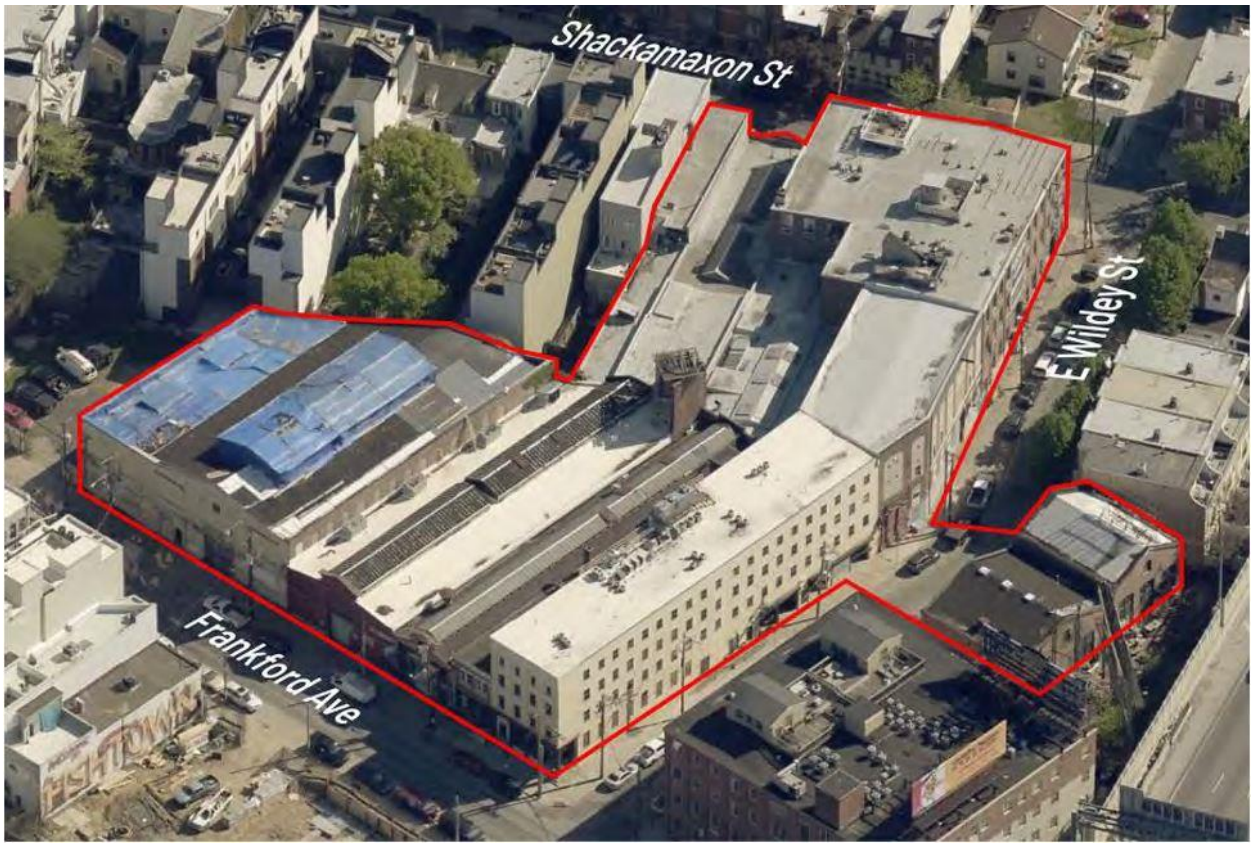
COMMENT ON NATIONAL REGISTER NOMINATION

ADDRESS: 1101-03, 1105-09, 1111-13, and 1115-27 Frankford Ave; 121-31 E Wildey St; 1100-06 and 1108-10 Shackamaxon St; and 1045-49 Sarah St, Morse Elevator Works Historic District

OVERVIEW: The Pennsylvania Historical & Museum Commission (PHMC) has requested comments from the Philadelphia Historical Commission on the National Register nomination of 1101-03, 1105-09, 1111-13, and 1115-27 Frankford Ave; 121-31 E Wildey St; 1100-06 and 1108-10 Shackamaxon St; and 1045-49 Sarah St, located in the Fishtown neighborhood of Philadelphia and historically known as the Morse Elevator Works. PHMC is charged with implementing federal historic preservation regulations in the Commonwealth of Pennsylvania, including overseeing the National Register of Historic Places in the state. PHMC reviews all such nominations before forwarding them to the National Park Service for action. As part of the process, PHMC must solicit comments on every National Register nomination from the appropriate local government. The Philadelphia Historical Commission speaks on behalf of the City of Philadelphia in historic preservation matters including the review of National Register nominations. Under federal regulation, the local government not only must provide comments, but must also provide a forum for public comment on nominations. Such a forum is provided during the Philadelphia Historical Commission's meetings.

The Morse Elevator Works Historic District is significant, at the local level, under Criterion A in the area of Industry as home of one of the largest and most important elevator manufacturers in the United States during the late nineteenth century. Founded as Clem & Morse around 1877, this company, which later became Morse, Williams & Company, played a major role in the development of early elevator technology. Focusing on innovation, Morse devised and patented critical safety devices, new types of gearing, and hydraulic and electric power sources that made the modern elevator and, by extension, the modern American city, possible. Much of this work took place at the company's Frankford Avenue plant, where it moved in 1885. Although Morse, Williams & Company became part of the Otis Elevator Company in 1898, it continued to manufacture elevators of its own design until Otis ended elevator production at the plant in 1910. That year, the Morse complex became known as the Hindley Gear Department of the Otis Elevator Company. This department, which became its own Otis-controlled corporation, the Hindley Gear Company, in 1913, continued to produce Hindley worm gears, which had been a defining aspect of Morse elevators since the 1880s. Morse controlled the patents on this innovative type of gearing, which was found to be advantageous in a wide range of non-elevator uses. Because of its exceptional strength, durability, and efficiency relative to other types of gearing, the Hindley worm gear became a critical component in large naval vessels, including most of the U.S. Navy's early battleships, cruisers, submarines, and airplanes, not to mention commercial trucks and other large vehicles. The Hindley Gear Company remained in the former Morse Elevator Works complex until 1927, when it moved into the Otis Elevator Company's new Philadelphia branch office at 19th and Buttonwood Streets. The period of significance of the Morse Elevator Works begins in 1885, when the company relocated to the Frankford Avenue plant, and ends in 1927, when its successor, the Hindley Gear Company, departed. Some of the buildings in the proposed district are listed on the Philadelphia Register of Historic Places: 1101-03, 1105-09, and 1111-13 Frankford Ave, and 1045-40 Sarah St. The 100 block of E Wildey St is also designated for its historic paving.



Aerial view of proposed historic district. The Morse Elevator Works complex is being nominated as a historic district because it has a large number of buildings and presents over 800 feet of cohesive, urban industrial streetscapes along five frontages.

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 National Register Bulletin, *How to Complete the National Register of Historic Places Registration Form.* If any 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.

1. Name of Property

Historic name: **Morse Elevator Works Historic District**
Other names/site number:
Name of related multiple property listing**:** N/A
(Enter "N/A" if property is not part of a multiple property listing

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2. Location

Street & number: **1101-03, 1105-09, 1111-13, and 1115-27 Frankford Ave; 121-31 E. Wildey Street; 1100-06 and 1108-10 Shackamaxon Street; and 1045-49 Sarah Street**
City or town: **Philadelphia** State: **PA** County: **Philadelphia**
Not For Publication: ☐ Vicinity: ☐

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3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended,

I hereby certify that this ___ nomination ___ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60.

In my opinion, the property ___ meets ___ does not meet the National Register Criteria. I recommend that this property be considered significant at the following level(s) of significance:

___national ___statewide _X_local

Applicable National Register Criteria:

_X_A ___B ___C ___D

Signature of certifying official/Title: **Date**
State or Federal agency/bureau or Tribal Government

In my opinion, the property ___ meets ___ does not meet the National Register criteria.
Signature of commenting official: **Date**
Title : **State or Federal agency/bureau or Tribal Government**

4. National Park Service Certification

I hereby certify that this property is:

___ entered in the National Register

___ determined eligible for the National Register

___ determined not eligible for the National Register

___ removed from the National Register

___ other (explain:) _____

_____

Signature of the Keeper Date of Action

5. Classification

Ownership of Property

(Check as many boxes as apply.)

Private:	[X]
Public – Local	[ ]
Public – State	[ ]
Public – Federal	[ ]

Category of Property

(Check only **one** box.)

Building(s)	[ ]
District	[X]
Site	[ ]
Structure	[ ]
Object	[ ]

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

Contributing	Noncontributing	
6	0	buildings
0	0	sites
1	0	structures
0	0	objects
7	0	Total

Number of contributing resources previously listed in the National Register 0

6. Function or Use

Historic Functions
(Enter categories from instructions.)

INDUSTRY/PROCESSING/EXTRACTION - Factory

Current Functions
(Enter categories from instructions.)

DOMESTIC – Multiple Dwelling
Vacant/Not in Use

7. Description

Architectural Classification
(Enter categories from instructions.)

Other

Materials: (enter categories from instructions.)
Principal exterior materials of the property: **Brick**

Narrative Description

(Describe the historic and current physical appearance and condition of the property. Describe contributing and noncontributing resources if applicable. Begin with **a summary paragraph** that briefly describes the general characteristics of the property, such as its location, type, style, method of construction, setting, size, and significant features. Indicate whether the property has historic integrity.)

Summary Paragraph

The Morse Elevator Works Historic District is a large complex of historic industrial buildings dating to between 1851 and circa 1920 in the Fishtown section of Philadelphia. The Morse complex occupies a site along the east side of Frankford Avenue between Girard Avenue and East Wildey Street and extends eastward along Wildey Street to Shackamaxon Street (Fig. 1). In terms of setting, the surrounding area is urban, consisting of a mix of low-rise commercial and industrial buildings from the late-nineteenth and early-twentieth centuries and from a residential building boom that has been taking place over the past decade. Along Frankford Avenue, Shackamaxon Street and a portion of Wildey Street, there are concrete sidewalks. On Wildey Street, there are also historic Belgian (granite) block sidewalks along the south elevation of Building 3 and the north elevation of Building 5. Wildey Street itself retains its historic Belgian block paving while Frankford Avenue and Shackamaxon Street are paved in asphalt. Interstate 95 is located less than half a block south of Wildey Street. The sidewalks are all included within the National Register boundary; as illustrated in numerous historic images, and as suggested by the large garage door openings in many of the buildings, the sidewalks were actively used in the production process as materials and finished products frequently passed into and out of the buildings. Of the existing sidewalks, however, only the Belgian block paving is historic and has been counted as a contributing resource.

Figure 1: Site plan showing the proposed National Register Boundary. The building numbers used in this nomination are taken from a 1917 Sanborn fire insurance map.

Buildings 1a and 1b, which were built by Martin Landenberger & Company as a hosiery mill in 1851 and 1856, respectively, are the oldest parts of the complex. These four-story buildings were acquired by Morse, Williams & Company in 1884. Morse began operations in the former hosiery mill in 1885, and over the next twenty-plus years, enlarged its plant with various one- to three-story additions, creating the largely intact complex that exists today.

With the exception of Building 5 (Engine and Boiler House), which was built on the south side of Wildey Street in 1904, and Building 6, which was built as a house around 1860 and only acquired by the Otis Elevator Company in 1906, all sections of the complex were historically contiguous and interconnected. Most of the party walls between the various sections had one or more openings (the historic openings and those that remain are noted below in the descriptions of their respective buildings). All sections of the complex that remain internally connected have been counted as a single resource (Building 2, consisting of Sections 2a through 2f). Although Buildings 1, 3, and 4 were historically internally connected to Building 2, they appear to have been closed off from the remainder of the complex during the period of significance. As explained in greater detail below, these building were leased to other manufacturers prior to 1927. The openings that existed between the three buildings and Building 2 were likely infilled at that time. Today, these openings remain infilled, and for this reason Buildings 1, 3, and 4 are counted as individual resources. Building 5 is also counted as an individual resource because it stands on its own and is not connected to the buildings north of Wildey Street.

Despite minor alterations over the years, including the replacement of windows and the blocking in of some window openings in most of the buildings, the Morse complex retains integrity. The basic nineteenth and early-twentieth century industrial character of the buildings remains intact, forming a cohesive grouping that easily conveys its historic use and the spatial evolution of the Morse Elevator Works over a period of more than twenty years.

The Morse Elevator Works complex is being nominated as a historic district because it has a large number of buildings and presents over 800 feet of cohesive, urban industrial streetscapes along five frontages: Frankford Avenue, East Wildey Street (both sides), Sarah Street, and Shackamaxon Street. Additionally, the complex consists of eight separate parcels with nineteen distinct owners (Building 9 is a residential condominium with fifteen owners).

Figure 2: Recent aerial view, looking northeast.

1 1101-03 Frankford Avenue Year Built: 1851 and 1856
Architect: Unknown
Original Function: Machine Shop
Later Function: Storage and Shipping

Building 1, which consists of two sections (a and b) is a four-story, stucco-clad brick building at the northeast corner of Frankford Avenue and East Wildey Street (Photo 1). Built by Martin Landenberger & Company as a hosiery mill in 1851 and enlarged in 1856, Building 1 was first occupied by the Morse Elevator Works in 1885. The stucco finish on 1a (the eastern half) dates to the period of significance (see Figure 10). The stucco finish on 1b (the western half) was applied later, sometime before the 1950s. On the narrow west elevation, which is four bays-wide and faces Frankford Avenue, the building has an original cast iron storefront. On the upper stories of the west elevation and on all four stories of the long south elevation, which faces Wildey Street, there are repetitive rectangular window openings, all with non-historic six-over-six, double-hung aluminum replacement windows dating to 2015 when the building was converted into apartments. On the west elevation the upper-floor windows are separated by original brick piers, which are now clad in stucco. In 1885 and for several years following, Building 1 housed most components of the Morse Elevator Works operation. Inside, the former manufacturing spaces have been subdivided into residential units with a restaurant and bar on the first floor. The historic heavy timber structure of the building remains intact and exposed within the restaurant space, but there are new floor, wall, and ceiling finishes on the upper stories dating to 2015 (Photos 2 and 3). Historically, there were two openings between the first floor of Building 1a and Building 2b, and between the first floor of Building 1b and Building 2a, but these were closed off in or around 1920 when the Otis Elevator Company leased the entirety of Building 1 to a textile manufacturer, the Philadelphia Rug Mills (later known as the Wool "O" Co.).

Photo 1: Looking northeast at Building 1 (in the foreground) and Buildings 2 (Sections A, B, D) and 4 to the left.

Photo 2: First floor of Building 1, looking west toward Frankford Avenue. Here, the historic heavy timber structure has been preserved and remains exposed.

Photo 3: Building 1 – Upper floor, typical apartment interior.

2a 1105-09 Frankford Avenue Year Built: 1887, 1902 (second-story addition)
Architect: Unknown
Original Function: Office
Later Function: Office

Building 2a is a two-story office, which Morse built along the north side of Building 1 in 1887 (Photo 4). Originally, the office was a one-story building, but a second story was added in 1902 (at this time, the first floor was converted into manufacturing space). On the west elevation, the building has brick walls, which are painted. On the first story, there are three bays, including one with a non-historic hollow metal door with a historic single-light transom, and two with one-over-one, double-hung replacement windows. The second story has two pairs of one-over-one, double-hung replacement windows. The brickwork is corbeled along the top both the first and second-story windows. The west elevation is capped by a painted metal cornice. All other elevations abut adjacent buildings and therefore are not visible.

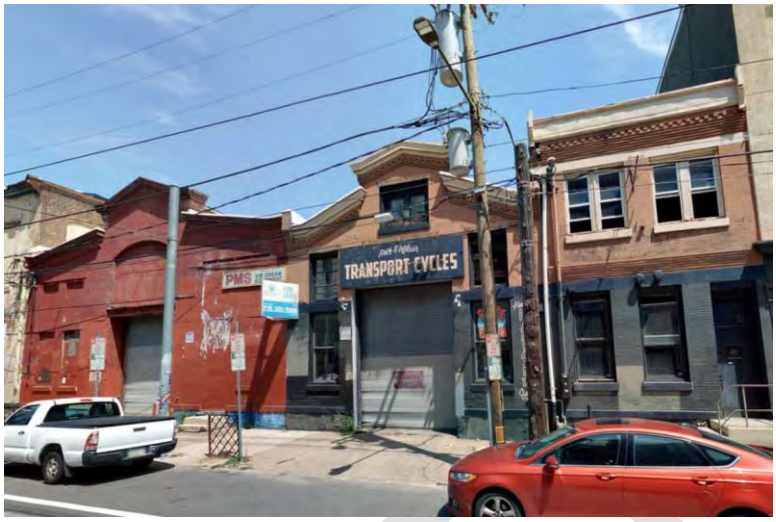


Photo 4: From right to left: Buildings 2a, 2b, and 2d, west elevations, looking east.

Inside, Building 2a consists of manufacturing space on the first floor, where there are wood floors, exposed brick walls, and exposed wood beams and floor joists at the ceiling (Photo 5). Along the north side of the first floor, there are several original openings between Buildings 2a and 2b. Historically, there were also several openings between Building 2a and Building 1b to the south, but these were closed off in or around 1920 when the Otis Elevator Company leased Building 1 to a textile manufacturer, the Philadelphia Rug Mills (later known as the Wool "O" Co.). On the second floor, there are several smaller spaces with carpeted or vinyl tile floors, and a plaster or drywall finish on the walls and ceilings (Photo 6). Some of the walls on the second floor have a painted beadboard finish.

Photo 5: Building 2a – Interior first floor, looking east.

Photo 6: Building 2a – Interior second floor, typical office, looking west.

2b 1105-09 Frankford Avenue Year Built: c. 1892
Architect: Collins & Autenrieth
Original Function (1892): Machine Shop
Later Function (1910): Belt Machine Dept.

Building 2b is a one-story brick building, which Morse, Williams & Company built along the north side of Building 2a around 1892 (Photo 4). On the west elevation, which is three bays wide, the building has brick walls, which are painted and form a gabled end wall with a center pediment extending upwards, forming the end wall of a rooftop monitor that spans the length of the building. In the center of the west elevation, there is a large, roll-down metal garage door, which is not historic. On either side of the garage door, there are one-over-one, double-hung aluminum windows, which are replacement units within original openings. The windows have painted stone lintels, which also act as sills for the original six-light wood clerestory windows above. At the center of the west elevation, above the garage door, is another window opening, which currently has wood-framed louvers within it. At the top of the west elevation, the gabled rooflines are corbeled and have painted metal cornices. All other elevations abut adjacent buildings and therefore are not visible. Inside, the volume of the manufacturing space remains intact, and the historic concrete floors, exposed brick walls, heavy timber structure, and skylights have been preserved (Photo 7).

There are several original openings of varying size between Building 2b and adjacent buildings, including several openings of varying size into Building 2a (to the south), two original, garage door-sized openings into Building 2d (to the north), and another garage door-sized opening into Building 2c (to the east). Historically, there was one opening between Building 2b and Building 1a (to the south), but this was closed off in or around 1920 when the Otis Elevator Company leased Building 1 to a textile manufacturer, the Philadelphia Rug Mills (later known as the Wool "O" Co.).

Photo 7: Building 2b – Interior, looking east.

2c 121-31 E. Wildey Street Year Built: 1895
Architect: Collins & Autenrieth
Original Function (1895): Lumber Storage
Later Function (1910): Car Shop

Building 2c is a one-story brick building, which Morse, Williams & Company built as an addition to Building 2b in 1895. Building 2c currently shares a parcel with Building 2e. Because Building 2c is entirely surrounded by other buildings, it is not visible from any exterior location. Inside, the volume of the manufacturing space, as well as its concrete floors, painted brick walls, and exposed heavy timber roof trusses have been preserved (Photo 8). There are original garage door-sized openings between the interior of Building 2c and Building 2b (to the west), Building 2e (to the south), and Building 2f (to the north). Historically, there was also at least one opening between Building 2c and Building 3 (to the east), but this appears to have been closed off in or around 1914, when the Otis Elevator Company leased the entirety of Building 3 to a textile manufacturer, the Adelphia Worsted Mills.

Photo 8: Building 2c – Interior, first floor, looking east.

2d 1111-13 Frankford Avenue — Year Built: 1899
Architect: Collins & Autenrieth
Original Function (1899): Erecting Shop
Later Function (1910): Electric and Gear Dept.

Building 2d is a one-story brick building, which Morse, Williams & Company built along the north side of Building 2b in 1899 (Photo 4). On the west elevation, Building 2d is similar in appearance to but wider than Building 2b. The west elevation is five bays wide and consists of a gabled end wall with a center pediment extending upwards, forming the end wall of a rooftop monitor that spans the length of the building. In the center of the west elevation, there is a large, roll-down metal garage door, which is not historic. On either side of the garage door, there numerous rectangular window openings. Those to the south (right) of the garage door are infilled with brick and those to the north (left) are covered with painted plywood panels. Directly above the garage door, there is a larger opening with a segmental arched head. This opening is currently covered by painted corrugated metal siding. At the top of the west elevation, the gabled rooflines are corbeled and have painted metal cornices. All other elevations abut adjacent buildings and therefore are not visible. Inside, the volume of the manufacturing space remains intact, and the historic concrete floors, exposed brick walls, heavy timber structure, and skylights have been preserved (Photo 9). There are two original, garage door-sized openings between Building 2d and Building 2b (to the south) and another leading into Building 2f (to the east). Historically, there were also two openings between Building 2d and Building 4, but these were closed off in or around 1914 when the Otis Elevator Company leased the entirety of Building 4 to a textile manufacturer, the G. Joseph Silk Winding and Embroidery Works.

Photo 9: Building 2d – Interior, looking west.

2e 121-31 E. Wildey Street — Year Built: 1906
Architect: Ballinger & Perrot
Original Function (1906): Smithery
Later Function (1910): Smithery

Building 2e is a two-story brick building, which Morse, Williams & Company built on the north side of Wildey Street just east of Building 1 in 1906 (Photo 10). This building, which replaced a small group of earlier one-story buildings and structures, was designed by the architectural and engineering firm of Ballinger & Perrot. The south elevation of Building 2e follows the line of Wildey Street. The two

westernmost bays are flush with the south elevation of Building 1, but the remaining six bays are angled toward the northeast. On the first story, the brickwork is partially painted. The first (or westernmost bay) and the sixth bay contain roll-down metal garage doors, which are late-twentieth century replacements. The other bays contain tall, rectangular window openings, which are largely infilled with concrete block but also contain single-light vinyl windows. Two of these openings – in the second and seventh bays, also contain painted hollow metal doors. On the second story, all bays except the sixth bay contain tall window openings with segmental arched heads and are largely infilled with concrete block. As on the first story, some of these openings also have non-historic windows within the concrete block infill. In the sixth bay on the second story, directly above the first-story garage door, is a larger rectangular openings, which is also infilled with concrete block but has a stone lintel rather than segmental arched head. The top of the south elevation is straight and is defined by subtle brick corbelling. Inside, the volumes of the manufacturing spaces remain intact on both floors, and the historic concrete and wood floors, exposed brick walls, and exposed concrete structure have been preserved (Photos 11 and 12). On the first floor, there are two garage door-sized openings between Building 2e and Building 2c. Historically, there was also a large opening between Building 2e and Building 3 on the second floor, but this was closed off in or around 1914 when the Otis Elevator Company leased Building 9 to a textile manufacturer, the Adelphia Worsted Mills. On the Building 2e side of the second-floor opening, an original painted metal fire door remains in place.

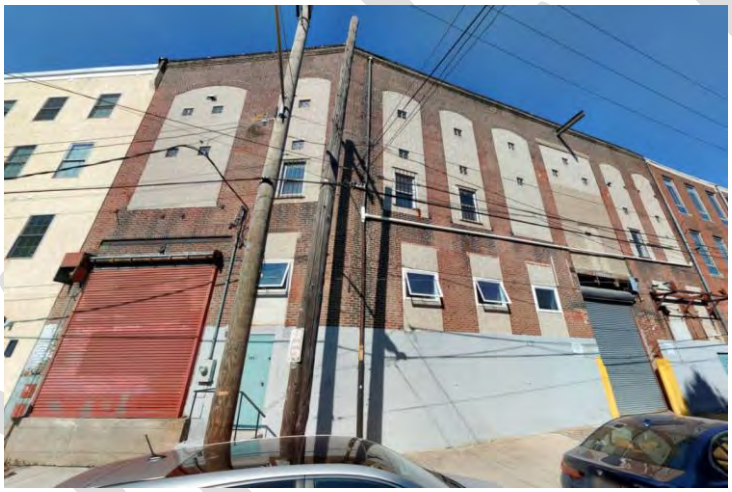


Photo 10: Building 2e, south elevation, looking north.

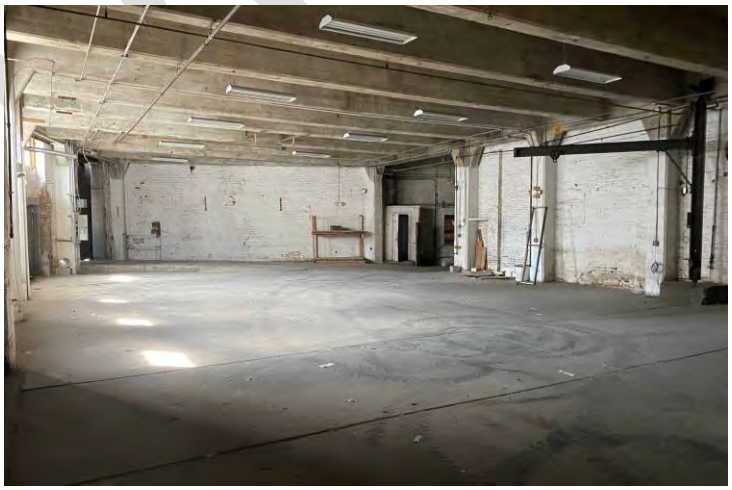


Photo 11: Building 2e – Interior, first floor, looking west.

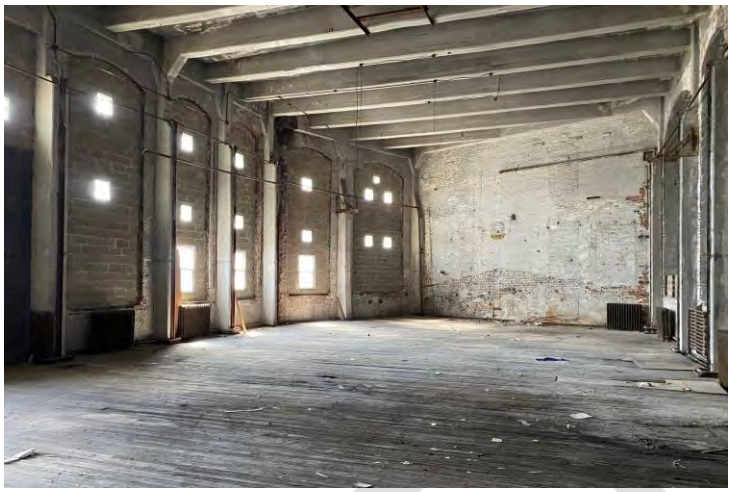


Photo 12: Building 2e – Interior, second floor, looking southwest.

2f 1108-10 Shackamaxon St Year Built: c. 1920
Architect:
Original Function (c. 1920): Machine Shop

Building 2f is a one-story brick building along the north side of Buildings 2c and 3. Historically, this property was occupied by a three-story brick house, which the Otis Elevator Company acquired in 1918. Sometime between 1918 and 1922, Otis constructed this building as a new machine shop for its subsidiary, the Hindley Gear Company. The east elevation, which faces Shackamaxon Street, is three bays side. In the wide center bay, there is a large, roll-down metal garage door, which appears to be a late-twentieth century replacement (Photo 13). In the narrower side bays, there are one-over-one, double-hung aluminum replacement windows with single-light transoms, which were installed within the last twenty years. There are non-historic metal security grates in front of both windows. Above the garage door, there is a brick parapet, which is pedimented in the center and has concrete coping along the top. All other elevations abut adjacent buildings.

Photo 13: Building 2f (left) and Building 6 (right), north elevations, looking south.

The interior of Building 2f consists of a single open space with concrete floors, exposed brick walls, and heavy timber beams at the ceiling (Photo 14). Along the side walls there are crane rails, which consist of steel I-beams supported by steel posts. Within the roof, which is flat, there is a long, gabled skylight similar to those found in Buildings 2b, 2d, and 4. There are original garage door-sized openings between Building 2f and Building 2d (to the west) and between Building 2f and Building 2c (to the south). A smaller, pedestrian-sized opening exists between Building 2f and Building 6 (to the north).

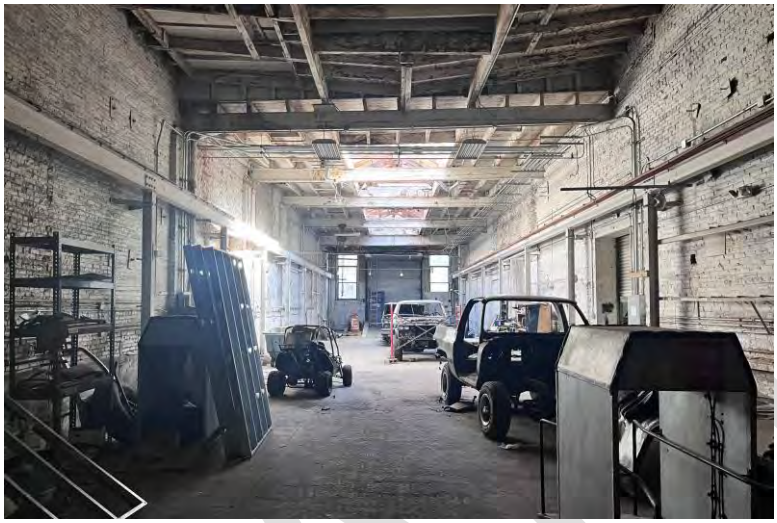


Photo 14: Building 2f, interior, looking north.

3 1100-06 Shackamaxon St Year Built: 1895
Architect: Unknown
Original Function (1895): Carpentry Shop
Later Function (1910): Carpentry Shop

Building 3 is a three-story brick building, which Morse, Williams & Company built at the far eastern end of their property, at the northwest corner of East Wildey and Shackamaxon Streets, in 1895 (Photo 15). The building is eleven bays wide on the south elevation and ten bays wide on the east elevation. On both elevations, the lower part of the brick walls has been stuccoed. There are also stucco bands just below the roofline. On the east elevation, an original form of building identification has been preserved in the exterior wall between the third-story windows and the roofline. There, the name of the plant, "Morse Elevator Works," is spelled out in brick headers, which are integrated into and flush with the surrounding brickwork (Photo 16). In nearly all bays on all three stories, there are aluminum replacement windows dating to around 2007 when the building was rehabilitated as residential condominiums. On the second and third stories, there are non-historic metal balconies in front of the windows in the two easternmost bays on the south elevation and the two northernmost bays on the east elevation. The balconies, which were installed in 2007, are located in the same locations as the original fire balconies (see Figure 11). On the south elevation, the center bay on the first story has a pair of non-historic metal doors, which are reached by concrete steps. The westernmost bay on this elevation has a non-historic metal egress door, which is also reached by concrete steps, and the second bay in from the east elevation contains a non-historic roll-down metal garage door, which opens to a small concrete loading dock. On the east elevation, the fourth bay in from the east elevation contains a pair of early-twenty-first century aluminum-framed glass doors with side lights and a transom. These doors currently serve as the main entrance; they open to a small concrete landing, which is reached by steps and a ramp. Four bays to the north, there is

another non-historic roll-down metal garage door. The northernmost bay on the east elevation also contains a non-historic metal egress door.

Photo 15: Building 3, south and east elevations, looking northwest.

Photo 16: Building 3, original brick signage spelling out "Morse Elevator Works" on the east elevation between the third-story windows and the roofline.

Inside Building 3, a portion of the first floor and all of the second and third floors were subdivided into residential condominiums in 2007. There is a total of fifteen condo units. The first floor also contains a small lobby along the east elevation and a large tenant storage and utilities room at the southeast corner. The historic wood floors, exposed brick walls, and heavy timber columns and beams have been preserved in virtually all of the interior spaces, including the corridors (Photos 17-19). Near the southeast corner of the building, an original Morse-manufactured electric freight elevator remains in operation (Photo 20). Historically, there were openings between Building 3 and Building 2c on the first floor, and between Building 3 and Building 2e on the second floor. These openings appear to have been closed off in or around 1914, when the Otis Elevator Company leased the entirety of Building 3 to a textile manufacturer, the Adelphia Worsted Mills. This company remained in Building 9 for several decades and eventually acquired it from Otis.

Photo 17: Building 3, interior, first floor, looking north.

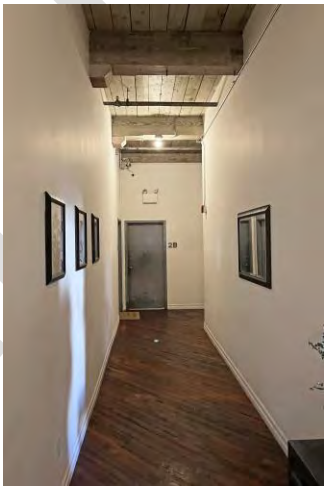


Photo 18: Building 3, interior, typical residential unit. This photo shows a second floor unit, looking northeast.
Photo 19: Building 3, interior, typical corridor. This photo shows a second-floor corridor, looking northwest.

Photo 20: Building 3, interior, original Morse elevator.

4 1115-27 Frankford Avenue Year Built: 1902
Architect: Hales & Ballinger
Original Function (1902): Machine Shop
Later Function (1910): Hydraulic and Machine Shop

Building 4 is a one-story brick building, which Morse, Williams & Company built along the north side of Building 2d in 1902 (Photo 21). Designed by the architectural firm of Hales & Ballinger, this building is five bays wide on the west elevation. The brickwork is currently painted. The three southernmost bays, closest to Building 2d, are topped by a low gabled roof with a painted metal cornice. In this section, the center bay on the first story has a roll-down metal garage door, which is a late-twentieth century replacement. On either side of the garage door and above it, there are several large, rectangular window openings with stone sills and iron lintels. Two exceptions are: On the first story, a single-leaf hollow metal door, which is reached by concrete steps, is incorporated into the window opening to the north (left) of the garage door; and, on the second story, the opening directly above the garage door has a segmental arched header, not an iron lintel as the others do. All of the window openings, however, are infilled with brick. In the northernmost two bays, there are similar window openings on the first and second stories. Here, the first-story windows are covered by plywood and the second-story openings, which have segmental arched headers (not flat iron lintels) are infilled with brick. The roofline of this section is flat and has a painted metal cornice matching the cornice in the other three bays. Historically, the north elevation, which currently consists of a blank stucco wall, was a party wall with an adjacent building. The east elevation faces the rear yards of the residential properties along adjacent Shackamaxon Street and is not visible from any public right-of-way. Inside, the volume of the manufacturing space remains intact, and the historic concrete floors, exposed brick walls, heavy timber structure, and skylights have been preserved (Photo 22). Historically, there were two openings between Building 4 and Building 2d (to the south), but these appear to have been closed off in or around 1914, when the Otis Elevator Company leased Building 4 to a textile manufacturer, the G. Joseph Silk Winding and Embroidery Works.

Photo 21: Building 4, west elevation, looking southeast.

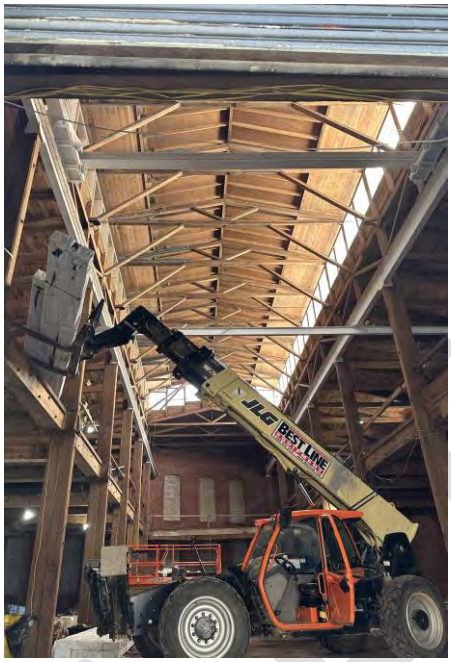


Photo 22: Building 4 – Interior, looking east.

5 1045-49 Sarah Street — Year Built: 1904
Architect: Unknown (possibly Ballinger & Perrot)
Original Function (1904): Engine and Boiler House
Later Function (1910): Engine and Boiler House

Building 5 is a one-story brick building, which Morse, Williams & Company built on the south side of East Wildey Street, across from Building 1e in 1904 (Photo 23). The building consists of two parts, both of which have gabled brick walls on the north elevation: the eastern part is the Boiler House and the western part is the Engine House. On the north elevation, both sections of the building retain most of their original wood windows and doors, including on the west elevation, which faces Sarah Street (the building currently has a Sarah Street address). Along the full width of the north elevation is a Belgian block apron, which slopes up from the street in front of the two large door openings (Photo 24). The fenestration consists of pairs of large multi-light, double-hung wood windows. The doors on the north elevation have a similar appearance. One of the window openings, in the westernmost bay of the Boiler House, is currently infilled with concrete block. On the west elevation, the windows remain but are currently covered by plywood. On the north elevation, the gabled profile of both sections is defined by subtle brick corbelling. Inside, the historic volume of the engine and boiler house remains intact, and the historic wood floors, exposed brick walls, and wood roof structure have been preserved (Photo 25).

Photo 23: Building 5, north elevation, looking south.

Photo 24: Belgian block apron along the north elevation of Building 5, looking west.

Photo 25: Building 5 – interior, looking east.

6 1108-10 Shackamaxon St Year Built: c. 1860, 1906 (rear addition)
Architect: Unknown
Original Function (1906): Office and Storehouse
Later Function (c. 1920): Unknown (likely related to Building 11)

Building 6 was originally built around 1860 as a two-story brick house. In 1906, the Otis Elevator Company acquired this property and built a one-story brick addition between the rear of the existing house and the east elevation of Building 2d. The rear addition, which served as a storehouse, was occupied by Morse, Williams & Company while the original circa 1860 building was converted into an office and leased to unrelated tenants. In or around 1920, when Building 2f was constructed along the south side of Building 6, the interiors of the two buildings were connected. These openings remain intact today.

On the east elevation, which faces Shackamaxon Street, the first story has a loading dock with a large, circa 1920, roll-down wood garage door, which sits stop the building's original, circa 1860 marble water table (Photo 13). To the north of the garage door is a painted hollow metal door, which was installed within the last twenty years, but sits at the top of the building's original, circa 1960 marble stoop. Along the top of the garage door and extending across nearly the full width of the east elevation is a painted steel lintel, which was presumably installed when the first story was altered for use as a loading dock. On the second story, there are two one-over-one, double-hung vinyl replacement windows, which were installed within the last twenty to thirty years. These openings have their original, circa 1860 marble sills and lintels. Along the top of the east elevation is an original painted wood cornice with brackets. The interior of Building 6 still reflects its two periods of construction. Within the original, circa 1860 section, which has a single space on each floor (any historic partitions that existed when this building served as a dwelling have been removed), there are wood floors, exposed brick walls, and exposed wood framing at the ceilings. Within the 1906 addition, which consists of a single large space, there are concrete floors, exposed brick walls, and a drywall finish on the ceiling (Photo 26). The 1906 addition is connected to the interior of Building 2f through a relatively small, pedestrian-sized openings, which appears to be original.

Photo 26: Building 6, interior of the 1906 addition, looking southwest.

Integrity

The Morse Elevator Works Historic District retains integrity, particularly in the *design*, *materials*, *workmanship*, and *feeling* conveyed by this largely intact manufacturing complex. All six of the Morse Elevator Works' primary buildings remain standing. The overall form and defining industrial characteristics of these buildings remain largely intact, helping to convey the site's history as one of the largest elevator manufacturers in the United States during the late nineteenth and early twentieth centuries. The distinctive historic rooflines along Frankford Avenue (Buildings 2b, 2d, and 4) and the south side of Wildey Street (Building 5), are especially important to the integrity of this complex. These highly characteristic industrial forms are key to one's understanding of the Morse Elevator Works as a nineteenth-century manufacturing site and help to convey the sense of the company's physical expansion over time. Because nearly the entire historic complex remains standing – as illustrated in the 1917 Sanborn map pictured below, only a few minor, shed-like storage structures have been demolished – this history is more than effectively conveyed (Figure 3).

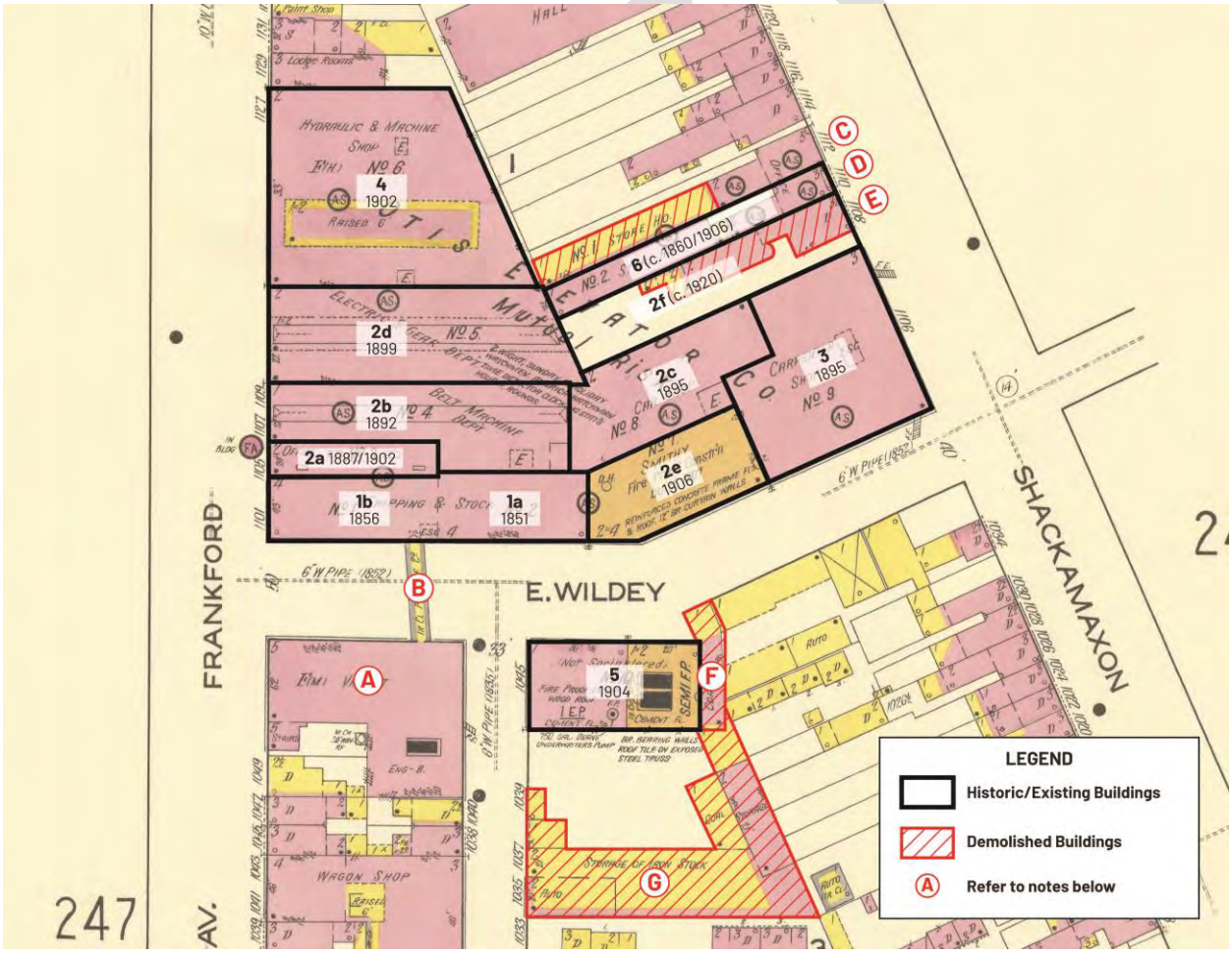


Figure 3: Sanborn fire insurance map, 1917. Refer to notes A through G below.

Reference Notes for the 1917 Sanborn Map
(see Figure 3, above)

A 1031-55 Frankford Avenue
This five-story building was built in 1871-72 as part of the earlier Martin Landenberger & Company hosiery mill. The building was never owned or occupied by Morse, Williams & Company or the Otis Elevator Company, and has been excluded from the National Register Boundary.

B Bridge across Wildey Street
When Martin Landenberger & Company built the five-story building at 1031-55 Frankford Avenue in 1871-72, they also built a bridge across Wildey Street, connecting the new mill to the existing buildings across the street (the bridge is seen in Fig. 10). Morse, Williams & Company never owned or occupied the bridge, which was closed off on their side during the period of significance. The bridge was removed sometime before 1931.

C 1112 Shackamaxon Street
This property contained a three-story house and rear one-story addition. Otis never owned this property but appears to have rented it around 1918. That year, records show that Otis built a one-story addition, an open shed, at the rear of the existing house, which presumably dated to the nineteenth century. The addition is labeled as the "No. 1 Store House." The rear addition had an internal connection to the adjacent one-story building at 1110 Shackamaxon Street, which itself had an internal connection to Building 5. The Hindley Gear Company was known to occupy Building 5 at this time. The rear addition was demolished before 1950, and 1112 Shackamaxon Street is now used as a private, single-family dwelling.

D 1110 Shackamaxon Street
Otis acquired this property containing a circa 1860 two-story house in 1906. That year, Otis built the one-story rear addition, labeled "No. 2 Store House." This addition, which had an internal connection to Building 5, was initially used by Morse, Williams & Company, and later by its successor, the Hindley Gear Company.

E 1108 Shackamaxon Street
This property, which the map shows had a three-story house with a rear ell, was acquired by the Otis Elevator Company in 1918. Sometime before 1922, Otis demolished the house and replaced it with the one-story brick building that remains today. This building was subsequently occupied by the Hindley Gear Company, which remained there until the company relocated in 1927.

F Building 10 Coal Storage Room
Historically, there was a one-story coal storage room on the east elevation of Building 10. It is unknown exactly when this structure was removed, but it probably happened when Interstate 95 was built in the 1960s and 1970s.

G Sarah Street Storage Buildings
Between 1895 and 1906, Morse Williams & Company acquired multiple parcels south of Building 10. There, they demolished several buildings and adapted other existing buildings into a storage facility for iron stock and coal. These buildings were entirely demolished when Interstate 95 was built in the 1960s and 1970s.

Integrity, continued:

The historic exterior brickwork, including spare decorative detailing in some locations and the original brick "signage" on the east elevation of Building 3, remains fully intact in four of the five buildings. In the only exception, Building 1b, the facade is covered in stucco, a treatment which first appeared during the 1950s or earlier. It should be noted, however, that the facade of Building 1a (the eastern half of Building 1) had been previously stuccoed during the period of significance as seen in the historic photo included in Section 8 (see Fig. 10). Despite this change to Building 1, the historic cast iron storefront on the west elevation, which wraps around into the westernmost bay on the south elevation, remains fully intact, as do the piers that separate the window bays on the second through fourth stories. These two features were essential components of mid-nineteenth century commercial and industrial buildings in Philadelphia. Even with the brick facade of Building 1b being covered by stucco, the cast iron storefront and expressed piers on the west elevation easily convey the building's historic appearance and the original uses contained within. The intact window openings on both elevations, despite containing new windows, convey the rhythm of the building's historic fenestration pattern and reinforce the design integrity of Building 1.

With the exception of Building 5, which retains its original windows, most of the existing windows found throughout the complex are later replacements but sit within openings that have otherwise not been altered. Some of the original openings have also been infilled, but again the surrounding openings have not been altered, and in virtually every case the outlines of the original openings remain expressed on the exterior of each building. In this way, the original fenestration patterns are still conveyed despite the absence of the original windows.

Inside the complex, most of the primary manufacturing spaces remain intact. In Buildings 2b, 2c, 2d, 2e, 2f, 4, 5, and 6, the historic volumes have been virtually entirely preserved. In all of these buildings, there are original concrete floors, painted brick walls, and exposed steel or concrete structural elements. In Buildings 2b, 2d, and 4, the soaring pitched roofs, which contain longitudinal monitors with intact sidewall glazing, the historic industrial character of the Morse Elevator Works complex is especially apparent. Although Building 1 has been converted for residential use and many of the historic finishes covered by modern treatments, the historic heavy timber structure has been left exposed in the first-floor commercial space. In Building 3, which has also been subdivided on the interior for residential use, the historic industrial character has been extensively preserved, including original wood floors, exposed brick walls, and heavy timber structural elements (columns, beams, trusses). While Buildings 1, 3, and 4 are no longer internally connected to the surrounding buildings, these openings appear to have been closed off during the significance as a result of the Otis Elevator Company leasing these buildings to other manufacturers. In any case, the remainder of the complex – with the exception of Building 5, which stands on its own – remains fully connected, preserving a significant portion of internal circulation patterns as they existed during the period of significance.

The Morse Elevator Works Historic District also retains integrity through the property's *location* and *setting*. The buildings remain on their original site and continue to present a unified, cohesive urban industrial streetscape as they have done for over a century.

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.)

- [ ] 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 old or achieving significance within the past 50 years

Areas of Significance
(Enter categories from instructions.)

INDUSTRY

Period of Significance

1885-1927

Significant Dates

N/A

Significant Person
(Complete only if Criterion B is marked above.)

N/A

Cultural Affiliation

N/A

Architect/Builder

Collins & Autenrieth, architects
Hales & Ballinger, architects
Ballinger & Perrot, architects

Statement of Significance Summary Paragraph (Provide a summary paragraph that includes level of significance, applicable criteria, justification for the period of significance, and any applicable criteria considerations.)

The Morse Elevator Works Historic District is significant, at the local level, under Criterion A in the area of industry as home of one of the largest and most important elevator manufacturers in the United States during the late-nineteenth century. Founded as Clem & Morse around 1877, this company, which later became Morse, Williams & Company, played a major role in the development of early elevator technology. Focusing on innovation, Morse devised and patented critical safety devices, new types of gearing, and hydraulic and electric power sources that made the modern elevator and, by extension, the modern American city, possible. Much of this work took place at the company's Frankford Avenue plant, where they moved in 1885. Competing with the Otis Elevator Company and a handful of other nationally prominent firms, Morse sold its elevators to customers throughout the United States and the world for use in factories, office buildings, hotels, stores, hospitals, apartment houses, and railroad stations, among a wide range of other building types. By 1905, it is estimated that Morse had built and installed more than 17,000 elevators. Although Morse, Williams & Company became part of the Otis Elevator Company in 1898, it continued to manufacture elevators of its own design until Otis ended elevator production at the plant in 1910. That year, the Morse complex became known as the Hindley Gear Department of the Otis Elevator Company. This department, which became its own Otis-controlled corporation, the Hindley Gear Company, in 1913, continued to produce Hindley worm gears, which had been a defining aspect of Morse elevators since the 1880s. Morse controlled the patents on this innovative type of gearing, which was found to be advantageous in a wide range of non-elevator uses. Because of its exceptional strength, durability, and efficiency relative to other types of gearing, the Hindley worm gear became a critical component in large naval vessels, including most of the U.S. Navy's early battleships, cruisers, submarines, and airplanes, not to mention commercial trucks and other large vehicles. The Hindley Gear Company remained in the former Morse Elevator Works complex until 1927, when it moved into the Otis Elevator Company's new Philadelphia branch office at 19th and Buttonwood Streets. After 1927, Otis leased the former Morse buildings to a variety of industrial and commercial tenants, and eventually sold the various properties in 1943. The period of significance of the Morse Elevator Works begins in 1885, when the company relocated to the Frankford Avenue plant, and ends in 1927, when its successor, the Hindley Gear Company, departed.

The Morse Elevator Works Historic District is located within the boundaries of the previously proposed Fishtown Historic District, which was determined to be eligible for listing in the National Register by the Pennsylvania SHPO in 1994 but was never formally nominated. At the time, the Fishtown Historic District appeared to meet criteria A and C as an important industrial and commercial community in Philadelphia that played a significant role in the economic development of the city in the nineteenth and early twentieth centuries, and as an intact working-class neighborhood from the same period. In recent years, however, intensive development has significantly transformed this part of Philadelphia. While much of Fishtown's historic working-class housing and even many industrial sites remain intact, demolition and sprawling new construction have had a negative impact on the integrity of this eligible district. For this reason, the Morse Elevator Works Historic District is being nominated as a separate historic district.

Narrative Statement of Significance (Provide at least **one** paragraph for each area of significance.)

The Early History of Morse, Williams & Company: 1877-1885

The history of Morse, Williams & Company begins with Clem & Morse, a partnership formed by the machinist David B. Clem (c. 1841-1914) and inventor Stephen Ambrose Morse (c. 1826-1898) in Philadelphia around 1877. Clem, a machinist, was born in Virginia and grew up in Kentucky. Around 1872, Clem relocated to Philadelphia where he began to build and sell "platform hoisting machines" for industrial and commercial use in his workshop at 413 Cherry Street.[1] Morse, who was born in New Hampshire, trained as a machinist in Lowell, Massachusetts during the 1850s. In 1863, Morse invented the twist drill bit and subsequently founded the Morse Twist Drill & Machine Company in New Bedford, Massachusetts. Morse's drill bit was a major innovation in machinery and is still in wide use today. Around 1870, Morse moved to Philadelphia where, over the next few years, he appears in city directories simply as a machinist. By 1877, Morse had joined Clem in his workshop, presumably lending his expert knowledge of mechanics to help Clem improve his devices. As early as 1878, Clem & Morse were selling steam and hand-powered freight elevators to manufacturers in Philadelphia and as far away as Williamsport, Pennsylvania.

When Clem & Morse began operations in the late 1870s, the company was the only elevator manufacturer in Pennsylvania and one of only a few in the United States. Steam- and hand-powered hoists and lifts had been used in mining and manufacturing since the mid-nineteenth century. The passenger elevator, which was introduced by Elisha Otis in 1853, was installed in several buildings in New York City just a few years later, and the Otis company quickly became the largest manufacturer of its kind in the country. Despite these early developments, the elevator industry was still in its infancy in the 1870s. But as industrialization in the United States intensified after the Civil War, and as buildings became larger and taller thanks to steel frame construction, the demand for elevators grew rapidly. Clem & Morse, as one of the pioneer elevator manufacturers, were well positioned to make an impact in this field.

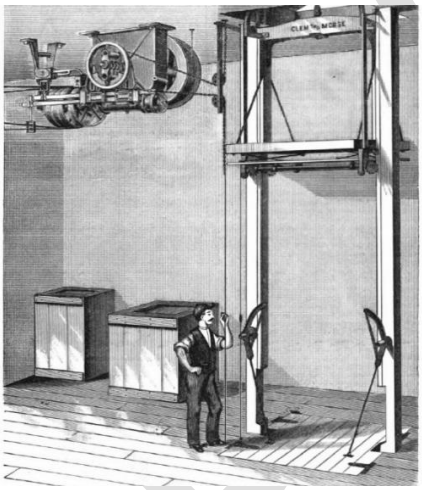
By the end of 1880, Clem & Morse was selling freight and passenger elevators to customers throughout the country, with one Philadelphia newspaper reporting that the firm was then "engaged on elevators for Texas, Maine and Canada, and are also actively at work upon what will be the second largest elevator in the United States," the latter to be installed in the massive sugar refinery of Harrison & Havemeyer in New York (this claim has not been verified).[2] And in one 1881 advertisement, Clem & Morse listed no fewer than 75 customers, some in places as far afield as Richmond, Virginia; New Orleans; and Galveston, Texas.[3] Reflecting Clem & Morse's national customer base, the company engaged sales agents in cities across the United States. By 1883, the firm had representatives in Memphis, Kansas City, New Orleans, and Salt Lake City, among other locales, and had opened their own branch office in New York City.

Several innovations distinguished Clem & Morse elevators from those made by Otis and other manufacturers. Notably, Clem & Morse introduced a new type of safety brake, which was the most important feature of the elevator demonstrated by Elisha Otis in 1853. Clem & Morse's device relied on pneumatic action rather than springs, as in the Otis elevator, to safely stop an elevator in the event that its

[1] "Western and Southern Manufacturing News," *Commercial Bulletin* (Boston, MA), May 16, 1874.
[2] "Current Trade Notes," *North American* (Philadelphia), October 16, 1880.
[3] Clem & Morse advertisement, *American Manufacturer and Iron World* (January 7, 1881): 16.

cable snapped. Clem & Morse unveiled this new brake, known as the "automatic safety clutch," at the Exhibition of the Mechanics' Institute in San Francisco in August 1880. As reported by numerous trade journals over the next three years, the automatic safety clutch proved to be more reliable and durable than Otis' spring-based brake and was easier to maintain.[4] Other features of the Clem & Morse elevator were automatic hatch doors, which opened and closed simply by the action of the elevator passing over levers on each side of the shaft (Fig. 4). A significant advancement in elevator design, automatic hatch doors, which made elevators safer and prevented elevator shafts from becoming chimney flues during a fire, soon became standard across the industry.

Finally, and perhaps most significantly, the mechanism that powered the Clem & Morse elevator was equipped with a gear known as the Hindley worm. Named after the eighteenth-century English engineer who apparently invented it, Henry Hindley, the Hindley worm gear was concave rather than straight, which was standard in machinery at the time (Fig. 5). Because of its more complex form, the Hindley gear was never manufactured on a large scale; the machinery required to do so simply did not exist. In 1878, however, Stephen A. Morse, in partnership with the inventor Charles E. Albro, devised such a machine, enabling the production of the Hindley worm gear on an industrial scale for the first time.[5] By 1880, the Hindley gear was standard in all Clem & Morse elevators. According to one trade journal, the advantages of the Hindley gear were that it had "a full bearing on every thread [of the corresponding gear], which gives increased strength, lessens the friction by distributing over a larger bearing surface, which enables better lubrication, and gives the elevator a smoothness of motion impossible to obtain with the straight screw."[6]



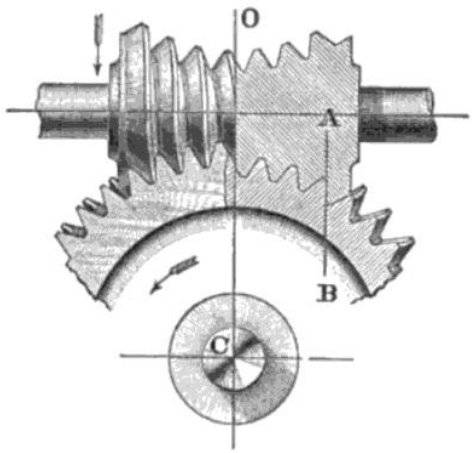


Figure 4 (left): Illustrative view of a Clem & Morse elevator with automatic hatch doors.
Figure 5 (right): Illustration of the Hindley Screw, which Morse, Williams & Company were the first to implement in elevator machinery. The company held the exclusive right to this innovative type of gearing for many years, making their elevators some of the most efficient on the market.

Despite the apparent success of Clem & Morse during its first few years, Clem left the company around 1882. At that point, Morse was joined by two new partners, including his own son, Edwin F. Morse, and a

[4] "Automatic Clutch for Elevators," *Mechanics* (April 15, 1882): 295; "Elevator Improvements – Safety Attachments," *The American Engineer* (October 19, 1883): 171.
[5] H. Fleckenstein, "The Story of the Hindley Worm Gears," *Automotive Industries* (November 20, 1919): 1005.
[6] "Elevator Improvements," *Building* (November 1883): xii.

Camden, New Jersey-based manufacturer, Carlton M. Williams.[7] The partnership continued to be known as Clem & Morse until 1885 when it was renamed Morse, Williams & Company.[8]

The Morse Elevator Works on Frankford Avenue: 1885-1910

Following its incorporation, Morse, Williams & Company made other major changes during the 1880s, including relocating to a much larger manufacturing space. In 1883, one publication reported, "The various patents controlled by Messrs. Clem & Morse, the Philadelphia elevator builders, have so increased the popularity and demand for their elevators," that they were forced to expand into the building next door, at 411 Cherry Street. But just one year later, the company faced the same problem once again. Without the space required to satisfy a growing number of orders, Clem & Morse (soon to be Morse, Williams & Co.) in November 1884 acquired a large former hosiery mill at 1101-03 Frankford Avenue (the northeast corner of Frankford Avenue and East Wildey Street) in the Fishtown section of the city.[9] Built by the hosiery firm of Martin Landenberger & Company in 1851 and enlarged in 1856, the four-story building (Building 1) measured roughly 35' by 150', representing a significance expansion for the elevator manufacturer (Fig. 6). By 1885, what had become known as Morse, Williams & Company had moved into the building. The following year, Morse acquired the adjacent property at 1105 Frankford Avenue and built a one-story, 20' by 80' Office (Building 3).

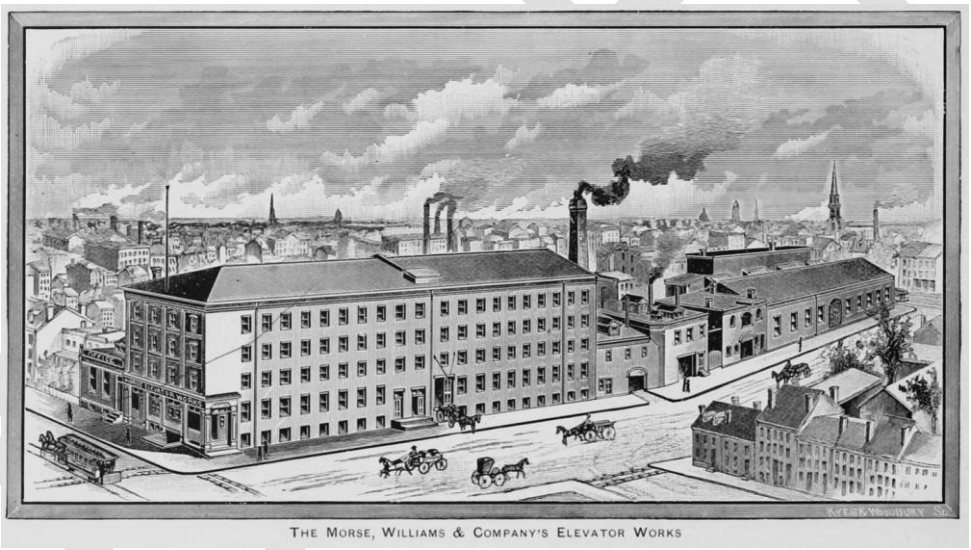


Figure 6: Illustrative view of the Morse Elevator Works around 1890. Building 1 is in the foreground. To the left is Building 2a, the one-story office that the company built in 1887. To the right are one-story buildings that were later replaced by Building 2e and Building 3.

In their new plant on Frankford Avenue, Morse, Williams & Company continued to make advancements in elevator technology. Like many of their competitors, the company made hydraulic elevators a particular focus during the 1880s. First introduced around 1868, hydraulic elevators were powered by a

[7] Edwin F. Morse and Carlton M. Williams first appear as partners in Clem & Morse advertisements in 1882, but no information relating to the departure of Clem from the company has been uncovered to date.
[8] "Firm Name Changed," *Courier-Post* (Camden, NJ), January 24, 1885.
[9] 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 J.O'D., No. 234, p. 281.

piston inside a cylinder, which relied on pressure from water or oil to raise or lower the elevator car. Unlike steam-powered elevators, which were slow, could only be used in buildings of very limited height, and required a boiler tended by live person, hydraulic elevators were relatively fast, were suitable for use in buildings as high as twenty stories, and could be connected to a municipal high pressure water system without the need for constant supervision. While steam- and even hand-powered elevators remained popular in industrial settings, hydraulic elevators quickly became standard for passenger use, primarily because they allowed a frequency of operation that modern high-rise office buildings demanded. As elevator historian Lee E. Gray writes, "Hydraulic power paved the way for the elevator systems that made skyscrapers of the 1880s and 1890s possible."[10]

Morse, Williams & Company, while still known as Clem & Morse, began to manufacture hydraulic elevators as early as 1882, but were not the first to do so. At least three major competitors, including the Whittier Machine Company of Boston, the Otis Elevator Company of New York, and the Crane Elevator Company of Chicago offered hydraulic drives during the late-1870s. Although Morse, Williams & Company were at least five years behind in terms of adopting hydraulic systems, the company was well positioned to compete with these and other firms. During those five-plus years, Morse-Williams perfected their safety devices and driving gears, which, now combined with hydraulic drives, soon led to dramatically increased demand for their elevators.

During the 1880s and early 1890s, after the company moved to Frankford Avenue, Morse manufactured and installed elevators for use in factories, stores, hotels, courthouses, train stations, and various other building types throughout the country. According to one report, by 1892 the company had produced over 8,000 elevators in all forty-five states since its inception about fifteen years prior.[11] Included in this impressive portfolio were hydraulic elevators in many of Philadelphia's most prominent commercial buildings of the era, including the six-story Philadelphia Record Building (1880), the nine-story Hotel Hanover (1893), the eight-story Philadelphia Inquirer Building (1894), and the twelve-story Fidelity Mutual Life Association Building (1896). Outside of Philadelphia, Morse, Williams reinforced its national reach by opening additional branch offices in Boston, Chicago, Washington, D.C., New Haven, CT, and Scranton, PA, and expanded their network of sales agents in other cities. Morse, Williams were also prolific advertisers, frequently placing ads in newspapers, popular magazines, and trade journals throughout the United States. Among the latter, periodicals like *The American Engineer*, *Iron Age*, and *Scientific American*, among numerous others, often reported on the achievements of Morse, Williams & Company, both in terms of the introduction of new elevator technology and important contracts won by the company.

After Morse moved in 1885, the company gradually ramped up production to a point where it was employing between 80 and 100 men. This number was comparable to most of the largest elevator companies at the time, including L.S. Graves & Son (later the Graves Elevator Company) of Rochester, New York; and the Crane Elevator Company of Chicago. The Otis Elevator Company, by comparison, had 200 employees working in its Yonkers, New York plant in 1882, a number which continued to grow steadily over the decade.

[10] Lee E. Gray, *From Ascending Rooms to Express Elevators: A History of the Passenger Elevator in the 19th Century* (Mobile, AL: Elevator World, 2002), 85.
[11] "Christened a Horse," *Times Leader* (Wilkes-Barre, PA), April 7, 1892.

Beyond the implementation of hydraulic mechanisms to their elevators during the 1880s, Morse, Williams & Company made significant contributions to the development of elevator technology while in their Frankford Avenue plant, particularly in the area of electric elevators. In fact, the company was a pioneer in this area, building what were among the very first commercially successful electric elevators in the United States. Isolated experiments in attaching electric motors to elevator machinery took place as early as 1883, but it was not until the latter part of the decade that the electric elevator industry took off. As early as 1886, Otis began to explore electric power. In 1887, Morse, Williams & Company partnered with Frank J. Sprague (1857-1934), the inventor who was pivotal in the development of the electric motor, to make the first known public demonstration of an electrically powered elevator, at the American Institute Fair in New York City (Fig. 7).[12]

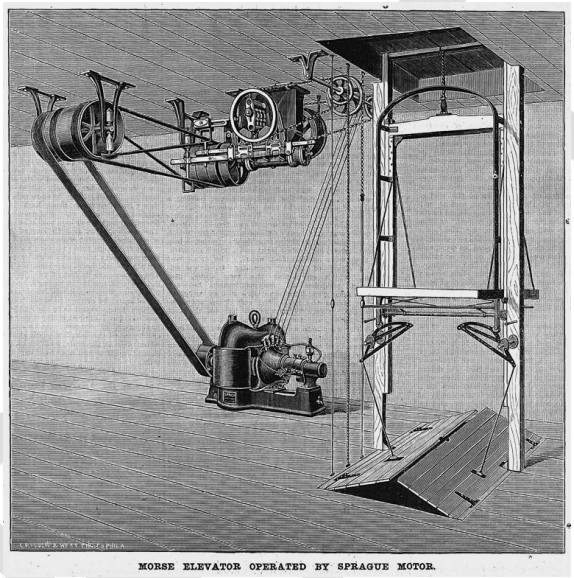


Figure 7: Illustration of a Morse elevator equipped with the Sprague electric motor.

Over the next two years, Morse explored how to make the electric elevator commercially successful, competing with Otis and other firms, including the Graves Elevator Company (Rochester, NY), the Whittier Machine Company (Boston), the Crane Elevator Company (Chicago), and the Stokes & Parrish Elevator Company (Philadelphia).[13] Although it is Otis who is credited with having installed the first permanent electric elevator, in the Demarest Building in New York City in 1889, Morse may have a claim to this achievement.[14] According to at least two sources, a local newspaper and a widely-read trade journal, the *Electrical Review*, Morse installed a pair of electric elevators with Sprague motors in the five-story warehouse of the wholesale grocers, Quigley & Mullen, in Wilmington, Delaware in June, 1888.[15]

Although electric elevators were initially unsuitable in many applications – early motors could not lift as much and were slower than hydraulic systems – Morse and its competitors invested significantly in

[12] "The American Institute Fair," *The Manufacturer and Builder* (November 1887): 258.
[13] Gray, 183. Founded in 1873 as a manufacturer of general machinery, Stokes & Parrish entered the elevator business in the mid-1880s.
[14] "The Otis Electric Elevator," *The Electrical World* (July 5, 1890): 3.
[15] "Wholesale Grocery," *Wilmington Evening Journal*, June 13, 1888; "Power," *Electrical Review* (June 23, 1888): 8.

research and development in this area. Between 1887 and 1893, over two dozen patents were issued for various forms of electric elevators, several of which Morse was either directly involved in or had acquired. The company was particularly interested in the work of Frank A. Perret, an electrical engineer at the Elektron Manufacturing Company in Brooklyn who developed a new type of compact, high-efficiency electric motor around 1888.[16] Over the next few years, Morse began to perfect their electric elevator using the Perret motor. The company's work culminated in a major exhibit at the World's Columbian Exposition in Chicago in 1893. There, Morse, Williams installed a working elevator that provided free transportation to the upper gallery of the fair's Transportation Building (Figs. 8 and 9). Although Otis and a few other manufacturers had similar exhibits, it was Morse, Williams who won the prize medal in this category, an achievement Gray attributes to the elevator's use of the Hindley gear.[17]

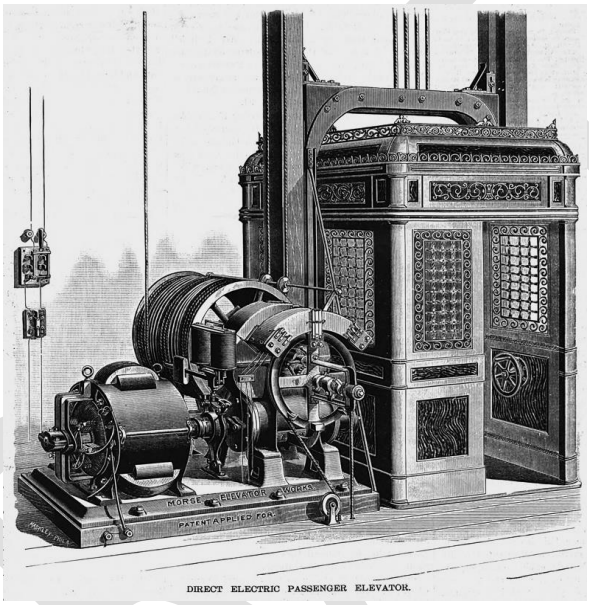


Figure 8: Illustration of the electric elevator exhibited by Morse, Williams & Company at the World's Columbian Exposition in Chicago in 1893.

[16] "The Perret Electric Motor," *Electrical World* (February 2, 1889): 55.
[17] Gray, 185.

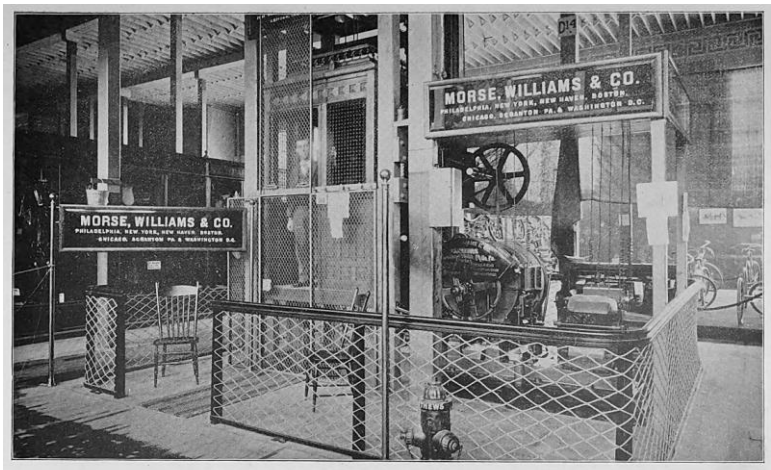


Figure 9: Photographic view of Morse, Williams & Company's exhibit, a working electric elevator, at the World's Columbian Exposition in Chicago in 1893.

For several years, hydraulic elevators remained more popular than their emerging electric counterparts, primarily because hydraulic systems were faster, had greater maximum loads and were generally more reliable, especially in taller buildings. But as electricity became more widespread as a reliable source of motive power, electric elevators gradually reduced and then virtually eliminated the height limitations of elevator systems, making it possible to build the modern skyscraper of the early twentieth century. In being among the very first to experiment with electrically powered elevators and to sell the devices commercially, Morse played a major role in the development of a groundbreaking technology that transformed the American city.

As the potential of electric elevators became more widely understood, the field became crowded with manufacturers seeking to capitalize on growing demand. Morse, which continued to focus on innovation, remained one of the most important. During the 1890s, the company made various improvements to the Hindley gear to make it more suitable in electric elevators, including double and triple geared elevators that could handle significantly increased loads at the high speeds – up to 400 feet per minute – demanded by tall office buildings. The Hindley gear was one of primary features that distinguished Morse, Williams elevators from those of its competition. According to one report in *The Electrical Age* in 1897, "The improved Morse, Williams & Company 'Hindley' worm and gear is so carefully designed that the efficiency of its action is rated at 56.25, while those of mediocre construction in open tests show an efficiency of 43.25. There is a direct saving of twenty-eight percent in power by the use of the Morse, Williams & Company worm and gear…when applied to electric, steam or hydraulic elevators."[18] In this new age of electricity, the electric elevators of Morse, Williams & Company were "the most efficient and smoothest running of any the market affords.[19]

As *The Electrical Age* claimed in 1897, "The reference list of [Morse, Williams & Company] is so great that a casual glance over it will quickly impress a prospective purchaser with the evident superiority and popularity of their elevators."[20] Even a cursory glance at Morse, Williams' portfolio bears this out.

[18] "Electric Elevators," *Electrical Age* (December 18, 1897): 357.
[19] "Electric Elevators," 358.
[20] "Electric Elevators," 358.

Among the company's most notable jobs during the 1890s and early 1900s were the elevators in the United States Courthouse and Post Office in New Haven, CT (1896); the Camden Station of the B&O Railroad in Baltimore, MD (1897); the Union Station of the Pennsylvania Railroad and Kaufmann's Department store, both twelve-story buildings in Pittsburgh, PA (1900 and 1902, respectively); the massive eight-story warehouse of the Keystone Warehouse Company in Buffalo, NY (1903); the Virginia State Capitol Building in Richmond, VA (1905); the Pennsylvania State Capitol Building in Harrisburg, PA (1906); and Union Station in Washington, DC (1908). Among Morse, Williams' thousands of other jobs were many hotels, stores, office buildings, apartment houses and factories throughout the United States, including dozens of high-rise buildings in Philadelphia and New York City. In the United States, Morse's geographic reach extended to Los Angeles, Seattle, and Honolulu where several of the company's elevators was installed around the turn of the century. During the 1890s, the company also received orders from international customers in Canada, Mexico, Cuba, Brazil, Peru, Britain, South Africa, and several other countries. But the company's elevators were not limited to use in buildings; in 1894 and 1895, Morse, Williams installed lifts in the S.S. *St. Louis* and the S.S. *St. Paul*, respectively, two transatlantic passenger liners built at the William Cramp & Sons shipyard in Philadelphia.[21] By 1905, one trade journal claimed, Morse, Williams had built and installed over 17,000 elevators since the company was founded, an increase of about 9,000 since 1892.[22]

In addition to adapting the electric motor to the elevator, Morse invested heavily in the development of elevator control devices while occupying their Frankford Avenue plant. The company was one of the first to implement push-button control, automatic doors, and limit stop devices in their elevators in the early-1890s, around the same time as Otis.[23] No other Philadelphia-based elevator manufacturer offered similar features (Stokes & Parrish did, however, begin to manufacture Otis-designed and developed elevator models later in the 1890s). These innovations, for which Morse was granted numerous patents, were critical in the effort to reduce human error in the operation of elevators, thereby making them safer.

While in their Frankford Avenue plant, Morse also made further improvements to their hydraulic elevators, which remained popular into the early twentieth century. Hydraulic elevators had two major disadvantages: 1) The piston/cylinder mechanism took up valuable space up the sides of the elevator shaft, and 2) They were inefficient because the force they applied to lift the cab was not proportional to the weight it carried. Morse solved both problems. As to the former, Morse developed one of the first (if not *the* first) horizontal "pulling-type" hydraulic mechanisms, which were located at the top of the shaft rather than along the sides, saving valuable floor space.[24] Although several manufacturers offered pulling-type hydraulic elevators, Morse was the first to develop the "double-decked" versions in which the machinery for two (or sometimes even three or four) elevators was stacked vertically, saving even more floor space. Two of the most popular books on elevators published during this period – William Baxter's *Hydraulic Elevators* (1905) and Calvin F. Swingle's *Elevators: Hydraulic and Electric* (1910) – both featured the Morse double-decked elevator as an important development in the hydraulic field. Another Morse contribution in this area was its development of a new type of hydraulic apparatus that had the

[21] "Electrical Features on the 'St. Paul,'" *Electrical World* (September 26, 1896): 356.
[22] "Morse, Williams & Co.," *Iron Trade Review* (January 26, 1905): 49.
[23] Morse, Williams & Co., "Electric Elevators" (Circa 1895 catalog from the Smithsonian Libraries Trade Literature Collection), 20-23.
[24] William Baxter, Jr., "The Hydraulic Elevator – XIV," *Power* (January 14, 1908): 46-48.

ability to lift heavy and light loads under proportional powers.[25] By making hydraulic elevators much more efficient and economical, this innovation ensured that Morse's hydraulic product lines would continue to sell even as electric elevators became more popular.

The rapid growth of Morse, Williams & Company over the 1890s was reflected in a significant expansion of its manufacturing plant that began around 1892 (Figs. 10 and 11). That year, the company built a two-story Machine Shop (Building 2b) at 1107-09 Frankford Avenue, just north of the Office (Building 2a). This was followed by a similar but wider building, originally the Erecting Shop (Building 2d), at 1111-13 Frankford Avenue in 1899, and a new two-story Machine Shop (Building 4) at 1115-27 Frankford Avenue in 1902. On the other side of the site, Morse, Williams also built a one-story Car Shop (Building 2c) extending from the rear of Building 4 and a three-story Carpentry Shop (Building 3) at the corner of East Wildey and Shackamaxon Streets in 1895. In need of more office space, in 1902 the company added a second story to Building 2a. And to handle the plant's increased power requirements, the company built a one-story Engine and Boiler House (Building 5) on the south side of Wildey Street in 1904.

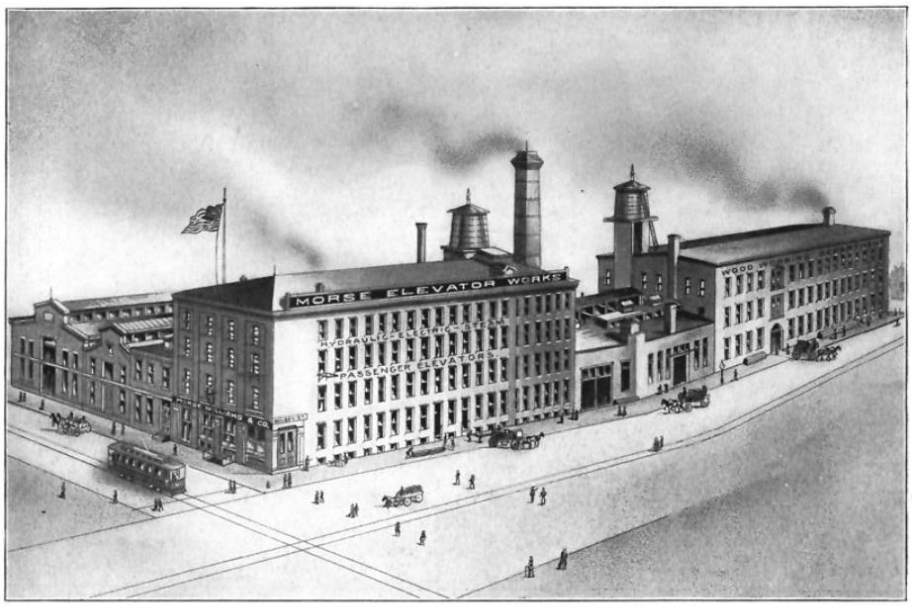
Figure 10: This circa 1892 photo shows Building 1, the eastern half (1a) having already been covered by stucco; Building 2a, prior to the addition of a second story in 1902; and Building 2b, at far left. The bridge at far right was built by the Martin Landenberger hosiery mill in 1871-72 and was never owned or occupied by Morse, Williams & Company (see Figure 3 for more information). This photo is from the Warren-Ehret Collection at the Hagley Museum & Library.

[25] Francis A. Bates (assignor to Morse, Williams & Co.), Hydraulic Elevator, U.S. Patent 667,418 (1901).

Figure 11: This circa 1900 photo shows the east elevation of Building 3 (Shackamaxon Street side). Here, the brickwork signage identifying the name of the complex – Morse Elevator Works – is visible in the pediment above the central loft door. This unique feature remains in place today as seen in Photo 17.

In the mid-1890s, Morse, Williams & Company employed about 180 men. By 1900, following the growth of the company's electric elevator business and the corresponding expansion of its physical plant on Frankford Avenue, that number had increased to 250.[26] By this measure, Morse, Williams was still among the largest elevator manufacturers in the United States, probably second only to the Otis Elevator Company, which had around 550 employees around the same time.[27] In fact, only a handful of elevator companies had more than 100 employees at this time. This group included the Crane Elevator Company (250 employees in 1898) and the Standard Elevator Company (185 employees in 1898), both of Chicago, as well as the Smith-Hill Elevator Company of Quincy, Illinois (125 employees in 1898).[28] In Philadelphia, Morse, Williams' closest competitors were the Stokes & Parrish Elevator Company, which was acquired by Otis in 1888 and had between 20 and 45 employees during the 1880s and 1890s, and the Albro-Clem Elevator Company, which was established in 1892 and had 70 employees in 1898.[29] All three Philadelphia companies were well known for making hydraulic elevators, and their products were more or less similar. Of these three, however, only Morse had a significant foothold in the electric elevator business, giving the company a major advantage as buildings grew taller and demanded the most modern and up-to-date elevator technology.

[26] *Eleventh Annual Report of the Factory Inspector of the Commonwealth of Pennsylvania for the year 1900* (Harrisburg, PA: Commonwealth of Pennsylvania, 1901), 124-125.
[27] *Fifteenth Annual Report of the Factory Inspector of the State of New York for the year 1900* (Albany: State of New York, 1901), 511.
[28] *Sixth Annual Report of the Factory Inspectors of Illinois for the year 1898* (Springfield, IL: State of Illinois, 1898), 53, 61, 222.
[29] Lorin Blodget, *Census of Manufactures of Philadelphia* (Philadelphia: Dickson & Gilling, 1883), 98; *Eleventh Annual Report*, 410-11; *Ninth Annual Report of the Factory Inspector of the Commonwealth of Pennsylvania for the year 1898* (Harrisburg, PA: Commonwealth of Pennsylvania, 1899), 124-125.



MORSE, WILLIAMS & CO.--MORSE ELEVATOR WORKS. Frankford Ave., Wildey and Shackamaxon Streets

Figure 12: Illustrative view of the Morse Elevator Works around 1905. Building 1 is in the foreground. Here, the second-story addition to Building 2a, completed in 1902, is visible. To the left of Building 2a are Buildings 2b and 2d, which were built in c. 1892 and 1899, respectively. To the right of Building 1 are the one-story buildings that were replaced by Building 2e in 1906. At far right is Building 3, the three-story carpentry shop that Morse built in 1895.

Although Morse, Williams & Company remained one of the largest elevator manufacturers in the United States in the 1890s, it faced a growing number of competitors as the decade came to a close. At the time, business leaders believed that ruthless competition between many firms was ultimately bad for business, and they sought to consolidate industries wherever possible. As early as 1891, efforts to create an elevator trust – mirroring the steel, oil, and tobacco monopolies that arose during this era – gained momentum. That year, five of the country's largest elevator manufacturers, including Otis, formed an alliance with the aim of colluding on prices and competitive bidding.[30] Although Morse, Williams did not participate in this effort, by 1898 the lure of consolidation had become stronger. In November of that year, the Otis Elevator Company acquired Morse, Williams and most of the country's other major elevator manufacturers, forming a near monopoly.[31] As part of this deal, Morse, Williams' then vice-president, Godfrey R. Rebmann, became a member of the board of directors of the Otis Elevator Company. A few years later, Rebmann also became vice-president of the parent company, a testament to the importance of Morse, Williams' business within the new corporation. [32]

Following the acquisition of Morse, Williams & Co. by Otis in 1898, Morse continued to operate more or less independently. The company, which retained its name and corporate leadership, did not build Otis model elevators; rather, it continued to produce elevators of its own design and based on its own patents. Electric elevators took on greater importance during this period. Otis, despite its early work in the development of electrically driven elevators, had been unable to obtain patents broad enough to dominate

[30] "A Passenger Elevator Trust," *New York Tribune*, January 6, 1893; "Attempted Elevator Monopoly," *Electricity* (June 12, 1895), 297-299; "The Elevator Trust," *Electricity* (June 26, 1895): 323.
[31] "Elevator Combine," *Philadelphia Inquirer,* November 30, 1898.
[32] Obituary of Godfrey R. Rebmann, *New York Times,* May 2, 1947.

the electric elevator business.[33] The technology and patents controlled by Morse, Williams & Company and a small number of other firms became critical to Otis' eventual dominance of the elevator business. Along with Morse, the companies who dominated the electric elevator field were the Sprague Electric Elevator Company of New York City, the Graves Elevator Company of Rochester, NY, and the Crane Elevator Company of Chicago.

After 1898, when the Otis-led elevator trust was established, Morse, Williams did not compete with Otis. Rather, both companies (and others in the trust) would coordinate to submit multiple bids on a project, the lowest bid coming from the subsidiary the trust's leaders intended to win (often, this was based on assigned geographic regions or could happen at the discretion of trust leaders). This arrangement lasted until 1906, when the federal government sued the trust, claiming it was a conspiracy in flagrant violation of the Sherman Antitrust Act of 1890.[34] The government was successful in this effort. In June 1906, the U.S. Circuit Court in the Northern District of California enjoined the trust, including Otis and all of the companies it controlled, from further participating in anticompetitive practices.[35] Otis's solution was to consolidate its nationwide operations into a single large corporation, effectively ending the independent management of Morse, Williams & Company and the other subsidiaries.

After the 1906 consolidation, Otis shut down many of its former subsidiaries' plants, including Stokes & Parrish in Philadelphia. But even as Otis began to consolidate much of its manufacturing into its main plants in Yonkers and Buffalo, New York, it kept the Morse, Williams & Company plant open for several more years. This decision was largely based on the fact that Morse had for years been receiving an increasing number of orders for Hindley gears for uses other than in elevators.

The Hindley Gear Company

Before 1900, Morse primarily made Hindley gears for use in their own elevators, but the mechanism proved useful in a variety of other applications. As early as 1883, for example, Morse began supplying the United States government with Hindley gears for use in large naval vessels. In 1890, the company's Hindley gears were installed in the U.S. Navy's first battleships, the USS *Indiana* and the USS *Massachusetts*, which were built at the William Cramp & Sons shipyard in Philadelphia.[36] In these and many later vessels, Morse-manufactured Hindley gears were critical components in steering engines, windlasses, gun turrets, boat cranes, and various other mechanisms where the gears would be subjected to heavy loads and it was essential to stop lost motion.[37] In 1897, Hindley gears made by Morse in their Frankford Avenue plant were even installed in the steering apparatus of the *Argonaut*, which became the first submarine to successfully navigate the open sea when it traveled from Norfolk, Virginia to Sandy Hook, New Jersey in September 1898.[38] Hindley gears were used in similar ways in large commercial ships, including those being built at the Cramp shipyard nearby, and also proved useful in heavy machinery used in mining and iron and steel production.

[33] "Attempted Elevator Monopoly," 297.
[34] "After the Elevator Trust," *The Sun* (New York, NY), March 8, 1906.
[35] "Trust Gives Up Fight," *Washington Post*, June 3, 1906.
[36] Victor S. Clark, *History of Manufactures in the United States, 1860-1914* (Washington, DC: Carnegie Institution, 1928), 325.
[37] Fleckenstein, 1005.
[38] "Lake Submarine Boat 'Argonaut," *Electrical Engineer* (December 29, 1898): 647.

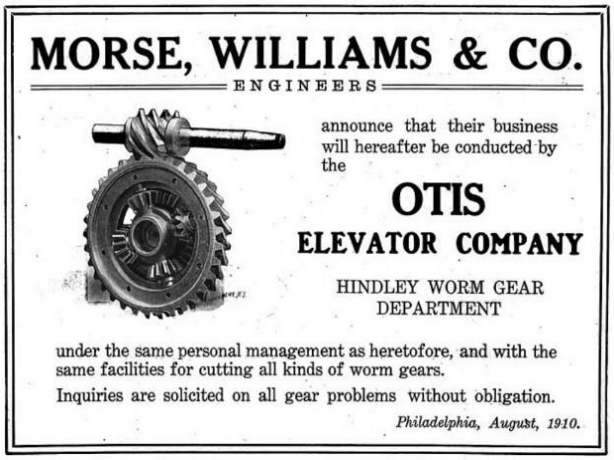
Until the turn of the twentieth century, the manufacture of Hindley gears for non-elevator uses remained a side business of Morse, Williams & Company. But as the automobile increasingly became a fixture of everyday life in the United States, the demand for gears capable of smoothly and efficiently operating large vehicles, especially commercial trucks, grew dramatically. Around 1905, Morse began producing a heavy-duty Hindley steering gear designed specifically for use in commercial trucks, and in 1911 followed up with a Hindley spiral gear axle designed to replace the chain drive so common in vehicles of this type (Figs. 13 and 14).[39]

Figures 13 and 14: Advertisements marketing the Hindley steering gear and spiral axle for motor vehicles (from *Motor World*, December 1905 and *Machinery*, February, 1911, respectively).

As various studies by independent engineers concluded, the Hindley gear made steering mechanisms and axles more efficient and made it possible for commercial trucks to carry heavier loads than they could with a chain drive.[40] These innovations soon became widespread in the commercial vehicle industry, and Morse became a supplier to some of the largest truck manufacturers in the country, such as the Philadelphia-based Commercial Truck Company of America and the Blair Manufacturing Company of Newark, Ohio.[41] By 1906, the rapidly growing demand for Hindley gears led Morse, Williams & Company to build a new two-story smithery (Building 2e), replacing several smaller structures between Buildings 1 and Building 3.

In 1910, as Morse increasingly focused its efforts on Hindley gears rather than elevators, the Otis Elevator Company made the decision to abandon elevator production in Philadelphia. In August of that year, Morse, Williams & Company became known as the Hindley Gear Department of the Otis Elevator Company (Fig. 15). Just three years later, in 1913, Otis established a new subsidiary corporation, the Hindley Gear Company, to manage the gear business. The new company occupied Buildings 2a through 2e in the old Morse complex.[42] Meanwhile, Otis leased Buildings 1, 3, and 4 to a variety of other manufacturing tenants, predominantly textile related.

[39] "Morse-Williams Steering Gear for Trucks," *Cycle and Automobile Trade Journal* (September 1906): 188; "Gear-Driven Axle for Motor Trucks," *Machinery* (November 1911): 238.
[40] E.R. Whitney, "The Worm Gear as Applying to Motor-Driven Vehicles," in *Transactions of the Society of Automobile Engineers, Vol. 6* (1911): 622-639.
[41] *Motor Car Directory* (New York: Motor, the National Magazine of Motoring, 1911).
[42] "Hindley Gear Company," *Accessory and Garage Journal* (January 1913), 12.



Figures 15: Advertisement announcing that Morse, Williams & Company had been transformed into the Hindley Gear Department of the Otis Elevator Company (from *Machinery*, August 1910).

The Hindley Gear Company continued to be a major supplier of gears to commercial truck companies and the United States government throughout the 1910s and 1920s, but finally began to face competition as its patents expired. In 1913, a former Morse engineer who had been instrumental in the development of the Hindley gear for automobile use, Minor Harvey, founded the Keystone Hindley Gear Company in Philadelphia.[43] The Albro-Clem Elevator Company, too, while it had shared in the Morse patents (as explained above, Charles E. Albro developed the machinery that first made production of Hindley gears possible), only began producing Hindley gears for non-elevator use in the early 1910s. The Hindley Gear Company remained an industry leader, however. With its depth of experience and decades-long specialization in Hindley worm gearing, the Hindley Gear Company remained a preferred supplier to the United States government, especially in critical military applications, and numerous large automotive manufacturers.

During World War I, Hindley expanded its government work by manufacturing gears for the Navy's growing fleet of battleships, submarines, and even aircraft (Fig. 16). Hindley also became a major ordnance supplier. As one of the company's senior engineers wrote in 1919, the U.S. Ordnance Department used Hindley worm gears for the elevating, traversing, and sighting movements of guns, including the famous Howitzer, the Barbette mounted gun, and the Sutton trench mortar, among others.[44] Through various contracts, Hindley delivered nearly 5,000 sets of gears to the Ordnance Department between 1916 and 1918. The company's Hindley gears were apparently so precisely made and so reliable that the government rejected virtually none of the gears made they supplied. At its peak of production during World War I, Hindley Gear employed 220 men.[45]

[43] "Men and Makers," *The Commercial Vehicle* (August 15, 1913), 38.
[44] Fleckenstein, 1005.
[45] William Bradford Williams, *Munitions Manufacture in the Philadelphia Ordnance District* (Philadelphia, 1921), 450.

Figures 16: Advertisement detailing the Hindley Gear Company's government work (from *Machinery*, March 1918).

After the war, the Hindley Gear Company continued to grow as evidenced by the construction of a new one-story building (Building 2f) around 1920. Located just north of Building 3, which had been occupied by a textile manufacturer for several years, Building 2f was used as a machine shop and had internal connections to several of the adjacent buildings. Hindley remained in operation at the former Morse Elevator Works complex until 1927. That year, Hindley joined the Otis Elevator Company at its brand new Philadelphia branch office at 19th and Buttonwood Streets. It appears that the Hindley Gear Company was fully absorbed into the Otis corporation sometime during the early 1930s.

The Otis Elevator Company continued to own the former Morse Elevator Works properties until 1943, when they sold them to a number of different buyers. Since that time, the buildings have been occupied by a succession of industrial and commercial users.

9. Major Bibliographical References

Bibliography (Cite the books, articles, and other sources used in preparing this form.)

"A Passenger Elevator Trust." *New York Tribune*. January 6, 1893.

"After the Elevator Trust." *The Sun* (New York, NY). March 8, 1906.

"Attempted Elevator Monopoly." *Electricity* (June 12, 1895): 297-299

"Automatic Clutch for Elevators." *Mechanics* (April 15, 1882): 295

Baxter, William, Jr. "The Hydraulic Elevator – XIV." *Power* (January 14, 1908): 46-48.

Blodget, Lorin. *Census of Manufactures of Philadelphia*. Philadelphia: Dickson & Gilling, 1883.

"Christened a Horse." *Times Leader* (Wilkes-Barre, PA). April 7, 1892.

Clark, Victor S. *History of Manufactures in the United States, 1860-1914*. Washington, DC: Carnegie Institution, 1928.

Clem & Morse advertisement. *American Manufacturer and Iron World* (January 7, 1881): 16.

"Current Trade Notes." *North American* (Philadelphia). October 16, 1880.

"Electric Elevators." *Electrical Age* (December 18, 1897): 357.

"Electrical Features on the 'St. Paul.'" *Electrical World* (September 26, 1896): 356.

"Elevator Combine." *Philadelphia Inquirer*. November 30, 1898.

"Elevator Improvements." *Building* (November 1883): xii.

"Elevator Improvements – Safety Attachments." *The American Engineer* (October 19, 1883): 171.

"The Elevator Trust." *Electricity* (June 26, 1895): 323.

Eleventh Annual Report of the Factory Inspector of the Commonwealth of Pennsylvania for the year 1900 Harrisburg, PA: Commonwealth of Pennsylvania, 1901.

Fifteenth Annual Report of the Factory Inspector of the State of New York for the year 1900. Albany: State of New York, 1901.

"Firm Name Changed." *Courier-Post* (Camden, NJ). January 24, 1885.

"Gear-Driven Axle for Motor Trucks." *Machinery* (November 1911): 238.

Gray, Lee E. *From Ascending Rooms to Express Elevators: A History of the Passenger Elevator in the 19th Century*. Mobile, AL: Elevator World, 2002.

Fleckenstein, Harry. "The Story of the Hindley Worm Gears." *Automotive Industries* (November 20, 1919): 1005.

"Hindley Gear Company." *Accessory and Garage Journal* (January 1913): 12.

"Lake Submarine Boat 'Argonaut." *Electrical Engineer* (December 29, 1898): 647.

"Men and Makers." *The Commercial Vehicle* (August 15, 1913): 38.

Morse, Williams & Co. "Electric Elevators" (Circa 1895 catalog from the Smithsonian Libraries Trade Literature Collection).

"Morse, Williams & Co." *Iron Trade Review* (January 26, 1905): 49.

"Morse-Williams Steering Gear for Trucks." *Cycle and Automobile Trade Journal* (September 1906): 188.

Motor Car Directory. New York: Motor, the National Magazine of Motoring, 1911.

Ninth Annual Report of the Factory Inspector of the Commonwealth of Pennsylvania for the year 1898. Harrisburg, PA: Commonwealth of Pennsylvania, 1899.

"The Otis Electric Elevator." *The Electrical World* (July 5, 1890): 3.

"The Perret Electric Motor." *Electrical World* (February 2, 1889): 55.

Sixth Annual Report of the Factory Inspectors of Illinois for the year 1898. Springfield, IL: State of Illinois, 1898.

"Trust Gives Up Fight." *Washington Post*. June 3, 1906.

"Western and Southern Manufacturing News." *Commercial Bulletin* (Boston, MA). May 16, 1874.

Whitney, E.R. "The Worm Gear as Applying to Motor-Driven Vehicles." *Transactions of the Society of Automobile Engineers, Vol. 6* (1911): 622-639.

Williams, William Bradford. *Munitions Manufacture in the Philadelphia Ordnance District*. Philadelphia, 1921.

Previous documentation on file (NPS):

__X__ 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 # _____
____ recorded by Historic American Landscape Survey # _____

Primary location of additional data:

____ State Historic Preservation Office
____ Other State agency
____ Federal agency
____ Local government
____ University
____ Other
Name of repository: _____

Historic Resources Survey Number (if assigned): _____

10. Geographical Data

Acreage of Property __~1.4 acres__

Use either the UTM system or latitude/longitude coordinates

Latitude/Longitude Coordinates
Datum if other than WGS84:_____
(enter coordinates to 6 decimal places)

1. Latitude: __39.967864__ Longitude: __-75.133753__
2. Latitude: _____ Longitude: _____
3. Latitude: _____ Longitude: _____
4. Latitude: _____ Longitude: _____

Verbal Boundary Description (Describe the boundaries of the property.)
The boundary of the property is shown as a red line on the accompanying map entitled "**Figure 1:** Site Plan showing the National Register Boundary." The sidewalks are not included within the boundary because they did not play a direct role in the operation of this manufacturing complex.

Boundary Justification (Explain why the boundaries were selected.)
The National Register Boundary corresponds to the historic parcels of the historic buildings that remain standing. All extant resources related to Morse, Williams & Company and the Hindley Gear Company have been included within the boundary.

Form Prepared By

name/title: Kevin McMahon, Senior Associate
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telephone: (215) 636-0192
date: March 5, 2025; revised June 20, 2025

Additional Documentation

Submit the following items with the completed form:

- **Maps:** A **USGS map** or equivalent (7.5 or 15 minute series) indicating the property's location.
- **Sketch map** for historic districts and properties having large acreage or numerous resources. Key all photographs to this map.
- **Additional items:** (Check with the SHPO, TPO, or FPO for any additional items.)

Photographs

Submit clear and descriptive photographs. The size of each image must be 1600x1200 pixels (minimum), 3000x2000 preferred, at 300 ppi (pixels per inch) or larger. Key all photographs to the sketch map. Each photograph must be numbered and that number must correspond to the photograph number on the photo log. For simplicity, the name of the photographer, photo date, etc. may be listed once on the photograph log and doesn't need to be labeled on every photograph.

Photo Log

Name of Property: Morse Elevator Works Historic District
City or Vicinity: Philadelphia
County: Philadelphia State: PA
Photographer: Kevin McMahon
Date Photographed: November 18, 2024 and February 7, 2025

Description of Photograph(s) and number, include description of view indicating direction of camera:

Photograph #	*Description of Photograph*
1.	Building 1, looking northeast from Frankford Avenue.
2.	Building 1, interior, typical first floor view.
3.	Building 1, interior, typical apartment on floors 2-4.
4.	Buildings 2a, 2b, and 2d, looking east.
5.	Building 2a, interior, first floor, looking east.
6.	Building 2a, interior, second floor, typical office, looking west.
7.	Building 2b, interior, looking east.
8.	Building 2c, interior, looking east.
9.	Building 2d, interior, looking west.
10.	Building 2e, south elevation, looking north.
11.	Building 2e, interior, first floor, looking west.
12.	Building 2e, interior, second floor, looking west.
13.	Buildings 2f and 6, east elevation, looking west.
14.	Building 2f, interior, looking east.
15.	Building 3, south and east elevations, looking northwest.
16.	Building 3, historic brick signage on east elevation, looking west.
17.	Building 3, interior, first floor, looking north.
18.	Building 3, interior, second floor, typical apartment, looking northeast.
19.	Building 3, interior, second floor, typical corridor, looking northwest.
20.	Building 3, interior, historic Morse electric elevator.
21.	Building 4, west elevation, looking southeast.
22.	Building 4, interior, looking east.
23.	Building 5, north elevation, looking south.
24.	Building 5, Belgian block apron along north elevation, looking west.
25.	Building 5, interior, looking east.
26.	Building 6, interior of the 1906 addition, looking southwest.

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Figure #	*Description of Figure*
1.	Site Plan with National Register Boundary.
2.	Recent aerial view with National Register Boundary.
3.	Sanborn Fire Insurance Map, 1917.

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Figure #	*Description of Figure*
4.	Illustrative view of a Clem & Morse elevator with automatic hatch doors.
5.	Illustration of the Hindley Screw,
6.	Illustrative view of the Morse Elevator Works around 1890.
7.	Illustration of a Morse elevator equipped with the Sprague electric motor.
8.	Illustration of the Morse elevator at the World's Columbian Exposition in 1893.
9.	Photographic view of Morse exhibit at the World's Columbian Exposition in 1893.
10.	Photo showing Buildings 1, 2a, and 2b 1892.
11.	Photo showing Building 3 around 1900.
12.	Illustrative view of the Morse Elevator Works around 1901.
13.	Morse advertisement for the Hindley Steering Gear, 1905.
14.	Otis advertisement for the Hindley Spiral Axel, 1911.
15.	Otis advertisement announcing the Hindley Gear Dept., 1910.
16.	Hindley Gear Company advertisement, 1918.
17.	USGS Map.
18.	Photo Key – Exterior views.
19.	Photo Key – Interior views, first floor.
20.	Photo Key – Interior views, second floor.

USGS Map - Philadelphia Quadrangle - PA, NJ (2023)
Morse Elevator Works
Philadelphia, Philadelphia County, PA

Latitude, Longitude
39.967864, -75.133753

Figure 17: USGS Map.

Figure 18: Photo Key – Exterior Views

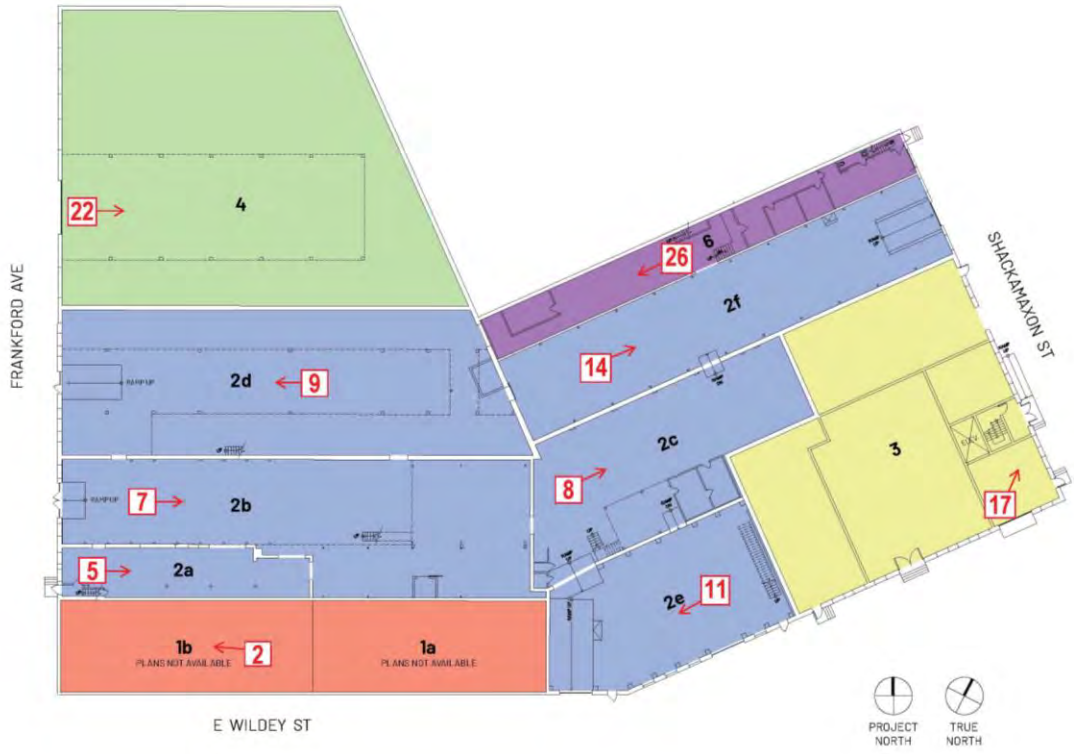

Figure 19: Photo Key – Interior views, first floor.

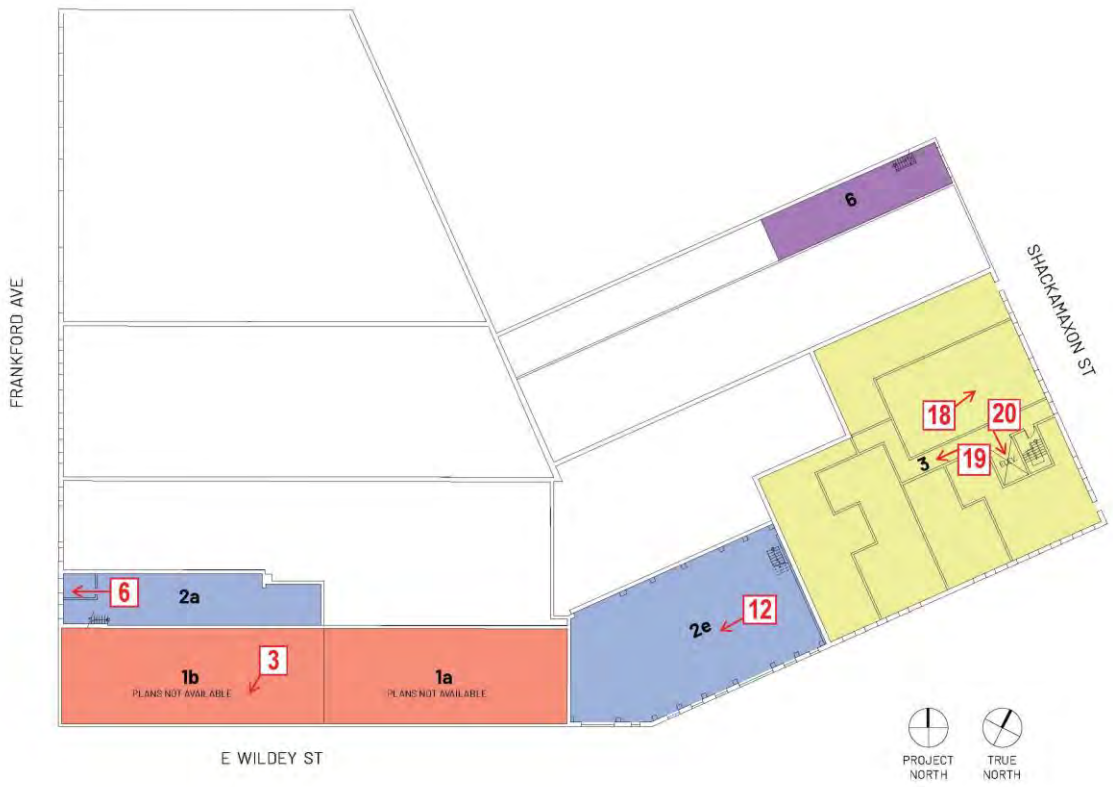

Figure 20: Photo Key – Interior views, second floor.