation (check all that apply):

- (a) Has significant character, interest or value as part of the development, heritage or cultural characteristics of the City, Commonwealth or Nation or is associated with the life of a person significant in the past; or,
- (b) Is associated with an event of importance to the history of the City, Commonwealth or Nation; or,
- (c) Reflects the environment in an era characterized by a distinctive architectural style; or,
- (d) Embodies distinguishing characteristics of an architectural style or engineering specimen; or,
- (e) Is the work of a designer, architect, landscape architect or designer, or engineer whose work has significantly influenced the historical, architectural, economic, social, or cultural development of the City, Commonwealth or Nation; or,
- (f) Contains elements of design, detail, materials or craftsmanship which represent a significant innovation; or,
- (g) Is part of or related to a square, park or other distinctive area which should be preserved according to an historic, cultural or architectural motif; or,
- (h) Owing to its unique location or singular physical characteristic, represents an established and familiar visual feature of the neighborhood, community or City; or,
- (i) Has yielded, or may be likely to yield, information important in pre-history or history; or
- (j) Exemplifies the cultural, political, economic, social or historical heritage of the community.

**8. MAJOR BIBLIOGRAPHICAL REFERENCES**

*Please attach a bibliography.*

**9. NOMINATOR**

Organization The Keeping Society of Philadelphia Date January 3, 2019

Name with Title Oscar Beisert, Architectural Historian Email keeper@keepingphiladelphia.org

Street Address 1315 Walnut Street, Suite 320 Telephone 717-602-5002

City, State, and Postal Code Philadelphia, PA 19107

Nominator  is  is not the property owner.

**PHC USE ONLY**

Date of Receipt: 1/3/2019

Correct-Complete  Incorrect-Incomplete Date: 2/8/2019

Date of Notice Issuance: 2/8/2019

Property Owner at Time of Notice:

Name: Antal Group Inc

Address: 1045-49 Sarah St

City: Philadelphia State: PA Postal Code: 19125

Date(s) Reviewed by the Committee on Historic Designation: \_\_\_\_\_

Date(s) Reviewed by the Historical Commission: \_\_\_\_\_

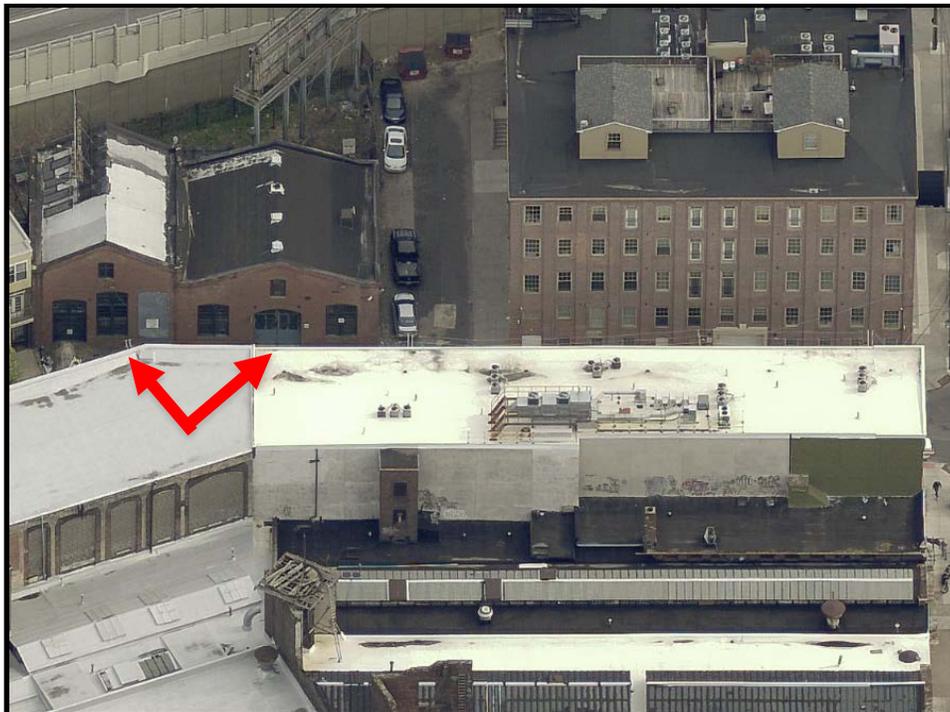
Date of Final Action: \_\_\_\_\_

Designated  Rejected

**NOMINATION**

**FOR THE**

**PHILADELPHIA REGISTER OF HISTORIC PLACES**



Looking south at the primary (north) elevation of the subject property within the context of the former elevator works. Source: Atlas, City of Philadelphia, 2018.

**The Otis Elevator Works**  
**Building 10: Boiler & Engine House**  
**erected 1904**

-  
**1045-49 Sarah Street**  
**FISHTOWN**  
**Philadelphia, Pennsylvania**

## 5. BOUNDARY DESCRIPTION

The boundary for the designation of the subject property is as follows:

BEGINNING at the point of intersection of the south side of Wildey Street (50 feet wide) and the east side of Sarah Street (33 feet wide), thence extending along the South side of said Wildey Street, south 88 degrees 22 minutes 57 seconds, east 69 feet and 3/8 of an inch to a point at an angle in said Wildey Street, thence extending still along the southerly side of said Wildey Street north 67 degrees 33 minutes 3 seconds, east 15 feet, 4-1/4 inches to a point, thence extending South 22 degrees 17 minutes 57 seconds East 63 feet 3-3/8 inches to a point the center line of a certain 12 feet wide driveway, thence extending along the center line of said 12 feet wide driveway, north 88 degrees 22 minutes 57 seconds, west 108 feet 8-1/2 inches to the easterly side of said Sarah Street and thence extending along the east side of said Sarah Street, north 1 degree 37 minutes 3 seconds, east 51 feet 7 inches to the first mentioned point and place of beginning.

OPA Property Number 882971050

Philadelphia Deed Registry Number 017N03-0174



Figure 1: The boundary for the proposed designation is delineated in blue. Source: Atlas, City of Philadelphia, 2018.

## 6. PHYSICAL DESCRIPTION

Building 10: Boiler & Engine House was built by Morse, Williams, & Co. in 1904 and used by the Otis Elevator Company between 1906 and 1943. The building is a notable brick powerhouse within a larger, extant industrial complex located along the corners of Frankford Avenue, and Wildey, Sarah, and Shackamaxon Streets in the Fishtown neighborhood of Philadelphia. Built between 1851 and c.1920, the Morse Elevator Works, consisting of eight brick buildings located at 1101–1103 (Buildings 1, 2, and 9), 1105 (Building 3), 1107–1109 (Building 4), 1111–1115 (Building 5), and 1115–1127 Frankford Avenue (Building 6), 1045–1049 Sarah Street (Building 10), 1100–1110 Shackamaxon Street (Building 8 and 9), and 121–131 Wildey Street (Building 7), chronicles Philadelphia’s association with a series of elevator manufacturers who participated in a nationwide marketplace. Most of the buildings in the Otis Elevator Company’s complex, including an earlier building constructed by Martin Landenberger, were erected between 1851 and 1907.



Figure 2: Looking southwest towards the primary (north) elevation of the subject property within the context of the former Elevator Works. Source: Atlas, City of Philadelphia, 2018.



Figure 3: Looking southwest down Wildey Street at the built environment of the former elevator works. Source: Michelle Shuman, 2018.



Figure 4: The primary (north) and side (west) elevations of Building 10. Source: Michelle Shuman, 2018.



Figure 5: The primary (north) elevations of Building 10. The portion of the building on the left of the image will be referred to as the eastern block, while the portion on the right of the image will be referred to as the western block. Source: Michelle Shuman, 2018.

### **Building 10: Boiler & Engine House**

Building 10: Boiler & Engine House is a low-slung, single-story powerhouse that fronts along Wildey Street. Built in two blocks, the building is of load-bearing masonry construction with a red brick façade at the north, south and west elevations. Unlike the nineteenth century-appearance of the former production sheds at 1105-1109 and 1111-1113 Frankford Avenue—designated by the Philadelphia Historical Commission and listed on the Philadelphia Register of Historic Places in 2016—the subject building is fully detached with the distinct appearance of a powerhouse built in in the first years of the twentieth century. The building is composed of two gable-front blocks: a narrower and taller eastern block that was the building’s former boiler house; and a lower, wider western block that housed the engine and pump rooms.

**Willey Street elevation (Eastern Block):**

The primary (north) elevation of Building 10's eastern block along Willey Street is three bays wide and one and a half stories tall. The largest of the ground floor apertures, the easternmost bay, is a vehicle opening with substantial double wooden doors that appear to be early or original, featuring a configuration of three rows of three panels per door and two rows of three lights above. Set beneath a segmental brick arch lintel is a transom featuring a two-part mullion window with a twelve-light configuration in each sash. The vehicle entrance is accessed by a built-up driveway, featuring original Belgian block and other large stone pavements. At the center of the eastern block is a large window that is indicative of the building type, featuring a two-part mullion window with a transom above. Both sash windows are sixteen-over-sixteen fixtures with twelve light sashes in the transom above. The third aperture, which likely was identical to the central, has been infilled with concrete block. At the center of the gable above is a small window, the details and origins of are undiscernible. The gable end features a corbeled cornice that extends to the west and the rear (south) elevations.



**Figure 6: The primary (north) elevation of the eastern block of Building 10. Source: Michelle Shuman, 2018.**



**Figure 7: The pavement in front of the building's eastern block. Source: Michelle Shuman, 2018.**

### **Willey Street elevation (Western Block):**

The primary (north) elevation of the western block is three bays wide along Willey Street and features a central vehicle bay flanked by two double-width window openings. The central vehicle opening features substantial double metal doors, that appear to be of an early origin, with a relatively simple smooth finish with two vertical panels of eight-light windows per door. Set beneath a segmental brick arch lintel, a transom bridges the gap between the doors and the lintel, featuring two two-light windows per door. The vehicle entrance is accessed by a built-up driveway, featuring original Belgian block and other large stone pavements. Flanking the central bay are large windows indicative of the building type, featuring a two-part mullion windows. Each opening contains two large, flat-topped 16-over-16 wood sash windows divided by a mullion. Centered within the gable, above the door, is a small window, featuring a sixteen-light wooden sash. The gable end features a corbeled cornice that extends to the west and the rear (south) elevations.



**Figure 8: The primary (north) elevation of the western block of Building 10. Source: Michelle Shuman, 2018.**



**Figure 9: The pavement in front of the north elevation of Building 10. Source: Michelle Shuman, 2018.**



Figure 10: The primary (north) and west elevations of the western block of Building 10, from the corner of Wildey and Sarah Streets. Source: Michelle Shuman, 2018.



Figure 11: West, Sarah Street elevation. Source: Cyclomedia, 2018.



**Figure 12: Details of the west, Sarah Street elevation and paving.**

The west (Sarah Street) elevation of the western block is four bays wide. The first three bays feature identically-sized window openings with segmental brick arch lintels and stone sills. Although the windows in the first two bays are currently covered with plywood, the third bay contains a pair of flat-top 16-over-16 double-hung windows separated by a mullion, a configuration that may exist within the first two bays. The fourth bay features a narrower opening that has been partially infilled at the ground floor and features a flat metal door, above which is a ply-wood sheathed transom with a dentiled brick sill. This elevation features a corbeled cornice that extends from the primary (north) elevation and to the rear (south) elevation. The sidewalk in front of this elevation features Belgian block and other large stone pavements.



Figure 13: Left: View from Sarah Street of the west and rear (south) elevations of Building 10. Right: Detailed view of the eastern block's rear, featuring original and/or early windows and doors. Source: Michelle Shuman, 2018.



Figure 14: Looking north at the rear (south) elevation of the subject property within the context of the former Elevator Works. Source: Atlas, City of Philadelphia, 2018.

The rear (south) elevation features both the eastern and western blocks, the former being defined by four apertures and the latter of three apertures. The eastern block features three bays at the ground floor, the central opening being a pedestrian and/or vehicle bay that is flanked by windows mimicking the other multi-light sash windows previously described. At the center of the gable end, there is a small window. The western block features two large windows at the ground floor and a small window at the center of the gable end.

## 7. STATEMENT OF SIGNIFICANCE

Building 10: Boiler & Engine House at 1045-49 Sarah Street is an important physical and visual component of a complex of industrial buildings historically related to the Morse Elevator Works of Morse, Williams & Co., which operated around the intersection of Frankford Avenue and Wildey Street from 1886 to 1906; and the Otis Elevator Company, Philadelphia, of New York, New York, which took over operations from 1906 to 1943. The subject building is a significant historic resource that merits designation by the Philadelphia Historical Commission and inclusion on the Philadelphia Register of Historic Places. The building satisfies the following Criteria for Designation based on Section 14-1004 of the Philadelphia Code:

- (a) Has significant character, interest or value as part of the development, heritage or cultural characteristics of the City, Commonwealth or Nation;
- (c) Reflects the environment in an era characterized by a distinctive architectural style;
- (g) Is part of or related to a square, park or other distinctive area which should be preserved according to an historic, cultural or architectural motif; and
- (j) Exemplifies the cultural, political, economic, social or historical heritage of the community.

The period of significance for the subject property is 1904 to 1943, representing the design and construction of the subject building by Morse, Williams & Co. for the Morse Elevator Works, and the long-term use of Building 10 as a powerhouse, machine shops and storage for Otis Elevator Company from 1906 to 1943.

**(g) Is part of or related to a square, park or other distinctive area which should be preserved according to an historic, cultural or architectural motif.**

The Oliver Evans Chapter of The Society for Industrial Archaeology describes the industrial buildings located along the corners of Frankford Avenue, and Wildey, Sarah, and Shackamaxon Streets, as forming “the earliest, extant, coherent industrial complex in Fishtown.”<sup>1</sup> This surviving industrial complex with its multi-story factory and mill buildings; low-rise machine shops, offices, a powerhouse, and production sheds; and the street and side walk areas, featuring Belgian block, brick, and other stone pavement, comprise a distinctive industrial area that should be preserved according to an architectural, cultural and historical motif. Building 10: Boiler & Engine House at 1045-49 Sarah Street is an important physical and visual part of this distinctive industrial area that was first home to the Morse Elevator Works and, later, the Otis Elevator Company. The fully detached building is surrounded by original Belgian block pavement, which appears undisturbed in some locations. Built in 1904 as a powerhouse, Building 10 represents the progress and modernization of the larger plant, and serves as an important visual component of the extant complex.

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<sup>1</sup> Oliver Evans Chapter of the Society for Industrial Archeology, *Workshop of the World: A Selective Guide to the Industrial Archeology of Philadelphia* (Wallingford, PA: Oliver Evans Press, 1990).

(a) **Has significant character, interest or value as part of the development, heritage or cultural characteristics of the City, Commonwealth or Nation.**

(j) **Exemplifies the cultural, political, economic, social or historical heritage of the community.**

As previously stated in the discussion of Criterion G, The Society for Industrial Archaeology identified the former Morse Elevator Works/Otis Elevator Company as one of the most significant surviving industrial sites in Fishtown, one of Philadelphia's important industrial centers.<sup>2</sup> As a part of that complex, Building 10: Boiler & Engine House has significant character, interest and value as part of the development, heritage and cultural characteristics of the City of Philadelphia, the Commonwealth of Pennsylvania, and the United States of America. It represents an early and important elevator manufacturer—the Morse Elevator Works and the associated Morse, Williams & Co., once the leading producer of freight elevators in the world; and the Philadelphia branch of the most important elevator manufacturer in America—the Otis Elevator Company. Building 10 was constructed as a powerhouse by the Morse Elevator Works in 1904, serving their operations until 1906, when the Otis Elevator Company purchased the property, which it operated until 1943. The addition of the Sarah Street properties to the elevator works represents growth and modernization of the plant across Wildey Street, as related to the economic, cultural and social history of the manufacture and improvement of the elevator, which was an invention that forever changed development and architecture in Philadelphia, the Commonwealth of Pennsylvania, and the United States. Without the elevator, both passenger and freight, the skyscraper would not have been a feasible commercial, industrial, and/or residential building form or type.

### **The Morse Elevator Works of Morse, Williams, & Company**

Established as early as 1882, the Morse Elevator Works was a world-renowned Philadelphia firm that engaged in the manufacture of freight and passenger elevators. An important inventor and manufacturer, Stephen A. Morse (1826–1898), made a small fortune inventing the screw driver in Massachusetts; however, after falling out with his corporate board, he removed to Philadelphia to pursue other inventions, innovations, and the opportunity of the age—manufacturing, a commercial and industrial pursuit that was for the taking in the Quaker City.<sup>3</sup> Patenting several improvements to the mechanical elements used in manufacture, as well as, specific improvements to the elevator and/or lifting devices, Stephen A. Morse incorporated Clem & Morse, which established the Morse Elevator Works—a company operated by Morse, himself, W. C. Williams, and Edwin T. Morse, Morse's son, from the time of its establishment. While part of the original partnership, Clem's precise role is not quite clear.<sup>4</sup>

Stephen A. Morse, Carlton M. Williams, and, Edwin T. Morse, purchased 1101–1103 Frankford Avenue, along with much of what formed the final said complex, from Henry and Pauline Berger, and William and Emma Berger, textile dyers, on November 28, 1884 for the impressive sum of \$40,000.<sup>5</sup> Stephen A. Morse would go on to lead the company from that time until 1891, a tenure that began with the dissolution of Clem & Morse and the profitable creation of Morse, Williams & Co. Obviously, this reorganization incorporated the partnership of Carlton M. Williams. Morse, Williams & Co. would survive into the twentieth century. At the time of his father's forced retirement in 1891, Edwin T. Morse took over the management of the Morse Elevator Works, as well as the combined interests of Morse, Williams & Co.<sup>6</sup>

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<sup>2</sup> *Workshop of the World*.

<sup>3</sup> "Stephen A. Morse," *Iron Age* 63 (1899): 20.

<sup>4</sup> Edwin T. Freedley, *Philadelphia and Its Manufactures* (Philadelphia: Edward Young, 1859), 243.

<sup>5</sup> Deed: Henry Berger, dyer, and Pauline, his wife, and William Berger, dyer, and Emma, his wife, to Stephen A. Morse, Charlton M. Williams, and Edwin T. Morse, trading as Clem and Morris, elevator builders, 26 November 1884, Philadelphia Deed Book (hereafter PDBk) J.O'D., No. 234, p. 281, CAP.

<sup>6</sup> Carrajut, *The Past is Prologue*.

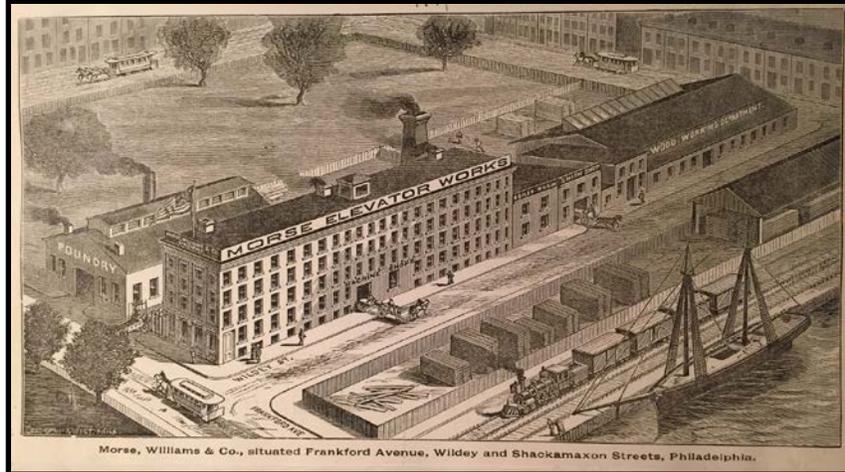


Figure 15: The Morse Elevator Works of Morse, Williams & Co., Circa 1889. This view shows the building at 1101-03 and 1107-09 Frankford Avenue; however, the illustration is inaccurate, eliminating the blocks between the company's manufactory and the Delaware River. Source: Jane Campbell Collocation, HSP.



Figure 16: Morse Elevator Works, Morse Williams & Co., c. 1890-1900. Source: Hagley Digital Archives.

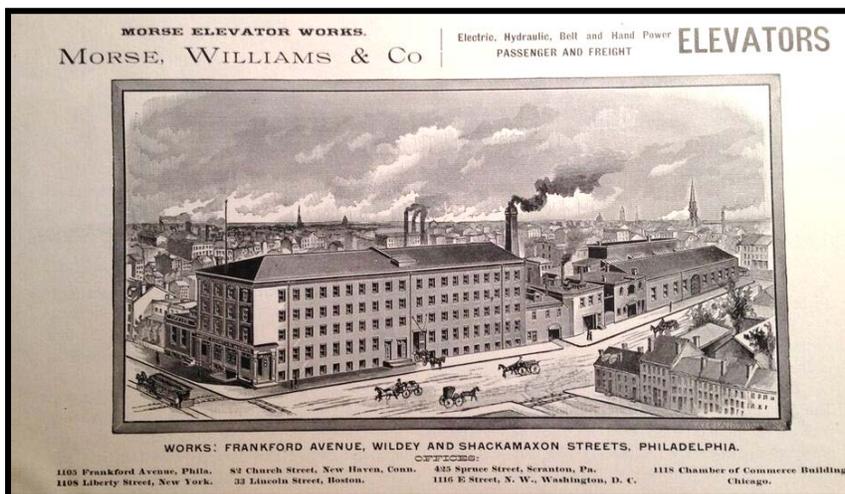


Figure 17: The Morse Elevator Works, Circa 1892. Source: HSP.

*Nomination for the Philadelphia Register of Historic Places - Building 10: Boiler & Engine House  
The Otis Elevator Works, 1045-49 Sarah Street, Fishtown, Philadelphia, Pennsylvania - 12*

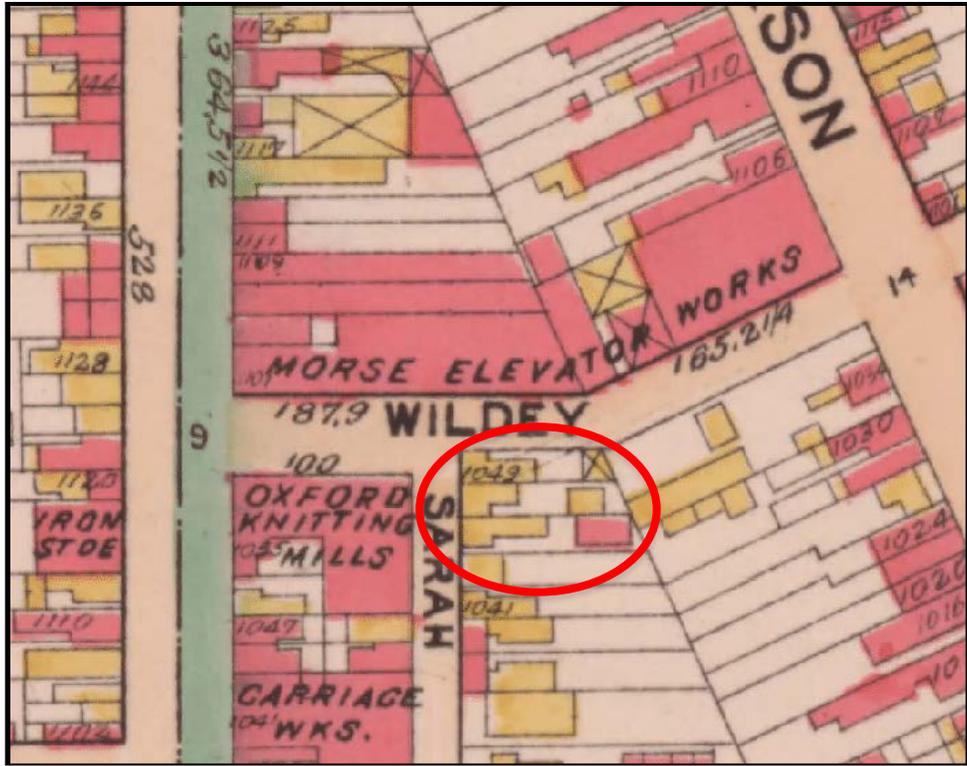


Figure 18: 1895 Philadelphia Atlas by G.W. Bromley. Source: PhilaGeoHistory Network.

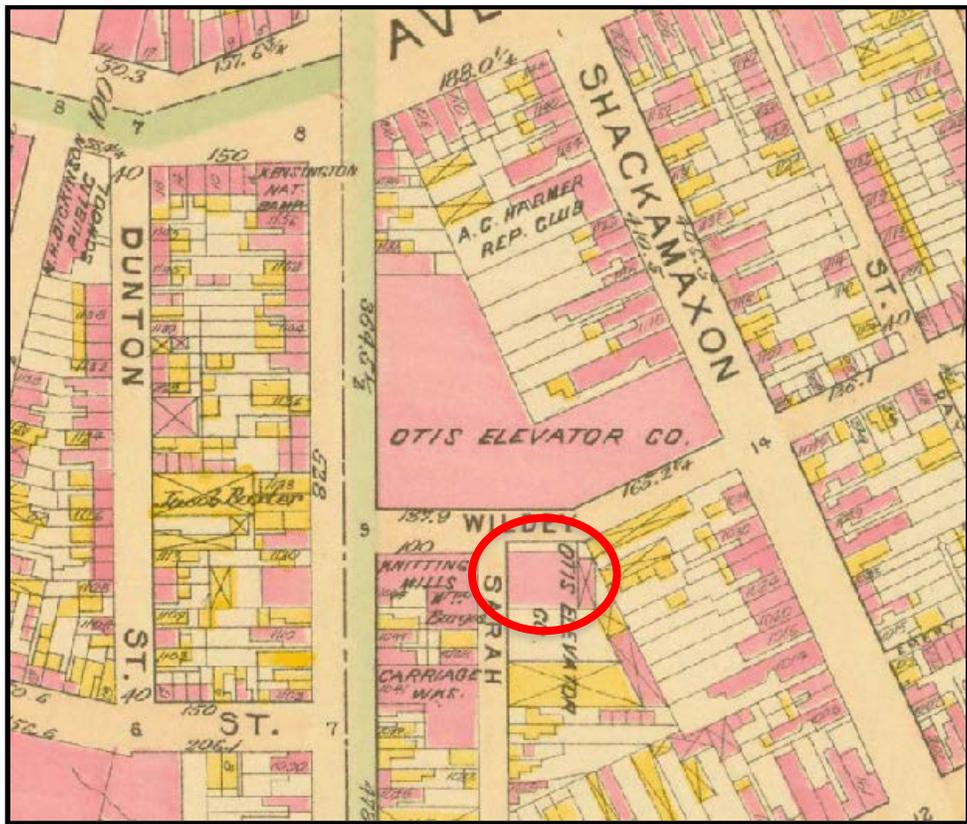


Figure 19: 1910 Philadelphia Atlas by G.W. Bromley. Source: PhilaGeoHistory Network.

*Nomination for the Philadelphia Register of Historic Places - Building 10: Boiler & Engine House  
The Otis Elevator Works, 1045-49 Sarah Street, Fishtown, Philadelphia, Pennsylvania - 13*

Under the leadership of Edwin T. Morse, the company added buildings to the complex, as their successful business required an enlarged physical capacity.<sup>7</sup> The company's success was noted in numerous publications:

The manufacture of safety elevators has already reached very large proportions and the establishment of Messrs. Morse, Williams & Co., more generally known as the Morse Elevator Works, is without question one of the largest in that line in the world.<sup>8</sup>

A comprehensive history of the company and its physical evolution was published in *Workshop of the Work* by the Oliver Evans Chapter of the Society for Industrial Archaeology:

In 1884, Stephen Morse, Carlton Williams, and Edwin Morse, partners in the Clem & Morse Co., purchased the former Landenberger buildings that stretched between Frankford Avenue and Shackamaxon Street along Wildey Street. These buildings included the former hosiery mill at 1101–1103 Frankford Avenue. The three men then formed the Morse, Williams & Co. in 1886, and began producing passenger and freight elevators. Using six of the eight floors in the former hosiery mill buildings, the Morse Elevator Works constructed steam, belt, and hand powered elevators with automatic hatch doors and gates. One 23 h.p. steam engine and one 15 h.p. steam engine powered woodworking machinery, including a planer, a joiner, a mortising machine, a circular saw, and a lathe. Fifty-eight men and twelve boys fashioned white pine and metal castings into the various models of elevators. Tenants in the building at this time included A. J. Reach & Co., manufacturer of baseballs and sporting goods, and the Standard Gas Light Company, which produced gas fixtures.

According to an 1891 album, *Philadelphia and Popular Philadelphians*, Morse became the world's leading producer of freight elevators, "their specialties in the way of automatic hatch doors, excellent safety devices and the Albro-hindley screw having made an unusually high demand for their freight elevators in all classes of buildings." The Morse Elevator Works, "favorably situated for shipping by both rail and water routes together with their unsurpassed facilities for turning out work, added to the general advantages of Philadelphia as a manufacturing city, has enabled them to build up their widely extended trade notwithstanding the strong competition met from local manufacturers throughout the country."<sup>9</sup>

In spite of a court ruling in 1892 declaring senior partner Stephen Morse a lunatic, Morse, Williams & Co. continued to expand during the 1890s. Its exhibit at the Chicago Columbian Exposition in 1893 won a prize medal. The company employed approximately 175 men and divided its buildings into space for offices, and machinery, blacksmithing, and woodworking departments. It opened branch offices in Boston, Allegheny City, Scranton, Chicago, New York, Cincinnati, and Baltimore. A special feature of a Morse-built elevator included the "improved Hindley worm gearing [manufactured on site], which obviates, by increasing the bearing surface of the gear, the danger of breakage." Morse [the

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<sup>7</sup> For more information on the history of Fishtown, the Morse Elevator Works company history and acquisitions, see the Philadelphia Register nominations for 1101-03, 1105, 1107-09, and 1111-13 Frankford Avenue, on file with the Philadelphia Historical Commission (designated 12/11/2015 and 4/8/2016).

<sup>8</sup> "The Morse Williams Company." *The Scranton Republican*, 29 July 1893, 11.

<sup>9</sup> *Philadelphia and Popular Philadelphians* (Philadelphia: The North American, 1891), 120.

company] embarked on an ambitious building program in the late 1890s to meet the increasing demand for its electric and hydraulic high-speed passenger elevators. The buildings at 1105, 1107–1109, 1111–1113, and 1115–1127 Frankford Avenue, 1100–1106 Shackamaxon Street, and 121–131 Wildey Street stand as evidence of this building expansion. By 1901 the firm had moved its main office to the West End Trust Building in center city Philadelphia and had opened new branches in New Haven, Pittsburgh, and Atlanta. Over fifteen thousand Morse elevators were in service at that time.<sup>10</sup>

The subject building, constructed in 1904, was part of that enlarged capacity, and represents one component of the larger property that was once owned and used by the elevator company. Planning for Building 10: Boiler & Engine House, and an associated yard and wooden storage buildings further to the east along Sarah Street began with the assembly of smaller parcels by the Morse Elevator Works. Between 1894 and 1904, Edwin T. Morse acquired the four lots at the southeast corner of Wildey and Sarah Streets, including three wooden houses, at 1045, 1047, and 1040 Sarah Street, all of which were demolished.<sup>11</sup> The Charles McCaul Company was awarded the \$10,000 contract for the construction of the new boiler and engine house in early April 1904.<sup>12</sup> Morse would only utilize the building for a short time, however, before the Otis Elevator Company officially took over operations of Morse, Williams & Co.'s facilities in 1906. The popularity of Morse elevators and the innovations made by the Morse Elevator Works around the turn of the twentieth century made the Morse Elevator Works an attractive acquisition for the Otis Elevator Company, which hoped to grow its firm into the American elevator corporation.

### **The Otis Elevator Company and the American Elevator Industry (1850-1950)**

Founded in 1853 by Elisha Otis in Yonkers, New York, the Otis Elevator Company played an important role in the advancement of elevator technology in the nineteenth century with the invention of the “safety elevator,” which included a mechanism that allowed the elevator to be locked in place in case the hoisting ropes should fail.

Patrick Carrajat's comprehensive and intensive history, *The History of the Elevator Industry in America, 1851–2001* places the Otis Brothers and their Otis Elevator Company in the larger context of the early American elevator industry, explaining:

The first manufacturer of moving platforms in the United States appears to have been Henry Waterman located at Duane and Centre Street in New York and it is known that one of his lifts was in use as early as 1850 in Hecker's Mill on Cherry Street in that city. His early elevators used a lever in the car to throw the driving machinery in or out of gear predating the use of the shipper rope. 1850 would see the first use of the worm and gear on an elevator by George H. Fox Company of Boston. These early elevators used hemp ropes until 1852 when the first wire ropes were introduced; the safety device was a rack and pinion device activated by the elevator operator. It would await the inventive genius of Otis Tufts to develop the first enclosed platform or elevator cab. In 1857 the Boston firm of

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<sup>10</sup> *Workshop of the World*.

<sup>11</sup> Deed: Isaac K. Archer and others to Morse, Williams & Company, 8 July 1895, PDBk J.J.C., No. 137, p. 124; Deed: James Ward and wife to Morse, Williams & Company, 1 May 1903, PDBk W.S.V., No. 205, p. 158; Deed: Henry Clevenger and wife to Morse, Williams & Company, 1 September 1903, PDBk W.S.V., No. 191, p. 522 and W.S.V., No. 298, p. 9; Deed: Frederick J. Geiger and wife to Morse, Williams & Company, 22 January 1904, PDBk W.S.V., No. 689, p. 424, CAP. The company also acquired two additional properties to the south along Sarah Street at this time as well (Deed: Walter Isaac Cooper to Morse, Williams & Company, 23 May 1903, PDBk W.S.V., No. 148, p. 513; Deed: Martha C. Davis to Morse, Williams & Company, 19 January 1903, PDBk W.S.V., No. 582, p. 240, CAP).

<sup>12</sup> *The Philadelphia Inquirer*, 6 April 1904, 5.

William Adams and Co. installed sixteen freight elevators in the just built granite warehouse known as the State Street Block. It is of more than passing interest to note that they were suspended by hemp ropes and all were driven from a common shaft that ran the length of the building. Other inventors such as Elisha Otis of Yonkers and Cyrus W. Baldwin of Brooklyn would design and patent other components including Otis's major contribution, the car safety. It is interesting to note that Otis's safety did not resemble a modern safety, it was mounted near the crosshead and worked as a pawl against a rack, with the rack being the rail. Otis would later purchase the Cruickshank Safety and the Brown Electric Safety both mounted under the car. The Brown Safety was set with a large magnet coil. It was this writer's privilege to reset one of these safeties when the brake coil failed. The safety had to be reset by planking out under the car and removing the coil for rewind. These safeties were in use until late 1999 at 150 Nassau Street, New York. The Cruickshank Safety was connected to steel cables mounted in the shaftway. Advances were made in making these early steam machines safer, Cooke & Beggs in New York would introduce a drum limit, a slack cable device and brass bearings in 1879 following competitor Copeland & Bacon's use of worm gearing and an automatic stop motion device in 1876.

The subject of passenger safety was seldom addressed in the 19th century and accidents were frequent and fatalities common. It is hard for a modern elevator technician or engineer to conceive of elevators without interlocks, gate switches, pit buffers, governors, safeties or limit switches but all were unknown in most of the prior century. The cause of most accidents were falls into open shaftways and crushing injuries caused by cars moving without closed gates or doors. On February 2, 1861 *The New York World* would report that Paul Winsheimer was killed in an elevator accident at 66-68 Duane Street in the confectioner Struelens & Palmer, the first recorded death we have found. The 1860's saw strange developments as technology attempted to solve the vexing problems of elevators crashing into their pits. The most creative of these solutions was the Air Cushion Safety Device patented by Albert Betteley who tried to make the elevator shaft virtually air tight, added an air reservoir in the pit and shaped the bottom of the cab like a parachute. It passed quickly, a footnote to elevator history only to be revived and popularized by the Ellitrope Company. It would not pass from use until after the close of the century despite its miserable safety record and enormous cost. The installation of the Air Cushion Safety required digging a pit roughly 1/3 the rise of the elevator and making it virtually airtight. In its bid for market domination Otis would purchase a large stake in Ellitrope so it would profit from the sale of most available safety devices. The largest installation of the Ellitrope was at the Woolworth Building in New York City, the cost of installing them was \$150,000US a virtual fortune at the time. The inventor of the Ellitrope Air Cushion was killed in Baltimore while demonstrating the effectiveness of his device.

In 1859 the prolific Mr. Tufts patented his Vertical Screw Railway and saw its first installation at the Fifth Avenue Hotel in New York City and its second and last at the Continental Hotel in Philadelphia. The Vertical Screw Railway drew hundreds of visitors daily to the Fifth Avenue Hotel including the Prince of Wales and a host of domestic and foreign engineers and scientists who marveled at its safety. It incorporated advances such as a friction brake and automatically closing doors, items that would not come into common use for several more decades. The death of Mr. Tuft's great invention was due not to its viability but rather its extreme cost, at a time when steam elevators could be bought for \$5-7000.00 US his machine cost \$25,000 US. Sensing that his Vertical Screw Railway was doomed Mr. Tufts turned his talents to the conventional passenger elevator. His primary contribution was adding additional hoist cables, each capable of sustaining five

times the weight of the cab, he completed his first installation at the American House, Hanover Street, Boston which was equipped with six steel cables. Least we think that the hydraulic telescoping piston is a new concept consider that twelve telescoping hydraulics were installed in the New York Post building on South Street, New York City in the 1860's. They were an abysmal failure and were removed some 10 years later.

In 1868 the Worcester Polytechnic Institute would build the Washburn shops on its campus. The purpose was to give hands on training to engineering students and produce products for sale at a profit. One of the inventions of the Washburn shops was the plunger hydraulic elevator in 1870 which met with much success in the local area. In 1882 the business was disbanded when Worcester Elevator Company questioned WPI's tax free status. Otis Brothers and Otis Tufts would discuss but never consummate a merger of their companies and the Panic of 1873 and the resultant depression would cause Tufts to become insolvent but Otis Brothers had learned a valuable lesson, merge with your competition or buy them out, it would be the cardinal principle fueling their growth in the 19th century. Tufts' famous Vertical Screw Railway at the Fifth Avenue Hotel would see service until its removal in 1875.

The late 1860's and the 1870's saw the dawn of a new era in elevator technology with the first roped hydraulic being installed in 1868 and the vertical hydraulic being patented by Whittier Machine Co. in 1871. Whittier would install Rhode Islands' first elevator at the Wheaton & Anthony building in Providence in 1872. Whittier would expand beyond its' Boston roots and open an office at 91 Liberty Street in New York City. In July, 1875 a feature article in, *The Manufacturer and Builder*, Vol. VII.-No 7., relates the story of the first telescopic hydraulic elevator designed by a Mr. Thursby and installed in 111 Broadway, New York City by Robert Weir. In 1878 Otis would install the first direct plunger hydraulic elevators in the Boreel Building in New York City. The last 30 years of the 19th century would be the golden age of the hydraulic with an infinite variety of designs of the vertical and horizontal hydraulic vying for dominance. At the beginning of my career (1961) it was still common to see operating vertical plunger hydraulics and I vividly recall surveying 13 such machines at the Traymore Hotel in Atlantic City prior to their replacement by Eastern Elevator of Philadelphia in 1965 and an 800 FPM bank of elevators on lower Broadway in New York City. I also inspected four high speed roped (12:1) horizontal hydraulics at 44 Court Street in Brooklyn, NY prior to their replacement. They were magnificent pieces of engineering and had given three-quarters of a century of service, a testimony to their endurance if not sophistication

In 1886 Seth K. Humphrey designed and built his first wood framed Manlift and sold it to Charles Pillsbury. It was installed at Pillsbury's Minneapolis mill, the world's largest at the time. John H. Jallings of J.W. Reedy Elevator Company of would solve one of the most vexing problems on early worm gear machines with his invention of the button thrust allowing limited movement of the worm and relieved the heating that destroyed lubricants and caused machines to seize.<sup>13</sup>

By the last quarter of the nineteenth century the Otis Brothers had become the leading producer of "safety elevators," and sought to expand their business. Starting in 1888, the Otis Brothers purchased at least thirteen other elevator companies, creating through incorporation the Otis Elevator Company in 1898.<sup>14</sup> The Otis Elevator Company continued to acquire the whole or majority interest in other elevator businesses,

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<sup>13</sup> Patrick A. Carrajut, *The Past is Prologue: The History of the Elevator Industry in America, 1852 -2001* (2001).

<sup>14</sup> Goodwin, *Otis: Giving Rise to the Modern City*.

until they oversaw the production and sale of at least 80 percent of all elevators used west of the Rocky mountains. This endeavor landed them in hot water, when, in March 1906, the attorney general of California sued the Otis Elevator Company and 27 other defendants, including Morse, Williams & Co., for violating federal anti-trust laws.<sup>15</sup> Despite the fact that the circuit court upheld the suit in June 1906 and issued an injunction against the defendants, Otis Elevator Company officially acquired Morse, Williams & Co.'s Philadelphia facilities in August 1906.

According to the *Workshop of the World* in 2007:

A 1916 industrial census describes the Otis Elevator Company as employing ninety men and women in the production of elevators and hoists at 1105 Frankford Avenue. At the same address, the Hindley Gear Co. fabricated machinery and parts; it employed four men and one woman. Otis sold the properties in 1943. Guilbert, Inc., acquired most of the former Morse buildings in 1949 and produced elevators and dumbwaiters. Guilbert's successor, the American Sterilizer Company, sold the buildings to the Montgomery Elevator Company in 1976. Montgomery continued Fishtown's association with the manufacture of elevators until 1987. Today, the former Morse Elevator Works houses a machine works, a warehouse for ice cream equipment, another warehouse for construction equipment, and a sanitary-clothing manufacturer.<sup>16</sup>

**(c) Reflects the environment in an era characterized by a distinctive architectural style.**

Building 10: Boiler & Engine House at 1045-49 Sarah Street is a distinctive component of the historic fabric that comprises the former Morse Elevator Works/Otis Elevator Company and its extant built environment. The subject building represents an individual form and style of industrial architecture employed in the design and construction of powerhouses of the early twentieth century. Later known as the "industrial power plant," Betsy Hunter Bradley discusses this industrial building type in her book, *The Works*:

The requirements and configuration of steam engine houses, or powerhouses, changed little over the years. They were constructed of noncombustible materials, usually stone or brick, and later reinforced concrete. Powerhouses were two-part facilities with separate rooms for boilers and engines, and perhaps a third for a coal storage. This division of space kept the coal dust produced by the stoking of boiler fires away from the machinery and gauges in the engine room. Each area was spanned with trussed roofs to eliminate interior columns. The size of the structure was governed by the number of boilers and engines it was to house and the space needed for stoking the boilers, maintaining the equipment, and replacing boiler tubes.<sup>17</sup>

The above quote describes the precise configuration of Building 10: Boiler & Engine House, designed with two rooms one for the boilers and one for the engines and pumps. The building is also of fireproof construction with a wooden roof truss system to minimize the need for interior columns. Building 10: Boiler & Engine House reflects the industrial environment that was characterized by the powerhouse, the early version of the industrial power plant, in the late nineteenth and early twentieth centuries.

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<sup>15</sup> The lawsuit is noted in newspapers across the country in 1906, including *The Inter Ocean* (Chicago, IL), 8 March 1906, p. 5.

<sup>16</sup> Deed: Otis Elevator Company to Carl Miller, 28 September 1943, PDBK C.J.P., No. 337, p. 477, CAP.

<sup>17</sup> Betsy Hunter Bradley, *The Works: The Industrial Architecture of the United States* (New York: Oxford University Press, 1999), 50.

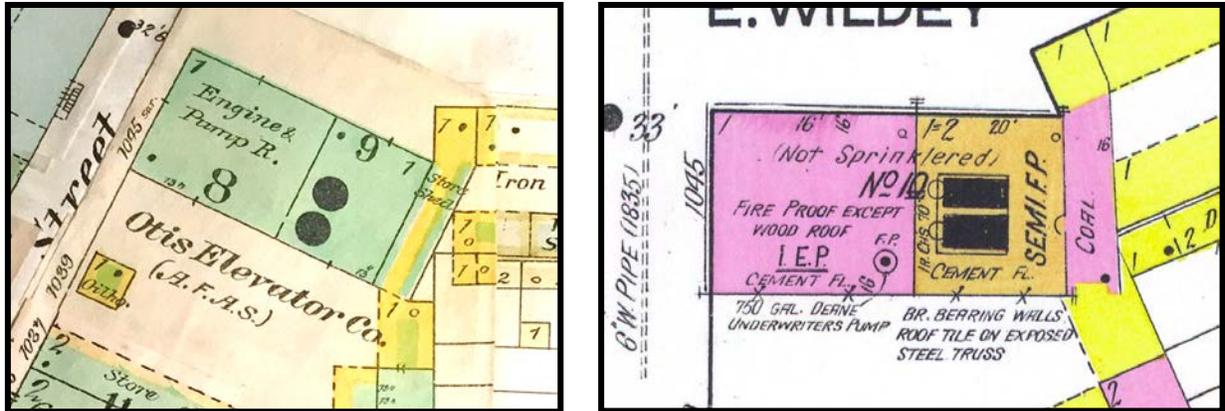


Figure 20: Details of Building 10 from the Hexamer Insurance Map (left, 1884 updated to 1915) and the 1916 Sanborn Real Estate Atlas, Vol. 8. (right).

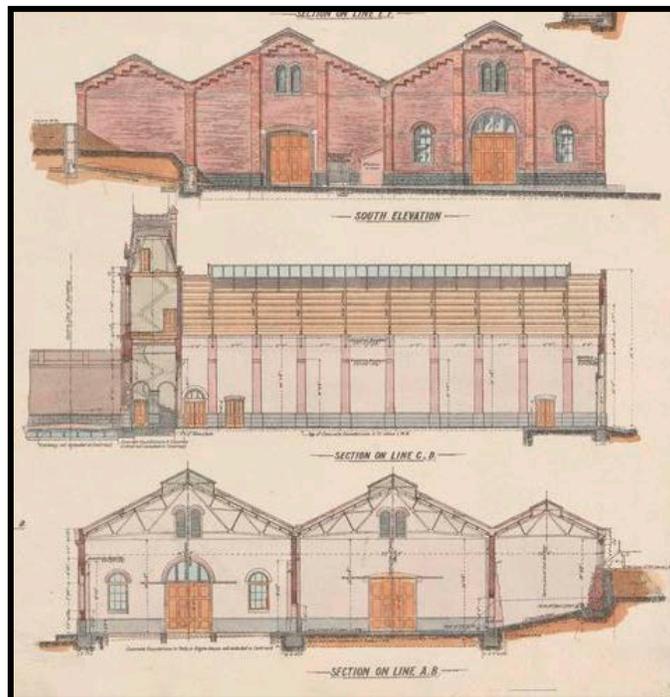


Figure 21: A design for a boiler and engine house, erected in England. Source: Google Images.

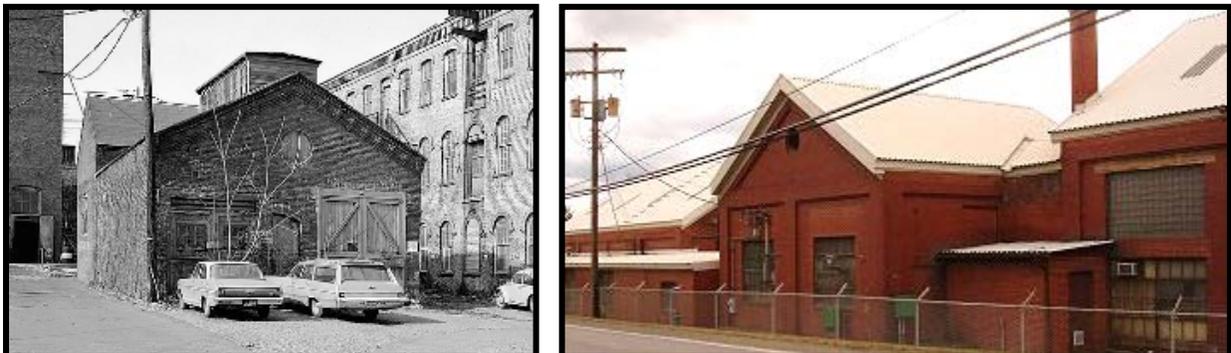


Figure 22: Left: Godwin Mill, Boiler & Engine House, Mill & Market Streets, Paterson, Passaic County, NJ. Source: Library of Congress. Right: The red brick powerhouse, boiler house, and hoisting engine house remain from the Atlas mines. A later operator of the mines was Carnegie Coal Co. Source: Mark Mamros.

## Conclusion

Building 10: Boiler & Engine House at 1045-49 Sarah Street is an important visual component of a complex of buildings that represent an industrial site related to the following important enterprises: the Morse Elevator Works of Morse, Williams & Co., operating on the site from 1886 to 1906; and the Otis Elevator Company at its Philadelphia location, from 1906 to roughly 1946. The industrial buildings located along the corners of Frankford Avenue, and Wildey, Sarah, and Shackamaxon Streets form the earliest extant, and most coherent industrial complex in Fishtown—and one of the oldest in Kensington. As an important resource of the complex, Building 10 has significant character, interest or value as part of the development, heritage and cultural characteristics of the City of Philadelphia, representing the work of an early and important elevator manufacturer—the Morse Elevator Works, once the leading producer of freight elevators in the world; and the Otis Elevator Company’s Philadelphia branch, which helped to form the most recognized elevator manufacturer in America.

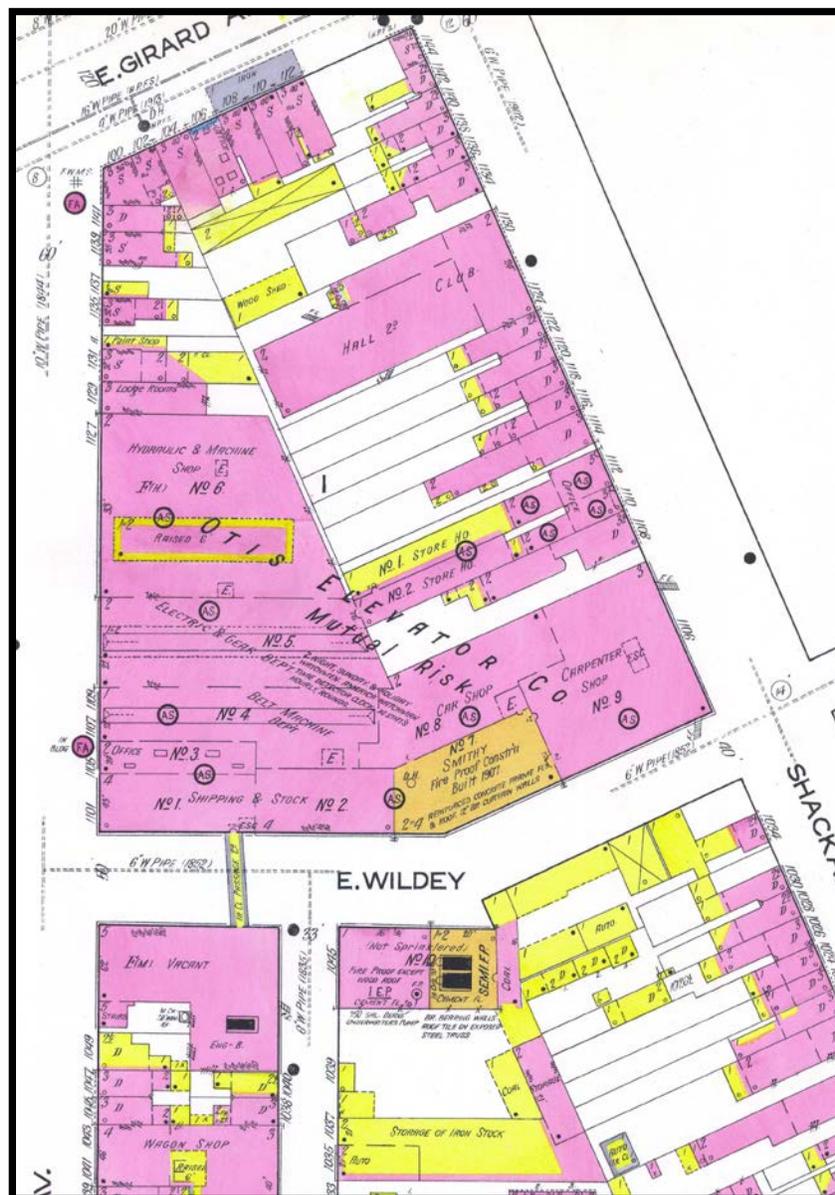


Figure 23: 1916 Sanborn Real Estate Atlas, Vol. 8.

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The Society for Industrial Archaeology identified the subject site as being the most cohesive industrial site in Fishtown and the larger Kensington neighborhood. The following individuals provided substantial assistance required for the completion of this nomination:

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