SG3134



NPS Form 10-900 OMB No. 1024-0018

**United States Department of the Interior**
National Park Service
**National Register of Historic Places Registration Form**

## 1. Name of Property

Historic Name: Ford Motor Company Assembly Plant
Other name/site number: NA
Name of related multiple property listing: NA

## 2. Location

Street & number: 5000 Baum Boulevard
City or town: Pittsburgh State: PA County: Allegheny
Not for publication: ☐ Vicinity: ☐

## 3. State/Federal Agency Certification

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

I recommend that this property be considered significant at the following levels of significance:
☐ national ☐ statewide X local Applicable National Register Criteria: X A ☐ B X C ☐ D

Andrea MacDonald, Deputy SHPO 10/9/2018
**Signature of certifying official/Title** **Date**

Pennsylvania Historical & Museum Commission
**State or Federal agency / bureau or Tribal Government**

In my opinion, the property ☐ meets ☐ does not meet the National Register criteria.

**Signature of commenting or other official/Title** **Date**

**State or Federal agency / bureau or Tribal Government**

## 4. National Park Service Certification

I hereby certify that the 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: _____

Joseph Dellmuth 11/20/18
**Signature of the Keeper** **Date of Action**

## 5. Classification

### Ownership of Property

| | |
|---|---|
| **x** | Private |
| | Public - Local |
| | Public - State |
| | Public - Federal |

### Category of Property

| | |
|---|---|
| **x** | building(s) |
| | district |
| | site |
| | structure |
| | object |

### Number of Resources within Property

| Contributing | Noncontributing | |
|---|---|---|
| 1 | 0 | buildings |
| 0 | 0 | sites |
| 0 | 0 | structures |
| 0 | 0 | objects |
| 1 | 0 | total |

Number of contributing resources previously listed in the National Register: 0

## 6. Function or Use

**Historic Functions:** INDUSTRY/PROCESSING/EXTRACTION: manufacturing facility

**Current Functions:** VACANT: not in use

## 7. Description

**Architectural Classification:** Other

**Principal Exterior Materials:** Brick and terra cotta

## Narrative Description

*Summary*

The Ford Motor Company Assembly Plant is a purpose-built, approximately 180,000 square-foot industrial plant constructed by Ford Motor Company in 1915 for use as a regional automobile assembly factory. The Plant was designed by John H. Graham, a noted specialist in reinforced concrete and the Ford Motor Company's corporate architect from 1913-1918. The Plant consists of an eight-story Main Building with an interconnected, six-story volume height Crane Shed, which was constructed concurrently and attached to the building's east side. Constructed of reinforced concrete, the Plant is faced in red brick, has a flat roof, and is prominently situated at the southeast corner of Baum Boulevard and Morewood Avenue in the Shadyside neighborhood of Pittsburgh, along the city's former "Automobile Row." The Plant has a slightly angled rectangular footprint, which occupies much of a lot that slopes steeply down from both west to east and from north to south to the Pennsylvania Railroad tracks. The Main Building housed open assembly areas and a street-level showroom. It has five floors above ground, plus a basement and two sub-basements. The Crane Shed features an internal 90-foot high crane bay, with historic multi-light steel windows on all sides and staggered steel landing platforms at each floor level of the interior west elevation. The Shed allowed for delivery of automobile parts via rail and space for a crane to lift them into the assembly areas of the Plant. Ford Motor Company sold the property in 1953. Since that time, various light industrial firms have made use of the building, until it was purchased by University of Pittsburgh Medical Center in 2006. The Plant is largely vacant at this time while it awaits rehabilitation. The property retains the integrity necessary to convey its significance, despite introduction of new uses over time. There have been few substantial changes to the Plant's overall historic character, and it retains all aspects of integrity.

The Plant's elongated primary elevation fronts Baum Boulevard to the north. The west elevation, facing Morewood Avenue and also a public and street-facing elevation, with the same detailing as the Baum elevation, features the vehicular opening (now infilled) from which cars would exit the building after assembly and purchase. The two primary elevations have restored terra cotta and green and blue ceramic tile detailing, as well as parapets that once held the Ford Company's signage. Large window openings are separated by brick pilasters at each bay; the historic fenestration remains, although windows are recent replacements. The south-facing elevation is plainer than the primary elevations, and features rows of evenly-spaced large window openings that originally held industrial sash. Inside, the Main Building is generally characterized by exposed concrete structure and open plan floor areas with a regular grid of octagonal mushroom capped columns, although some offices areas have been defined, as is former showroom space. The Crane Shed at the Main Building's east side is set back slightly from Baum Boulevard. It is of similar construction and has detailing consistent with the Main Building. It too has a rectangular footprint, although the elongated sides in this case run north-south to align with the Railroad, a partially extant spur of which enters the Shed's south side. Capped by a gabled roof, the Crane Shed features a six-story volume height space inside from grade to roof.

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*Setting*

The Ford Motor Company Assembly Plant is approximately 3.5 miles east of downtown Pittsburgh in the city's Shadyside neighborhood and, importantly, is situated along what was once the area's famed early 20th-century 'Automobile Row' as this section of Baum Boulevard was known, leading from downtown to the early suburbs. Many of the other auto-associated resources along this corridor have been demolished.

Conspicuously located on a corner lot, the roughly 0.75-acre Ford Assembly Plant building is on the northern half of a block bounded by Baum Boulevard to the north, Morewood Avenue to the west and Centre Boulevard to the south. The M.L.K. Jr. East Busway bounds the property to the east; this busway was established in 1983 and parallels the Pennsylvania Railroad immediately to its east; a partially extant rail spur enters the Plant's Crane Shed

from the southeast of the building. Immediately to the Main Building's south on the western side of the block, along Morewood Avenue, is an adjacent three-story light industrial building with a trapezoidal footprint that fills the southwestern third of the block. This adjacent building is neither historically nor functionally related to the Plant, and is not included within the nominated boundary. [1] In the south-central portion of the block is an elevated concrete surface lot used by the Ford Company for accessing the Plant's south side loading dock (since removed), and loading entries from Centre Avenue. The concrete surface lot structure is now, however, detached from the Plant due to removal of the loading dock in the 2000s. The surface lot has a steep drive that runs eastward along Centre Avenue then veers north connecting to a paved area west of the busway and railroad and ending abruptly at the foot of the Crane Shed's south elevation. The remainder of the block is unpaved, with overgrown landscape on the steep grade that slopes downward from central portion of the property towards the busway.

The Plant is situated amongst a mix of two-to-four story light industrial and commercial buildings that line Baum Boulevard and Centre Avenue, as well as the immediate vicinity of Morewood Avenue. The neighboring streets then give rise to residential areas further northwest, southwest and to the south. East of the property and the railroad tracks is the University of Pittsburgh's substantial medical center (the Shadyside campus).

As detailed above, the Plant building occupies the northern half of the lot bound by Baum Boulevard to the north, Morewood Avenue to the west, Centre Avenue to the south and Pennsylvania Railroad tracks to the east. It appears that historically, covered loading platforms extended the length of the eastern portion of the property along the rail line to shelter parts as they were delivered. What is now unpaved open space immediately southeast of the Plant complex, sloping fairly steeply from Centre Avenue down to the rail line, was historically owned by Ford, but did not historically possess the overgrown character the landscape in this portion of the property has currently. The primary views of the complex, from Baum Boulevard and Morewood Avenue, only reveal five floors of the Main Building and the upper portion of the Crane Shed. The other levels are visible from fewer angles due to the sloping nature of the property and the elevation of Baum Boulevard and Centre Avenue over the busway and rail line.

*Exterior Description*
The Plant is a complex comprised of two primary components: an eight-story Main Building and an interconnected six-story volume height Crane Shed.

Main Building:

The Main Building has five-stories plus a basement and two sub-basements. It is constructed of reinforced concrete with red common brick, face brick, a combination of historic and restored terra cotta, as well as green and blue tile detailing. It has a flat-slab reinforced concrete frame and large expanses of modern replacement windows. The building's exterior elevations are divided into four sections – the subbasements and basement (which are only visible from portions of the south and east elevations), the base (first floor), the shaft (second, third, and fourth floors), and cornice (fifth floor). The primary (north and west) elevations have veneered face brick that has been repointed in recent times and which feature restored terra cotta trim (in some cases this is replicated in cast stone) and green-colored tile accents. The south elevation is also faced with brick, but in having served as a rear loading area is devoid of any detailing or ornamentation. The building's east elevation is not visible as it shares a wall with the Crane Shed.

[1] The neighboring building at 5001 Centre Avenue, though part of the same tax parcel today, is not historically associated with the Ford Motor Company Assembly Plant. That was the location of the Pittsburgh Battery Service Company as early as 1920, which advertised that they sold every make of battery. The 1951 Sanborn map shows that the building is being used for "printing'. The chain of title shows that Murray and Gilda Reidbord sold 5000 Baum and 5001 Centre Avenue in 2006 to the University of Pittsburgh Medical Center. It is likely the Reidbords combined the parcels in the 1960s. Because the building is not historically associated with Ford's operation of the Plant, it is not included within the nominated boundary.

The Plant's primary north and west elevations' large window openings are separated by brick pilasters at each bay. The north elevation fronts Baum Boulevard and is eight bays long, with the easternmost bay angled slightly south. The building's main public entrance is at the northwest corner and features a central entry with sidelights (all currently infilled) and a cast stone frame that continues to the tripartite transom. The corner bay, slightly angled, features a large opening that extends to the ground and once provided street views to the interior showroom display area beyond.

The primary west elevation fronts Morewood Avenue and is five bays, with detailing that matches the north elevation's. Its northeast corner bay features a large opening to the ground, completing the other side of the former corner showroom area. A second, larger opening is at the center of the east elevation and once served as a vehicular egress from which assembled cars would exit the Plant directly to the street. The southernmost bay conceals an interior stair and has small rectangular windows at each level.

The primary elevations are otherwise similar in design, detailing and general fenestration. The cast stone detailing on these elevations replicates historic terra cotta detailing that was replaced in the 2000s. The street level (equivalent to first floor beyond) has a granite base at grade. The first floor is capped with a prominent string course of cast stone. At the roofline, the primary elevations are finished with segmental arches of cast stone that span each bay (between the brick pilasters). A denticulated cast stone cornice begins at the building's northeast elevation and wraps around to the length of the primary east elevation. The primary elevations also both feature a central parapet portion with a cast stone inlay. All street-level window openings along these elevations are large showrooms window openings with cast stone surrounds. These have received modern vinyl window displays highlighting the Plant's and neighborhood's automotive history. Upper floors have large rectangular openings, reflecting the daylight factory concept of the period and surrounds of cast stone. All upper floor window openings have received modern fixed aluminum windows; the windows are delineated into quarters with modern fixed multi-light transoms.

The south elevation, a secondary elevation, is nine bays with lower levels obscured at the west end by the three-story unrelated building to the southwest. The remainder of the elevation fronts the site's surface lot. Each of the visible nine bays features a large window opening and each floor level (six of which are visible at this elevation) is delineated by a concrete band. Due to modern fire separation requirements, three bays of openings above the neighboring building have been infilled with concrete block. A metal overhang extends above the third and fourth bays from the east, reflective of the historic loading dock that once extended from here. The openings below street level (subbasement levels one and two) have also been infilled with concrete block.

The Plant's roof is flat with vinyl sheet covering and has a brick stair penthouse and a brick chimney that features terra cotta detailing at the southeast end.

Crane Shed:

The Crane Shed is six stories in height and is capped with a steel truss gable roof covered with corrugated metal. It shares a party wall with the Main Building and therefore only the north, east and south elevations are visible from the exterior. Fronting Baum Boulevard to the north, the Crane Shed's top two floors extend above street level. Its north elevation is three bays wide -- the square shaped openings are delineated by brick pilasters; all openings have been infilled with cement or concrete block. These floor levels however continue to feature the same brickwork and terra cotta and tile detailing as the Main Building's primary elevations, although in this case the terra cotta is historic. This detailing includes the terra cotta string course capping street level. This portion of the Plant is not accessible from the street (Baum Boulevard). Instead, exterior access to the Crane Shed is provided from the south, at ground level far below Baum. The south elevation has two large, central non-historic roll-up doors in the location

of the historic train car opening, though openings have been modified for the non-historic roll-up doors . A third, smaller historic roll-up door and a short concrete stair to a non-historic man-door is on the west side of the elevation. The building's east and south elevations feature large window openings on upper floors, though extant windows are in a deteriorated condition and many individual panes are missing or have been replaced with non-sympathetic material. Historic images indicate that originally as viewed from the exterior, the south and east elevations contained industrial multilight steel windows, similar to those seen on the top floor. Window bays on the east elevation were separated by a cementitious material with embedded tiles featured in the banding between the top two levels. At the south side, this delineation between window bays transitioned to the use of corrugated metal panels. Both of these elevations have been covered in stucco, save for the top floor, which retains exposed historic industrial multilight steel windows, though they are in poor condition and missing many panes. The top floor window openings on the east elevation mimic the segmented arches on the Main Building's primary elevation. Historic images and physical evidence indicates the east elevation's tile and terra cotta detailing has been covered with stucco, damaged, or is missing.

*Interior Description*

Main Building:

The Main Building's interior is generally characterized by exposed concrete structure and open plan floor areas with a regular grid of exposed octagonal mushroom-capped columns on square drop panels. Some office areas have been defined, as is the former showroom space. Where ceilings have not been lowered in modern times, the standard floor to ceiling height is twelve feet. Finishes generally consist of concrete slab floors with painted, exposed concrete ceilings. Vertical circulation to the building's eight total stories is provided via multiple stairwells. A main concrete stair at the building's north end, near the former main (north) street-facing entrance includes decorative iron railings topped with a carved wood handrail.

A secondary stair flanked by freight elevators is at the building's east end and serves the whole building. A third staircase in the building's southwest corner provides access from the basement to the fifth floor. The southwest stair does not continue to the two sub-basement levels, which feature a smaller footprint than the floors above. These secondary stairs are of concrete with metal pipe railings.

The first floor is divided into a showroom and office space at the north (front) end with an open factory floor area behind. Due to differing functions as well as the slope of the site, the ceiling height on the first floor varies. The main showroom entry at the building's northwest corner features a historic wood frame vestibule with a denticulated cornice. It has glazing on each side and paired full-glaze doors that enter onto the showroom space. The showroom space's wood columns have historic embellished capitals and a coffered ceiling with globe pendant lights and non-historic tile floors. There are what appear to be historic office spaces' partitions to the south of the front showroom space. The west area of the first floor includes a garage door (likely original) and an associated sloped concrete ramp for moving cars in and out of the former showroom to Morewood Avenue. A modern partition running east-west divides the otherwise open space on the west side of the floor. The center portion of the first floor has several non-historic office partitions and ceilings in this portion are non-historic, suspended lay-in ceilings concealing support systems. The first floor's east side abuts the Crane Shed. The original multi-light industrial steel windows are intact on this portion of the building allowing views into the Crane Shed space.

The second floor is largely open space with exposed concrete floor and evenly-spaced exposed octagonal mushroom-capped columns. Horizontal industrial fluorescent tube lights and three-blade ceiling fans are attached directly to the exposed concrete ceiling structure. There is a non-historic restroom to the east of the center stair. The north portion of the floor includes non-historic partition walls for office space. The ceiling in this portion of the

building has a suspended lay-in ceiling and the floors are vinyl tile. A second non-historic office portion was established at the northeast corner of the building and has suspended lay-in ceilings and carpeted floor. Like the first floor, the east side of the second floor abuts the Crane Shed.

The third, fourth, and fifth floors are open plan and feature evenly-spaced exposed octagonal mushroom capped columns, exposed concrete floors, and exposed concrete ceiling structures with horizontal fluorescent tube lights. The east side of the fourth and fifth floors rises above the neighboring Crane Shed and features large modern windows like those of the primary elevations.

The building's basement is open plan with the building's trademark octagonal mushroom capped columns, evenly-spaced. There is a short metal platform at the south side of the building where the loading dock once connected to the building. There is a restroom at the northeast corner. Infill material has been installed in openings along the basement's east wall to separate it from the Crane Shed, which was originally accessible from this level.

The first sub-basement is one level below the basement and has a smaller footprint than the rest of the building. The western portion has several non-historic partitions for offices with some suspended lay-in ceilings. There is a restroom at the northeast corner. The remainder of the space is open and features full-height ceilings and evenly-spaced octagonal mushroom-capped columns.

The second sub-basement is the lowest level of the building and has the smallest footprint. The north portion of this sub-basement is open plan with evenly-spaced octagonal mushroom-capped columns. A wall separates the north portion from the south portion, which houses the air compressors and a work area. A small corridor on the south end separates the compressor room from the boiler room. The boiler room has brick walls and a near full-height steel door. There is evidence of a fire on this floor from a boiler explosion in the recent past. No structural damage is evident; damage was limited to smoke damage and partial loss of the eastern wall, which has been boarded.

Crane Shed:

The Crane Shed is accessed from the exterior by doors on its south elevation. The roll-up doors on the south align with an in-ground railroad spur that provided rail access from the neighboring rail line. The spur's rails continue through to the north end of the Shed, where a second roll-up door opening has since been infilled.

The south side man-door opens to a small, one-story interior enclosed room defined by corrugated metal and within the Shed. The room then opens into the Shed's full six-story height. There is access to the Main Building from its west side, where a since infilled roll-up door opening led to the second subbasement. There are six staggered, steel landing platforms on the west wall at each floor of the Main Building. An east-west occupiable overhead steel crane bridge spanning the width of the building at roof height is located at the north end. The crane was just below the roofline with tracks on each side of the building. A metal catwalk at the north end of the shed allowed access to the crane. It featured a bucket where an operator could move the length of the shed to load materials to the landing platforms. Rail cars would enter the Crane Shed and manufacturing materials would be hoisted from the rail cars to the appropriate landing platforms for assembly. For example, material like fenders, gas tanks, hoods, wheels, and headlights would be unloaded from the rail car via the crane and would be loaded to the landing platform on the Main Building's second floor where they would be installed on automobile bodies. Bays without landing platforms have industrial sash windows overlooking the Crane Shed. Openings below windows, which were historically open to the Crane Shed, on the east and west sides of ground level are infilled with cement block. Though the exterior of the Crane Shed was covered in stucco, historic industrial steel multi sash windows are extant when viewed from the interior.

*Alterations/Integrity*

Since Ford sold this property in 1953, the Plant has had several different tenants and uses, but has undergone limited changes. For example, interior changes are generally cosmetic, consisting of installation of some non-historic office partitions and associated non-historic floor finishes or dropped ceilings. The interior still features its mainly open plan floor levels, with its distinctive octagonal mushroom capped columns, and also retains its historic vertical circulation. The current owner, University of Pittsburgh Medical Center, acquired the building in 2006 and undertook an exterior restoration program of the Main Building at that time. As described above, several window openings at the south elevation were infilled with concrete block to address fire separation requirements. Most other windows were replaced with new aluminum fixed windows and transoms that reflect, but do not replicate the original in design. Historic industrial steel multi-sash sash windows are extant on the Main Building's east elevation, abutting the adjoining Crane Shed, though some are in a deteriorated condition. As described above, historic industrial steel multi-sash windows are also extant on the Crane Shed's east and south elevations, but have been obscured by the later application of an exterior stucco finish. At the rear, due to deterioration, the loading dock and connecting ramp to the concrete surface lot were removed and loading door openings received windows matching the other new windows. At the primary elevations, the metal awning at the historic main entry was removed and ground floor storefront openings were infilled to receive vinyl displays highlighting the building and neighborhood's automotive history. In addition, the face brick on the primary elevations of the Main Building was repointed, the green tiles were cleaned, and the majority of the terra cotta was restored or replicated in-kind in cast stone.

Prior alterations include removal of the roof's water tower in the early 1960s and limited changes to the Crane Shed. Corrugated metal panels were removed from the Shed's south elevation and an application of a stucco finish was installed between windows at both the south and east; this occurred at an unknown time. In the early 1940s, a train shed that connected to the below grade level of the Crane Shed was also removed.

Despite the alterations described above, Pittsburgh's Ford Motor Company Assembly Plant retains all seven aspects of integrity, including location, setting, design and to a lesser extent materials and workmanship. The building remains in its historic **location** at the prominent corner of Baum Boulevard and Morewood Avenue, strategically selected along Automobile Row and an important rail line. With the adjacent unrelated three-story building at the south, the railroad tracks to the east, albeit separated now via the recent busway, and other low-rise light industrial and commercial buildings in the immediate vicinity, the building retains integrity of **setting**. The building's **design** was based on a consistent standard that Ford Motor Company developed for its' assembly plants during the 19-teens. Ford assembly plants were built across the country during this period and though designs varied somewhat from location to location, in-house architects continuously implemented the use of reinforced concrete, large expanses of window openings and red brick veneer with terra cotta and tile detailing on the exterior. Interiors also typically feature mushroom-capped columned open plan interiors for assembly work space, with sales/showrooms provided on first floor. The Ford Motor Company Assembly Plant in Pittsburgh is a clear regional representative of this standard and furthermore, is reflective of the Ford focus on gravity-fed assembly due to its somewhat less common multi-story Crane Shed. The Plant retains integrity of **materials**. Although most Main Building windows are modern replacements, some steel windows remain on the Crane Shed. The historic materials of reinforced concrete as seen for example in the octagonal mushroom capped columns and throughout the exposed concrete structure of the assembly floor areas remain. The historic red face brick is intact and to a lesser extent, so are the terra cotta and color tiles. Integrity of **workmanship** remains and is characterized the red face brick, and terra cotta and tile detailing, some of which has been replicated in modern times and materials. With the above aspects taken together, the Plant continues to reflect the **feeling** and **association** of an early twentieth century Ford Motor Company assembly building, clearly an important industrial building and reflecting a specific era and approach to automobile production.

## 8. Statement of Significance

### Applicable National Register Criteria

| | | |
|---|---|---|
| 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. |
| x | **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:** NA

**Areas of Significance:** Industry, Architecture

**Period of Significance:** 1915-1932

**Significant Dates:** 1915

**Significant Person**: NA

**Cultural Affiliation**: NA

**Architect/Builder:** John H. Graham, Sr.

### Narrative Statement of Significance

*Summary*

The Ford Motor Company Assembly Plant in Pittsburgh was constructed in 1915 by and for Ford Motor Company during the company's first factory building campaign for the manufacture of the Model T automobile. The Ford Motor Company Assembly Plant is significant at the local level for industry (Criterion A). The Plant is one of the few remaining automotive-related buildings and factories in Pittsburgh's Shadyside neighborhood along the former "Automobile Row," a more than a mile-long stretch of Baum Boulevard that featured motor car agencies, auto garages, and dealerships, as well as several vehicular manufacturers beginning in the 1910s. The Ford Motor Company Assembly Plant maintained an important presence in the City's thriving automobile-related district for over a decade, employing some 300 people. A contemporary with the birth of Ford's assembly-line mass production techniques, the Plant is significant for its architecture (Criterion C), having been designed specifically as a regional or branch assembly plant for the assembly of automobiles through a vertical or gravity-fed process. The processes of both shipping complete sets of parts via rail to regional plants for assembly, as well as the gravity-fed system were pioneered by the Ford Motor Company in the early part of the twentieth century. The Plant, as a result, features flat-slab, reinforced concrete construction (in lieu of concrete post-and-beam structure), open floor plans with octagonal mushroom capped columns, and an impressive Crane Shed, with a ground-level rail spur and a traveling crane[2] to hoist materials and parts between floors (in lieu of elevators, which were intended for auxiliary use only). The Plant also reflects Ford's implementation of dual-purpose buildings as it was both a Model T

[2] A traveling crane is an overhead crane still commonly used in industrial environments. It is comprised of parallel runways with a traveling bridge spanning the gap. A hoist, the lifting component of a crane, travels along the bridge.

assembly plant and a Model T showroom (on first floor). The Plant served as regional headquarters for Ford Motor Company during Ford's occupancy and remains a good local example of early twentieth century manufacturing and business practices developed by a company with a national market. Ford Motor Company built 31 regional assembly plants throughout the nation during the early 1900s; the Plant in Pittsburgh is one of a limited number designed by John H. Graham, Sr. (1873-1955), a noted early specialist in reinforced concrete and the Ford Motor Company's corporate architect from 1913 to 1918. The Plant's period of significance extends from its date of construction, 1915, until 1932 when Ford ceased the Plant's assembly operations due to a combination of assembly process changes and the Great Depression, reducing the building's functions to sales and parts only, including the continued use of the showroom.

***Criterion A / Industry***

*Ford's Innovation*

The Plant is significant for the role it played in the evolution of industrial facilities for the automobile industry and specifically for Ford Motor Company. The introduction of Henry Ford's universal car, the Model T, led the way for automobile assembly. The Model T's standardized parts dictated the standardization of assembly and ushered principles of modern mass production. The process was further improved in 1913 with Ford's introduction of the moving assembly line and later refined with interchangeable parts, conveyers, and automation.

Ford's first introduced the system of a moving assembly line in 1913 at the headquarters at the Highland Park, Michigan, facility. The Highland Park Plant, built in 1908 for Model T production, was the first of many Ford buildings designed by architect Albert Kahn (1869-1942). Ford and Kahn worked closely on the design of his early factories and began a partnership that would last for 35 years.[3] At Highland Park, Henry Ford (1863-1947) along with his engineers explored principles of system, continuity, speed, and repetition for mass production to meet the demand for the Model T. Ford was continuously and concurrently exploring the best assembly methods, moving employees, machinery, and materials around the plant to better systemize and find the most efficient means of production. For example, a 1914 diagram of the Highland Park Plant shows a vertical or gravity-fed process where the third and fourth floors were used for preparing automobile components like fenders, gas tanks, hoods, wheels, tires, headlights, and floor boards for final assembly. Conveyers then moved those to the second floor where they were assembled into car bodies. A second conveyer then took the bodies to the first floor where the parts were connected to the chassis. Final assembly took place outside the building. A chute brought car bodies down to the chassis.[4] Within eighteen months of the first moving assembly experiments at Highland Park, assembly lines were implemented in almost all of Ford's plants.

*The Ford Motor Company and Its Branch Houses*

The introduction of Ford Motor Company's universal car, the Model T, in 1908 led the way for automobile assembly not only in Ford's main factories in Michigan, but eventually throughout the United States. This was because the Model T was designed with a series of standardized parts and an engine that was cast in one piece. Unlike earlier automobile designs, the Model T was not a luxury vehicle, making it the first widely-available and demanded automobile. The design lent itself to Ford's revolutionary application of mass production. More than large-scale production with interchangeable parts, Ford's mass production focused the manufacturing process on power, accuracy, economy, continuity, system speed, and repetition.[5] These mechanisms would soon together provide for the company's ability to expand.

[3] Charles K. Hyde, "Assembly Line Architecture: Albert Kahn and the Evolution of the US Auto Factory, 1905-1940, *The Journal of the Society for Industrial Archeology*, Vol. 22, No. 2 (1996), p. 14.
[4] Highland Park Ford Plant, National Register Nomination.
[5] Allan Nevins, *Ford: The Times, The Man, The Company* (New York: Charles Schribner's Sons, 1954), 402.

In December 1911, the Ford Board of Directors voted to send Ford's General Manager James Couzens (1872-1936) to California in "the interest of establishing Branch Houses, Warehouses, or to make other arrangements for the handling of our business as may seem necessary."[6] When he returned, Couzens presented his conclusion: the company should initiate assembly of automobiles in multiple locations instead of shipping complete vehicles from the Highland Park Factory. He had already preemptively purchased four West Coast properties and the Board further supported the approach by encouraging stockholders to authorize the spending of "fifteen percent net earnings of the Company each year…for the purpose of developing this plan."[7]

The Ford approach was to construct assembly plants in strategic trade centers and the expansion plan continued in following years. Between 1912 and the outbreak of World War I, Ford built 31 assembly plants around the United States and Canada. In 1913 Ford opened assembly plants in Cambridge (Mass.), Chicago, Denver, Los Angeles, Memphis, Minneapolis, Philadelphia, Portland, St. Louis, San Francisco and Seattle. Three more where constructed the following year – Columbus, Dallas, and Houston. In 1915, eight more assembly plants opened – in Atlanta, Cincinnati, Cleveland, Fargo, Indianapolis, Louisville, and Pittsburgh. By 1917, Ford was assembling cars in twenty-nine cities outside of Detroit.[8]

As described by Ford, assembly plants, sometimes referred to as branch factories, "receive standard parts from the manufacturing plants and assemble them into finished cars and trucks. This calls for chassis assembly, body building and all paint trim and upholstery work [to be completed at the branch factories]…The branches all operate under the same system, the same standard tools, and build cars in the same way."[9] The overarching Ford policy was to manufacture individual parts near the source of supply, but assemble the parts into cars near their point of distribution. Regional assembly plants ordered manufactured parts from Detroit, reducing overall transportation costs. Salesmen, both those in the plants' showrooms as well as Ford dealers within the branches' regional territory, worked closely with the assembly plant employees and reported their orders daily to ensure plants were assembling quantities on par with the regionalized consumer demands. As the assembly plants (branches) grew numerous, Ford achieved better control of the business, in direct contrast perhaps to companies who utilized wholesale distributors for distribution and/or sales. In addition, because each Ford branch supervised Ford dealers in its territory, a high and consistent standard of service was achieved. As a result, the percentage of sales handled by branches steadily climbed. By 1913, branches were handling over seventy-five percent of sales.[10]

In the following years, Ford extended reach to both coasts. During the rapid growth of the company and its aggressive expansion across the country, Ford began to work with architects in addition to Albert Kahn. For the construction of the Seattle plant in 1913, Ford hired a local Seattle architect, John Graham, Sr. Graham, like Khan, was known to be an early specialist in reinforced concrete. Graham designed several Seattle area buildings in the early 1900s using the technique including Lyon Building (1907 with David J. Myers; NRHP 1995), Bellingham National Bank (1912; NRHP,1983) and Joshua Green Building (1913), making him an appropriate choice for Ford's assembly plant campaign architect. And, though not a reinforced concrete building, one of Graham's other early designs that may have also been of interest to Ford was the Agen Warehouse (1910; NRHP 1998). As described in the National Register nomination, the Agen Warehouse's design is particularly interesting in that its loading docks are adjacent to extant spur lines for railroad freight cars and directly across the street from a shipping facility. The nomination explains, "the location of the warehouse building along the railroad with its own docking facility…provides an understanding of the workings of trade and commerce when the railroad, sail and steamships

[6] James M. Rubenstein, *The Changing US Auto Industry: A Geographical Analysis*, (New York: Rutledge, 1992), 60.
[7] *Ibid*.,61.
[8] *Ibid*.,62.
[9] Henry Ford with S. Crowther, *Today and Tomorrow* (London: Willian Heinemann, 1926), 117.
[10] Nevins, *Ford: The Times, The Man, The Company*, 402.

formed an essential link between the producer or the manufacturer and the distributor, and efficiency was a function of how close the factory and storage facilities were from the freight cars and shipping lines."[11] This warehouse's relationship to existing infrastructure may have piqued the interest of Henry Ford due to his ongoing effort to improve production and assembly for Ford Motor Company. After the completion of the Ford Motor Assembly Plant in Seattle, Graham became the supervising architect for Ford.

*Automobiles, Industry and Pittsburgh*

The Ford Motor Assembly Plant was not Pittsburgh's first foray into the world of the automobile. Both the Commonwealth of Pennsylvania and Pittsburgh had been involved with the development of the automobile as well as paved roads for express use by automobiles for some time. Between 1903 and 1911, Pennsylvania took the national lead in creating a modern road system, establishing a Department of Highways, requiring automobile licenses, and taking over more than 8,000 miles of highway for maintenance and improvement.[12] The Lincoln Highway, designed in 1913, connected Philadelphia to Pittsburgh and stretched from New York City to Pittsburgh. And, although most often noted for its steel production, Pittsburgh and the Allegheny region did play a role in the developing and manufacturing of early automobiles. Before World War I, Detroit's car industry dominance had not been established. Cities such as Chicago, Cleveland, and Pittsburgh each developed their own regional automotive industries. Between 1890 and 1910, the automobile manufacturing industry that emerged in Pittsburgh consisted of small, independent car makers. In 1897, a group of businessmen formed the Pittsburgh Motor Vehicle Company (renamed Autocar in 1900; Autocar produced cars only until 1911, specializing instead in trucks from then on). This firm's first vehicle had three-wheels, was gasoline driven, and had a wicker body holding two people with a bicycle seat for the driver at the rear. It changed to four-wheels in 1898 and to a regular runabout body in 1899.[13]

In 1903, the steam-powered Artzberger car was invented by the Foster-Artzberger Automobile Company. [14] The Pittsburgh area seemed an ideal place for the automotive industry due to its easy access to raw materials, coal, railways, and trained workers, as well as an interested consumer base. Pittsburgh's first motorized cars made their appearance on city streets in 1909. In 1910, Dr. John Lehner of the South Side neighborhood was the first to purchase a Model T. A few years later, the *Pittsburgh Press* added an automotive section to its Sunday editorial pages.[15] Around this time, the *Pittsburgh Post* boasted that the region was "one of the leading Auto Trade Centers in the US," having spent over $3million in expenditures on new automobiles.[16]

Although the fledgling local automobile manufacturers and the local market proved positive, Pittsburgh's locally-developed automobile industry did not continue. The region's success in steel manufacturing may have made potential investors complacent. Local business magnates such as Henry Clay Frick (1849-1919) and Andrew Carnegie (1835-1919) recognized the motor vehicle's promising technologies but chose *not* to invest in the burgeoning industry.[17] Despite lack of interest from local investors in the local automobile manufacturing industry, Pittsburgh's love affair with the car continued as did its contributions to automobile infrastructure. In 1913, for example, Pittsburgh-based Gulf Oil opened the first drive-in gas station in the nation at the intersection of Baum

[11] The Agen Warehouse, National Register Nomination, 1998, p.14.
[12] Pennsylvania Historical and Museum Commission, "Pennsylvania History: 1861-1945: Era of Industrial Ascendancy: Roads," http://www.phmc.state.pa.us/portal/communities/pa-history/1861-1945.html, accessed January 23, 2018.
[13] "History of Early American Automboile Industry, 1891-1929: Chapter 5." http://www.earlyamericanautomobiles.com/americanautomobiles5.htm, accessed February 2, 2018.
[14] Margaret J. Krauss, "On the Road Again: What Pittsburgh Has to Do With Cars," July 10, 2015, http://wesa.fm/post/road-again-what-pittsburgh-has-do-cars#stream/0, accessed January 23, 2018. The Foster-Artzberger Automobile Company was based in Allegheny City, Pennsylvania located across the Allegheny river from downtown Pittsburgh.
[15] *Ibid.*
[16] Charles Lanigan, "The Early Automotive Industry in Southwestern Pennsylvania," *Western Pennsylvania History Magazine*, Winter (2003): 29-39.
[17] Lanigan, "The Early Automotive Industry," 37.

Boulevard and Saint Clair Street, less than one mile from the Ford Motor Company Assembly Plant. Though other locations sold gas, the Baum station was the first to cater to the motorist and was staffed 24 hours a day. The car began to transform everyday life and shaped the development of Pittsburgh's "Automobile Row."[18]

As more and more automobiles began to appear on Pittsburgh's streets, businesses to service and supply them emerged in Pittsburgh's East End, especially in the East End neighborhood of Shadyside. Most of these existed along a section of Baum Boulevard and Centre Avenue that had originally served the horse and carriage trade. The area naturally and easily transitioned to the automobile trade, with 1911 Sanborn Fire Insurance Maps indicating the former horse/carriage buildings had become auto garages and auto shops. Ford was one of the businesses that had a presence in Pittsburgh's East End by this time. By 1909 Ford had established a sales and parts branch location at Highland Avenue, north of the City's downtown. In 1911 this was moved to 5925 Baum Boulevard -- a two-story commercial building across from Trade Street, just one mile from the future Ford Motor Company Assembly Plant. (The sales and part branch would close when the new assembly plant was completed.) This area of the City soon came to be known as "Automobile Row." And, it was here that Ford would construct its regional branch assembly plant.

With local investors not focused on furthering the local automobile industry, the City initiated efforts to woo automobile manufacturers from elsewhere. In 1913, Henry Ford met with the city's Industrial Development Corporation (PIDC). Established by the city's Chamber of Commerce in 1911, PIDC was charged with attracting new industries to the city to reinvigorate the overspecialized [steel] economy.[19] The PIDC was anxious for Ford to open an assembly plant in Pittsburgh's East End (in the Shadyside neighborhood).[20] This location was appropriate and considered highly desirable because it aligned with the new transcontinental Lincoln extension and Automobile Row was steadily growing and becoming the center for the industry in the region.[21] The construction of a national company's assembly plant on the Row would certainly solidify Automobile Row's importance.

*Pittsburgh's Shadyside and 'Automobile Row'*

Shadyside, located approximately 3.6 miles east of Pittsburgh's downtown, was established around 1860.[22] The area got its name from a farm owned by Rachel and Thomas Aiken, referred to as Shadyside.[23] In 1852, the Pennsylvania Railroad opened a line through the area, separating Shadyside from neighboring Bloomfield. It connected to an existing canal system, easing the transport of goods west. The Aiken family owned many acres of land in the area and Thomas Aiken (1815-1873) recognized that the railroad created opportunity to provide affluent families in nearby Pittsburgh a place for their families to live in the country while having easy access to the city. By the early 1860s a station was built and named the Shady Side station. Suburban estates sprang up in conjunction with the railroad; the area had a population of 2,272 by 1870. Shadyside was formally annexed by Pittsburgh in 1868 and neighborhood institutions followed. The Shadyside Presbyterian Church opened in 1867; the Pennsylvania Female College opened in 1869; and Shady Side Classical Academy opened in 1885. As the community grew, infrastructure improvements were carried out, including roadwork, streetcar, and sewer work. In 1908, a footbridge was constructed over the Pennsylvania Railroad at Graham Street so residents could safely cross the tracks. A commercial corridor developed along Centre Avenue and Baum Boulevard. Industry, like the

[18] Margaret J. Krauss, "On the Road Again: What Pittsburgh Has to Do With Cars," *WESA NPR*, July 10, 2015, http://wesa.fm/post/road-again-what-pittsburgh-has-do-cars#stream/0, accessed January 23, 2018.
[19] David Cannadine, *Mellon: An American Life (*New York: Vintage Books, 2006), 237.
[20] Lanigan, "The Early Automotive Industry," 37.
[21] Butko, 299.
[22] "An Atlas of the Shadyside Neighborhood of Pittsburgh 1977," (Pittsburgh: Pittsburgh Neighborhood Alliance,1977) 1.
[23] "Pittsburgh Today Made Up of Many Villages," *Pittsburgh Post Gazette*, January 14, 1953.

Manufactures Power Company and Zatek Chocolate Company, built up around the railroad tracks and former farm and estate land transformed into urban industrial development.[24]

Automobile Row, in the heart of the Shadyside neighborhood, extended over a mile along Baum Boulevard. The beginning of Automobile Row was marked by the Automobile Club of Pittsburgh building which was situated at the northeast corner of Baum Boulevard and Beatty Street, opposite the Motor Square Garden (which became headquarters of the Pittsburgh branch of the American Automobile Association from 1915). "Automobile Row" contained motor car agencies, auto garages, and dealers. "For more than a mile, this section of Baum Street or Baum Boulevard," was the " 'Automobile Row' of Pittsburgh; and even a run through without stop impresses the stranger with the number and variety of motor agencies, many occupying their own large and costly buildings," exclaimed a motor travel publication of 1919.[25] Such motor-related businesses include an Autocar truck assembly, sales and service plant on the northwest corner of Liberty Avenue and Baum; Pierpoint Motor Company -- a Hudson and Essex distributor (Hudson Motor Company)-- on the northeast corner of Melwood Street; a Studebaker showroom at the southeast corner of Enfield Street; and Packard sales and service at the northwest corner of Enfield.[26] All were within blocks of the Ford Motor Company's Assembly Plant, the only national car assembly on Automobile Row.

The Ford Motor Company's Assembly Plant was erected at corner of present-day Baum Boulevard and Morewood Avenue on the site of the former estate of Alexander Bradley (1821-1899), a stove maker. By 1911 the site was owned by real estate developer SM Willock and Morewood Avenue was extended south, subdividing the former estate. At that time, Baum Boulevard west of Liberty Avenue was called Atherton Avenue. As Automobile Row continued to grow, the Atherton Avenue Bridge was constructed to cross the Pennsylvania Railroad, joining Baum Boulevard and Atherton Avenue in 1913, adjacent to the future Ford Motor Company's Assembly Plant. Shortly thereafter, Atherton was renamed Baum Boulevard.

*The Pittsburgh Plant Development*

In 1915, Ford's Pittsburgh plant was erected at the cost of half a million dollars and established an important and dominant presence on Automobile Row.[27] When completed, it was the sixth largest in the chain of Ford Assembly Plants.[28] Approximately 300 men worked on the assembly line, assembling a car every one-and-a-half minutes. The service stock carried by the plant (inclusive of its' authorized dealers, and service stations in the Pittsburgh territory) was valued at over a quarter million dollars.[29]

The Pittsburgh plant was designed by Graham. In general, earlier Kahn-designed factory buildings at Ford's Highland Park location served as the baseline – partial models – for all subsequent Ford Assembly plant designs, including the Pittsburgh plant. (Plant layouts in fact were planned by company executives and production engineers familiar with the assembly requirements that had been tested at the Highland Park plant and that were ultimately chosen to be implemented elsewhere. Those requirements were then turned over to the corporate architect to make site-specific plans.)

It is not surprising therefore that the Pittsburgh plant has many similarities with earlier and other assembly plants, like large daylight factory fenestration, the use of face brick, a decorative cornice, and terra-cotta and tile detailing.

[24] Donald Doherty, *Images of America: Pittsburgh's Shadyside*, (Charleston, SC: Arcadia Publishing, 2008), 1.
[25] "Through Wilkinsburg Into the 'East End' of Pittsburgh," *Motor Travel*, Vol.11, No. 4 (July 1919): 34-36.
[26] Brian Butko, *Greetings from the Lincoln Highway: A Road Trip Celebration of America's First Coast-to-Coast Highway*, (Mechanicsburg, PA: Stackpole Books, 2005), 73.
[27] "Ford Pittsburgh Plant to be Enlarged," *The Horseless Age*, Vol 36 (July 28, 1915):117.
[28] George Thornton Fleming, *History of Pittsburgh and Environs*, (New York: American Historical Society, Inc., 1922), 659.
[29] "Pittsburgh Ford Branch Invites Public Inspection During Open House Week," *Pittsburgh Press* (Pittsburgh, PA), November 8,1925.

The building's dual purpose as a showroom and assembly floor(s) was also a typical set-up implemented by Ford. Graham's interior detailing, including the ornamented main stairway and column capitals in the showroom space help further this distinction, distinguishing the public space from the functional space.

By 1924, Ford had sold its ten millionth car in the nation and was claimed to be the most significant car company at that time.[30] The Plant on Automobile Row contributed directly to Ford's prominence, especially in the local market. At this time, more than 2,700 authorized Ford and Lincoln dealers made the Pittsburgh branch their base of operation, as did service stations in 37 counties in four states. [31] In 1925 there were 60,000 Ford cars; 2,300 Ford trucks; 6,900 Ford tractors; and 300 Lincoln cars in the Pittsburgh branch plant's territory, practically all of them assembled in the Ford Motor Company Assembly Plant on Baum Boulevard.[32]

The multi-story assembly building configuration used in Ford's Plant on Baum Boulevard, however, was soon made obsolete by innovations in engineering and Ford's continuous improvements in the 'moving assembly.' Beginning in the 1920s, Ford had already embarked on a second major period of construction, remodeling certain earlier buildings where possible – but in most cases, constructing new one-story, steel-frame facilities. Assembly plant production overall was further impacted by the Great Depression. Assembly operations in the Pittsburgh Plant continued only until November 1932.[33] The branch then operated as a sales and/or sales and parts branch, and continued to use the showroom until the building was sold in 1953.[34]

After the sale, it served various light industrial uses. It was used as a motor supply store for a few years, then several offices, a party supply store, a clothing manufacturer, and a printing company. University of Pittsburgh Medical Center Presbyterian Shadyside purchased the site in 2006 with the intent to convert it to medical research facilities. The building has, however, since remained vacant.

*Ford in Pennsylvania*

The Ford Motor Company's presence in Pennsylvania began in 1906, when a location was established at the corner of Broad and Buttonwood Streets in Philadelphia. Like the initial Pittsburgh presence, this location was limited to auto sales. A Philadelphia assembly plant was constructed in 1914 at the corner of Broad Street and Lehigh Avenue.[35] Designed by Albert Kahn, the 10-story triangular building fronts Broad Street on the sunken Philadelphia and Reading Railroad right-of-way. [36] The reinforced concrete building was constructed using what was called the "Kahn System," developed by Albert Kahn's brother Julius at the turn of the twentieth century. The new method of construction enabled building designs with large floor plates and height – perfect for modern manufacturing.

Though designed by Kahn, the Philadelphia plant shares many of the same elements seen in the Pittsburgh plant such as the use of red common and face brick, the same terra cotta detailing, and the use of large expansive windows, including the terra cotta arch detail at the top story windows. Also like the Pittsburgh plant, the Philadelphia plant was strategically located on a sloped site with access to a rail line.[37] The Philadelphia plant did

[30] "Ten Millionth Ford Due Here Today on Cross Country Run," *Pittsburgh Post Gazette* (Pittsburgh, PA), June 21, 1924.
[31] *Ibid.*
[32] "Pittsburgh Ford Branch Invites Public Inspection During Open House Week," *Pittsburgh Press* (Pittsburgh, PA), November 8, 1925.
[33] "History of Pittsburgh Branch Report," (Pittsburgh: Ford,1941).
[34] *Ibid.*
[35] http://www.oldchesterpa.com/ford.htm
[36] https://hiddencityphila.org/2013/09/broad-lehighs-landmark-botany-500-building-awaiting-its-next-life/
[37] Bradley Maule, "Broad & Lehigh's Landmark Botany 500 Building, Awaiting Its Next Life," September 04, 2013, *Hidden City*, *https://hiddencityphila.org/2013/09/broad-lehighs-landmark-botany-500-building-awaiting-its-next-life/*.

not feature a craneway like seen at the Pittsburgh plant and instead had space inside its single 10-story building for four rail cars to enter the rail side of the building. [38]

The Philadelphia plant followed a similar production model implemented at the Pittsburgh plant and assembled auto tops and bodies on the lower floors and painted and upholstered on the upper floors. Auto production at the Philadelphia plant was partially interrupted by the United States' entry into World War I in 1917. The Ordnance Department struck a deal with Ford to use the plant to manufacture Army helmets, eye guards, body armor, and machine gun trucks.[39] After the war, the increased demand for vehicles and the changing manufacturing technology instituted by Ford resulted in the Philadelphia plant's relocation to nearby Chester, Pennsylvania, in 1927.[40] The Philadelphia plant was used subsequently as storage and then sold the building to the Mack Warehouse Corporation in 1941.[41] The Philadelphia plant was used by a clothing manufacturer, Joseph H. Cohen & Sons from 1950-1986. Cohen & Sons sold the building in 1989 and it has remained vacant since then.[42]

Assembly operations began at the Chester plant in August 1928.[43] Built as part of the second phase of assembly plant design, the Chester plant was one story to accommodate Ford's refined horizontal process. The horizontal process responded to Ford's improvements to the 'moving assembly' model. Unlike the Philadelphia and Pittsburgh plants, assembly took place on a single story and among several buildings. Located on the Delaware River, the new plant allowed for two sea-going ships to be berthed at the plant pier. The pier included two steel loading masts to transfer cargo from conveyers and railroad gondolas to ship holds. Major car parts came to the Chester plant from the River Rouge plant in Michigan. Automobiles assembled in Chester were distributed to half of Pennsylvania and New Jersey, all of Delaware, the eastern shore of Maryland, Washington DC, and the northern section of Virginia.[44]

In February 1942, Ford signed a contract with the Ordnance Department to modify and prepare for export 10,000 tanks and military vehicles at the Chester plant in support of World War II.[45] After the war, the plant was busy due to the regional demand for automobiles created by the postwar baby boom, the expanding middle class, and suburbanization.[46] The Chester plant closed in 1961 when its operations were consolidated with the plant in Mahwah, New Jersey.[47] The Chester plant was demolished in 2005.

***Criterion C / Architecture***

A contemporary with the birth of Ford's assembly-line mass production techniques, the Plant is significant for its architecture and engineering advancement, having been designed specifically as a regional or branch assembly plant for the assembly of automobiles through Ford's vertical or gravity-fed process, which was further refined at this location.

*The Pittsburgh Plant Design*
John H. Graham, a noted specialist in reinforced concrete, was the Ford Motor Company's corporate architect from 1913-1918. As supervising architect for Ford, one of Graham's early projects was the six-story addition of a Crane

[38] "Old Chester, PA Ford Motor Company," http://www.oldchesterpa.com/ford.htm
[39] Maule, Ibid.
[40] "Old Chester," Ibid.
[41] Ibid.
[42] Maule, Ibid.
[43] "Old Chester," Ibid.
[44] Ibid.
[45] Ibid.
[46] Stephen Nepa, "Automotive Manufacturing," *The Encyclopedia of Greater Philadelphia,* http://philadelphiaencyclopedia.org/archive/automotive-manufacturing/
[47] Ibid.

Shed to the Highland Park plant in 1914. As part of Ford's continuous refinement to the assembly process, the Crane Shed changed the gravity-fed process of the assembly line. Likely building on the experience of constructing early assembly plants that capitalized on railways and shipping, the development of the craneway at Highland Park also served as an experiment on how to make assembly more efficient and how to better move materials within the assembly plants. Ford was previously having problems unloading automobile parts, distributing them within the plant, and then loading finished materials from the plant into railcars. To address the issues, the building design that was adopted was multi-story with duplicated floorplans, all of which were joined by a craneway. The craneway was a full-height building from track to roof with a crane runway immediately under the roof girders. The craneway was the connecting link between floors and eliminated a reliance on elevators to move goods.

After installation at Highland Park, a craneway was included in the design for Ford Motor Assembly Plant in Chicago (1914), also designed by Graham. The innovative use of the craneway design, exhibited at the Chicago Plant, as well as the Chicago Plant's construction method were lauded in contemporary trade publications. The "unusual craneway"[48] included a center track from where materials were delivered into the assembly areas of the Plant. A crane traveled the length of the building. The defining feature of the space was loading platforms at each floor (see Historic Image # 7). Each platform was arranged at different lengths and were also staggered so as not to interfere with each other.[49] The crane was able to deliver materials to each platform, distributing to the appropriate floor for required assembly.

Aside from providing the innovations in efficient product movement, the Chicago assembly plant was also noted as "unusually interesting from the standpoint of reinforced concrete construction."[50] This was for its use of the 'Akme' system of concrete slab construction, one of the earliest systems of concrete slab construction. Concrete slabs in this type of construction were generally 11-inches thick and designed for a live load of 150 pounds per square foot. Slabs were carried on reinforced concrete octagonal mushroom capped columns topped with a seven-foot square plate (of concrete) that was nine-inches thick. The slabs were 'two-way' with bars running both longitudinally and transverse in rectangular bays. Parallel bars ran across the entire system of bays, with some bars bent up at their supports-- either the columns or the band of reinforcing connecting the column-- to account for negative-movement tension at the top of the slab.[51] Both of these 'unusual' design and construction techniques were implemented in Graham's future projects, including that of Pittsburgh's assembly plant.

As utilized in the Chicago plant, Graham continued use of the Akme concrete slab construction system in Pittsburgh a year later, and the Plant has thick concrete slab floors and octagonal columns topped with square plates in a regular, repeated pattern at each floor. The Plant's location near the Pennsylvania Railroad supported the construction of a Crane Shed to house the craneway. Like the multi-story craneways in Highland Park and Chicago, the Pittsburgh craneway was designed for a center rail track to deliver goods to be distributed to different levels. The center crane could deliver material loads at each floor's loading platform to enable the vertical assembly process. In the case of the Pittsburgh Plant, such parts were distributed as follows to accommodate each level's function: the top floors (fourth and fifth floors) housed enameling, painting, and upholstery. The third floor was the assembly line, top building, and wheel painting. The second floor housed repair areas, parts, and stock. Automobile frames were unloaded to the basement where body assembly, frame painting, and storage took place. The first floor housed the offices, garage, shipping and carpentry units as well as the public showroom.

[48] Iron Age, 1915, p. 903.
[49] Iron Age, 1915, p.903.
[50] Iron Age, 1915, p. 903.
[51] Freidman, p. 146.

In addition to Seattle, Chicago and Pittsburgh, and the craneway addition at Highland Park, Graham is credited with designing eight other Ford assembly plants. Several more built during his tenure as supervising architect may be Graham's work, but have not been attributed to him. Of the eleven of his confirmed designs, three are individually listed in the National Register – those in Cleveland (1915), Atlanta (1915), and Cincinnati (1915). One additional plant is a contributing resource to a National Register District - Fargo (1914). Of those listed, existing street view photography suggests only three feature a Crane Shed and their nominations fail to fully describe the role of the craneway or synthesize how the craneway was a major component to the plant design for the vertical/gravity-fed assembly process within.

Interestingly, the use of a multi-story Crane Shed for the gravity-fed system soon became obsolete for Ford production. Improvements to Ford's 'moving assembly' during this same time consisted of new horizontal processes which would ultimately make one-story plants more efficient and desirable. Ford's initial building campaign and expansion halted, too, due to the nation's entry into World War I. The collaboration between Ford and Graham ended as well in 1918 and Graham returned to Seattle.

*John Graham*
John Graham was born in 1873 in Liverpool, England and moved to Seattle in 1897.[52] He received no academic training in architecture, but in 1904 formed a partnership with David J. Myers (1872-1939), designing three apartment buildings and two homes. By 1910, Graham was practicing on his own, and designed the Joshua Green Building (1910) in downtown Seattle. It is not clear how Henry Ford and Graham met, but Ford hired him to design the Seattle assembly plant in 1913.

After World War I, having previously ended his tenure with Ford, Graham continued to work in Seattle and quickly became a prolific and celebrated local commercial architect. His subsequent work includes many prominent Seattle buildings such as, Frederick and Nelson Department Store (1918), Physics Hall at the University of Washington (1927), Bon Marche Department Store (1927, National Register-listed 2016), and the Exchange Building (1930).

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[52] Heather M. MacIntosh, "Graham, John Sr. (1873-1955)," November 2, 1998, http://www.historylink.org/File/124, accessed January 19, 2018.

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**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 #

**Primary location of additional data:**
- _ State historic preservation office
- _ Other state agency
- _ Federal agency
- _ Local government
- _ University
- _ Other -- Specify Repository:

**Historic Resources Survey Number**: NA

## 10. Geographical Data

**Acreage of Property:** 0.75 acres

**Coordinates** Latitude: 40.454874 Longitude: -79.944285

**Verbal Boundary Description:**
The property occupies much of the block bounded by Baum Boulevard to the north, Morewood Avenue to the west, Centre Avenue to the south, and a busway and Pennsylvania Railroad tracks to the east. The nominated property consists of the Ford Motor Company Assembly Plant Main Building and Crane Shed and historically associated land. The boundary is shown in Figure 11.

**Boundary Justification:**
The boundary for the nominated property includes the portion of the block historically associated with the assembly of Ford Motor cars. It excludes an adjacent but historically unrelated building at the northeast corner of Centre and Morewood Avenues, which extends along Morewood toward Baum until roughly the middle of the block. This

building (5001 Centre Avenue) apparently had no functional, operational, or ownership relationship to the Ford plant.

## 11. Form Prepared By

Name/title: JulieAnn Murphy and Jennifer Hembree
Organization: MacRostie Historic Advisors, LLC
Street & number: 1400 16th Street, NW 420 City or Town: Washington State:DC Zip Code: 20036
Email: jhembree@mac-ha.com Telephone: 202-483-2020 Date: October, 2018

## Additional Documentation

**Maps**
**Additional items**
**Photographs**

### Photograph Log

Ford Motor Company Assembly Plant
5000 Baum Avenue
Pittsburgh, Allegheny County, Pennsylvania
Photographed by JulieAnn Murphy, November 2017

### Photo List

| | |
|---|---|
| 1 | Primary (north and west) elevations; Camera facing southeast |
| 2 | East elevation of Crane Shed (left) and north elevation of Assembly Plant (right); Camera facing west |
| 3 | Roofline detail; Camera facing southeast |
| 4 | South elevation; Camera facing north |
| 5 | North elevation of Crane Shed; Camera facing south |
| 6 | East elevation; Camera facing northwest |
| 7 | South elevation of Crane Shed; Camera facing north |
| 8 | First floor showroom interior; Camera facing northwest |
| 9 | First floor interior; Camera facing north |
| 10 | Second floor interior; Camera facing east |
| 11 | Third floor interior; Camera facing northwest |
| 12 | Third floor interior; Camera facing west |
| 13 | Secondary stair; Camera facing west |
| 14 | Fourth floor interior; Camera facing south |
| 15 | Fourth floor interior; Camera facing west |
| 16 | Fifth floor interior; Camera facing southeast |
| 17 | Main stair; Camera facing north |
| 18 | Basement interior; Camera facing east |
| 19 | First subbasement interior; Camera facing south |
| 20 | Second subbasement interior; Camera facing west |
| 21 | Crane Shed interior; Camera facing north |
| 22 | Crane Shed interior; Camera facing southeast |

### Figure List

| | |
|---|---|
| 1 | USGS Map, Pittsbugh East, 1951 |

| | |
|---|---|
| 2 | Exterior Photokey |
| 3 | First floor Photokey |
| 4 | Second Floor Photokey |
| 5 | Third Floor Photokey |
| 6 | Fourth Floor Photokey |
| 7 | Fifth Floor Photokey |
| 8 | Basement Photokey |
| 9 | First Subbasement Photokey |
| 10 | Second subbasement and Crane Shed Photokey |
| 11 | Site Plan |
| 12 | Sketch Map |
| 13 | First floor plan, c.1940 |
| 14 | Second floor plan, c.1940 |
| 15 | Third and fourth floor plan, c.1940 |
| 16 | Fifth floor plan, c.1940 |
| 17 | Basement floor plan, c.1940 |
| 18 | First subbasement floor plan, c.1940 |
| 19 | Second subbasement floor plan, c.1940 |
| 20 | 1924 Sanborn of Ford Motor Company Plant |
| 21 | c.1915 rendering by the building's architect, John Graham, Sr. |
| 22 | 1923 view of primary (north and west) elevations of Main Building; Crane Shed at far left. |
| 23 | 1942 view of Crane Shed east elevation (left) and Main Building north elevation (right). |
| 24 | 1942 view south (left) and east (right) elevations. |
| 25 | Interior view of Chicago assembly plant, also designed by John Graham, Sr.; the Pittsburgh plant is similar. |
| 26 | c.1917 postcard of interior of Highland Park craneway and loading platform; the Pittsburgh plant is similar. |

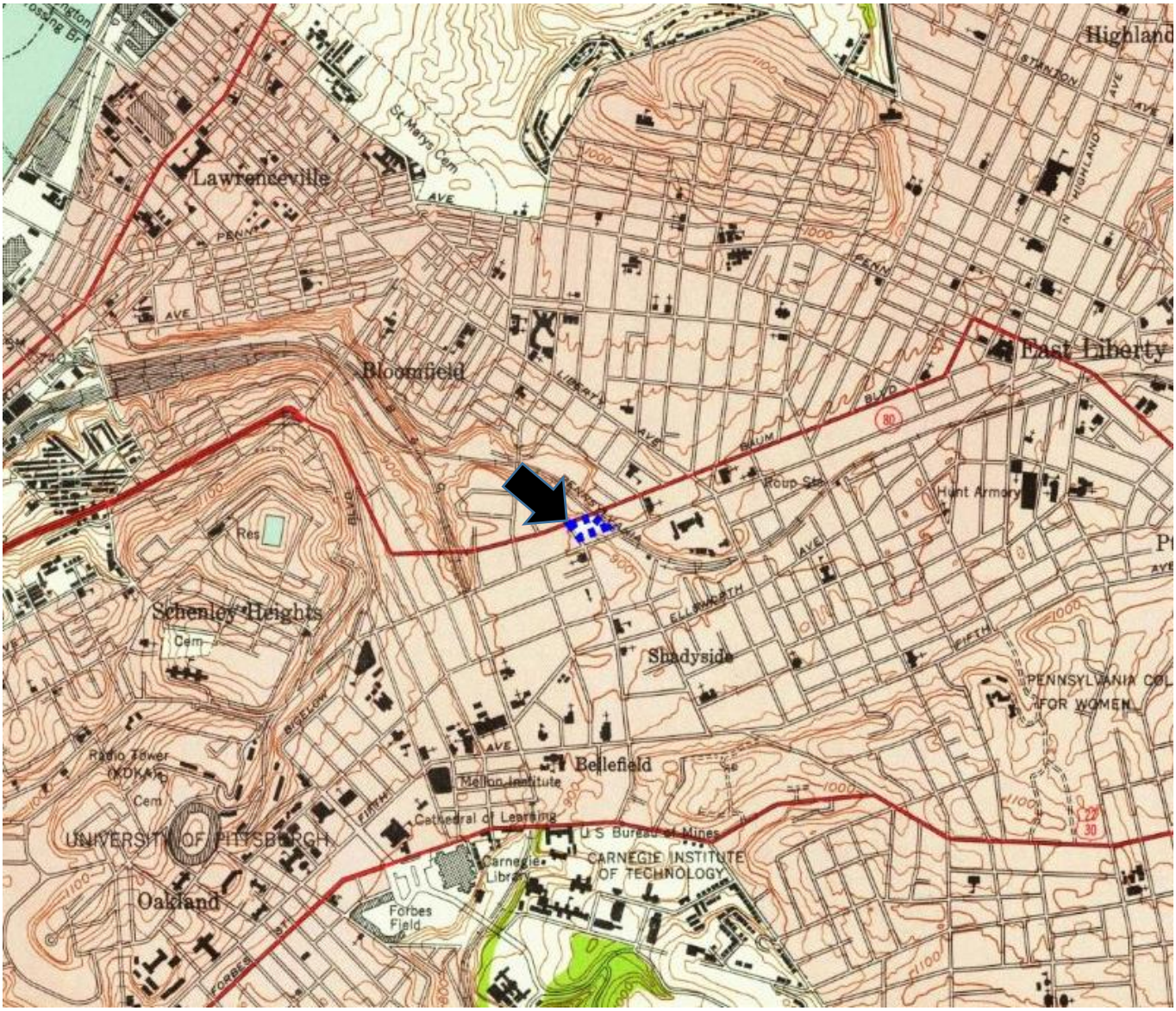


Figure 1: USGS Map excerpt, Pittsbugh East, 1951; property location indicated by large arrow.

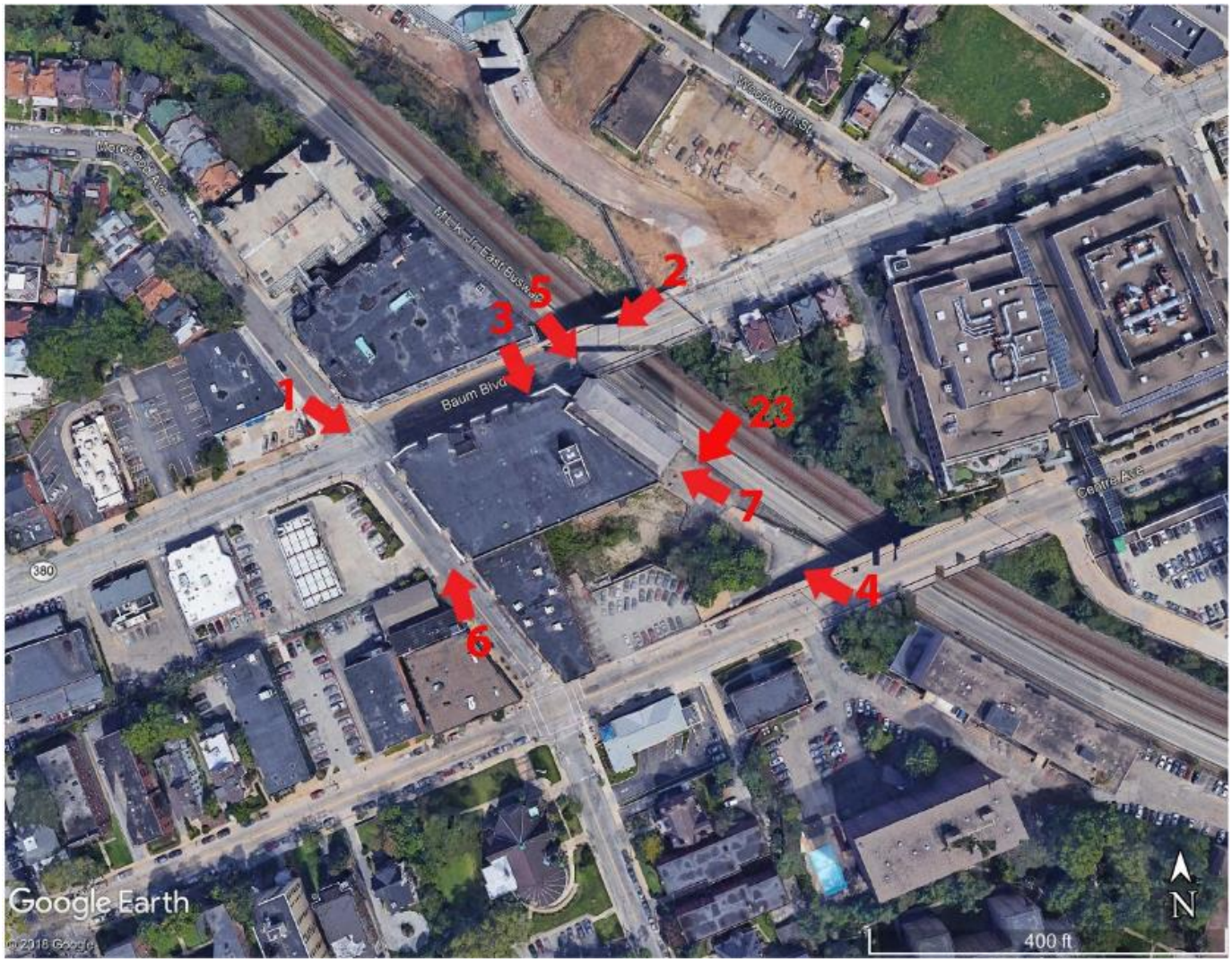


Figure 2: Exterior Photokey

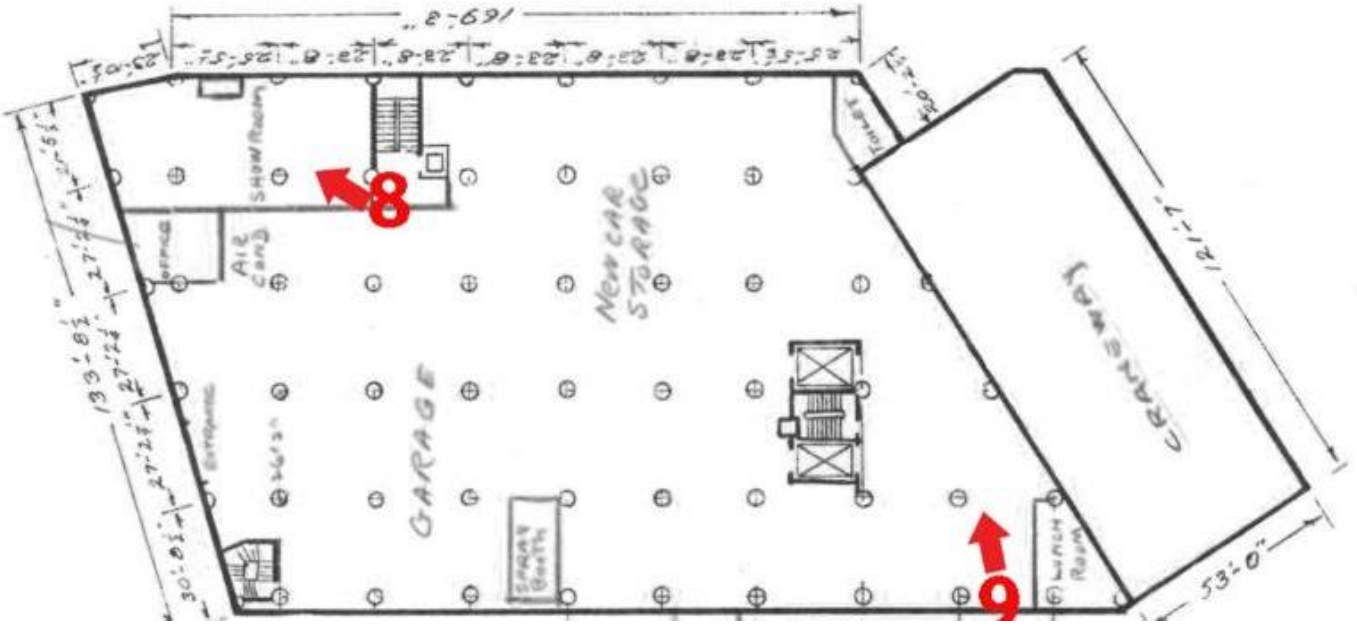


Figure 3: First Floor Photokey

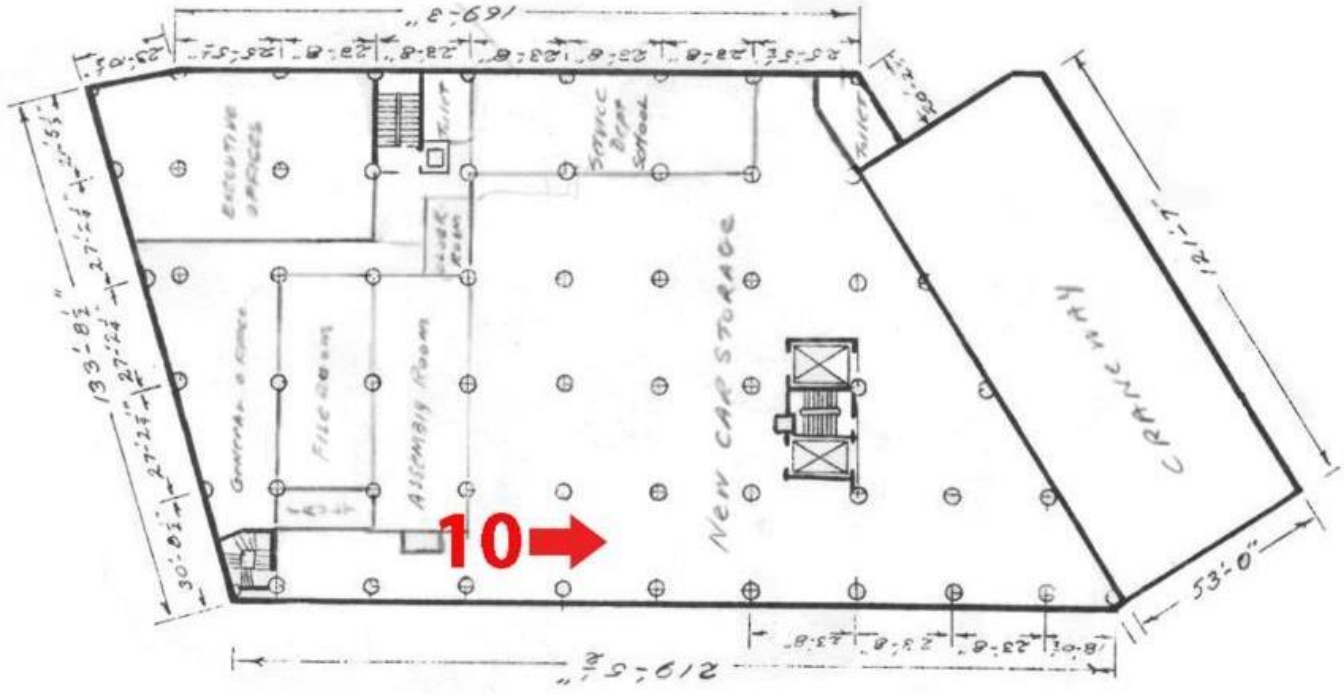


Figure 4: Second Floor Photokey

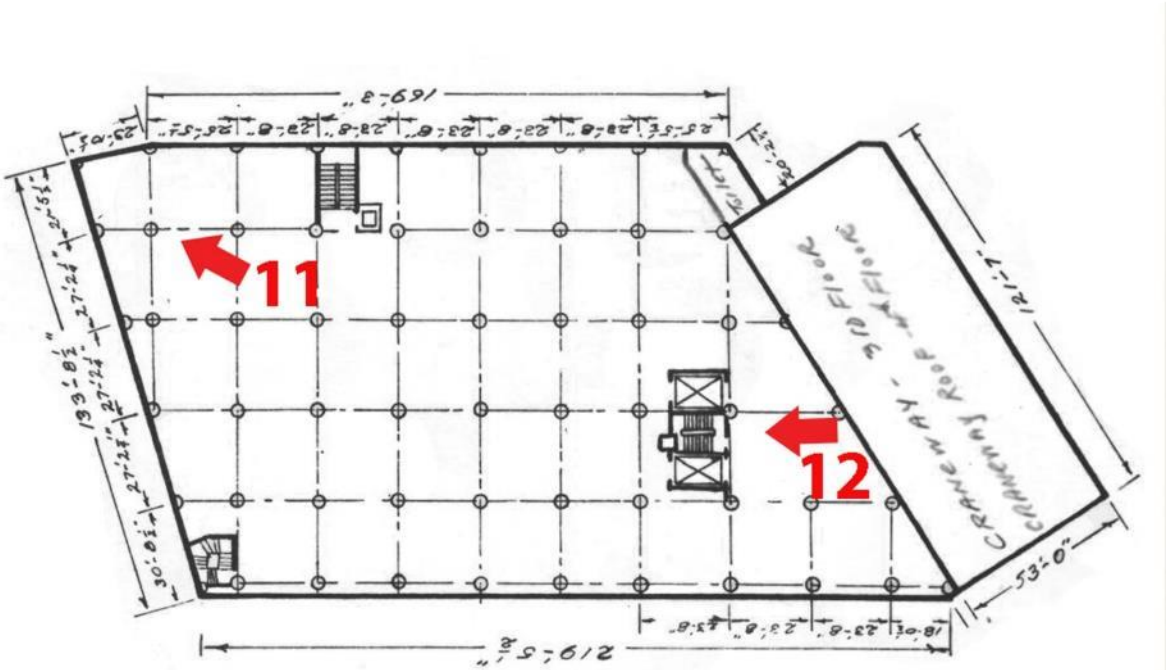


Figure 5: Third Floor Photokey

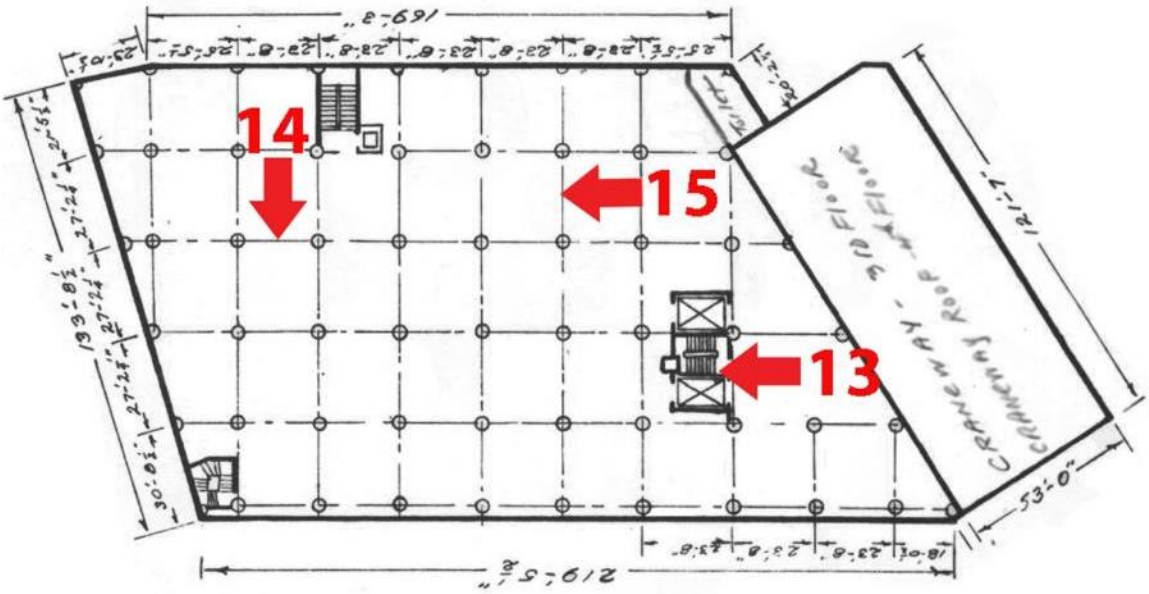


Figure 6: Fourth Floor Photokey

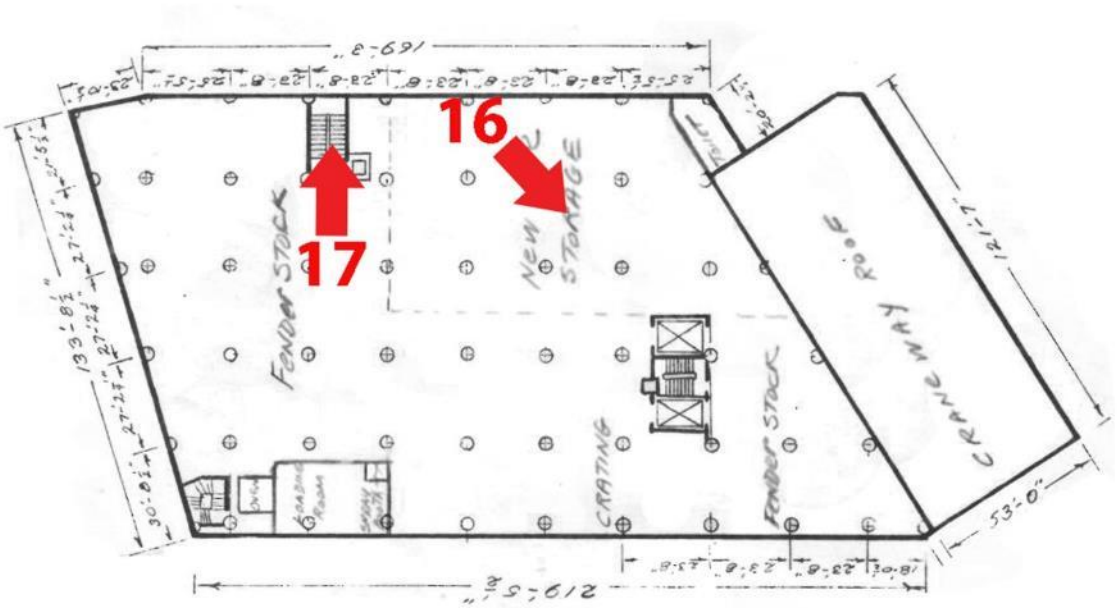


Figure 7: Fifth Floor Photokey

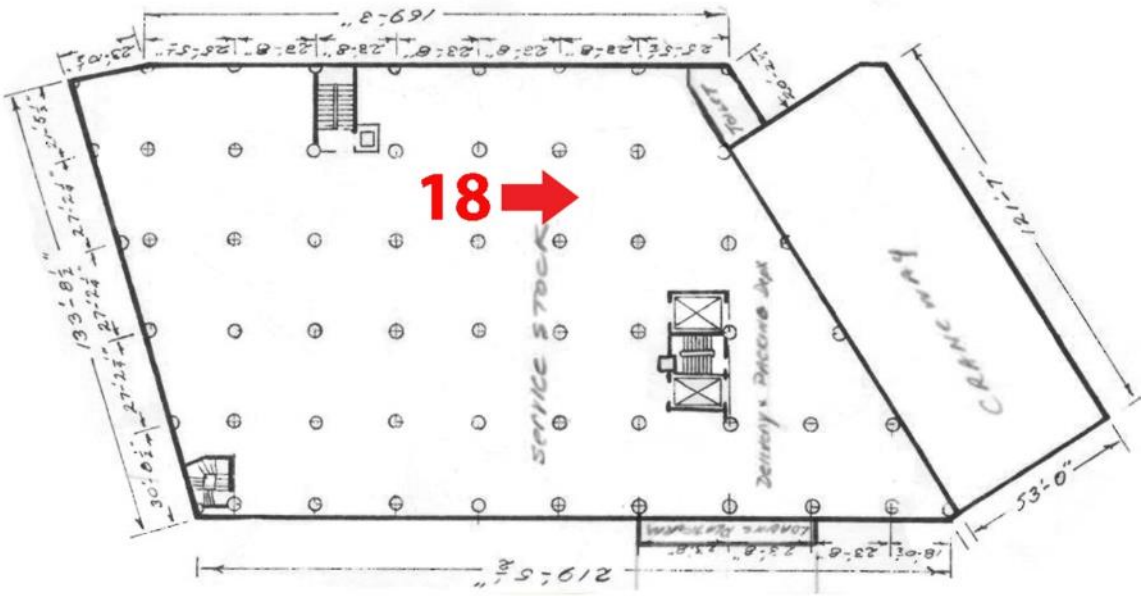


Figure 8: Basement Photokey

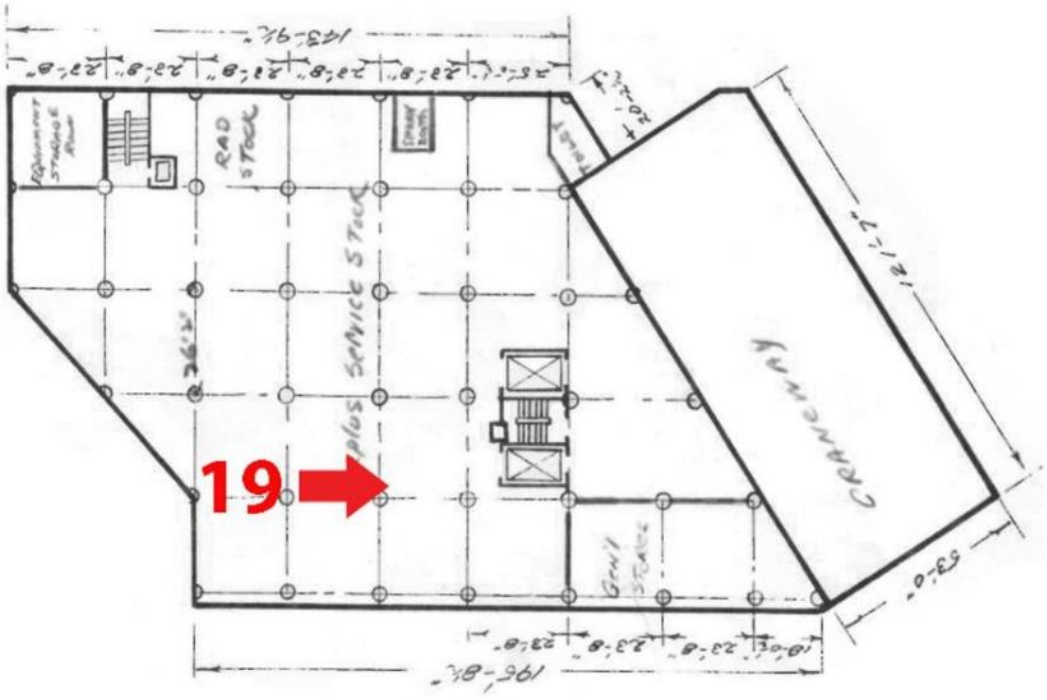


Figure 9: First Subbasement Photokey

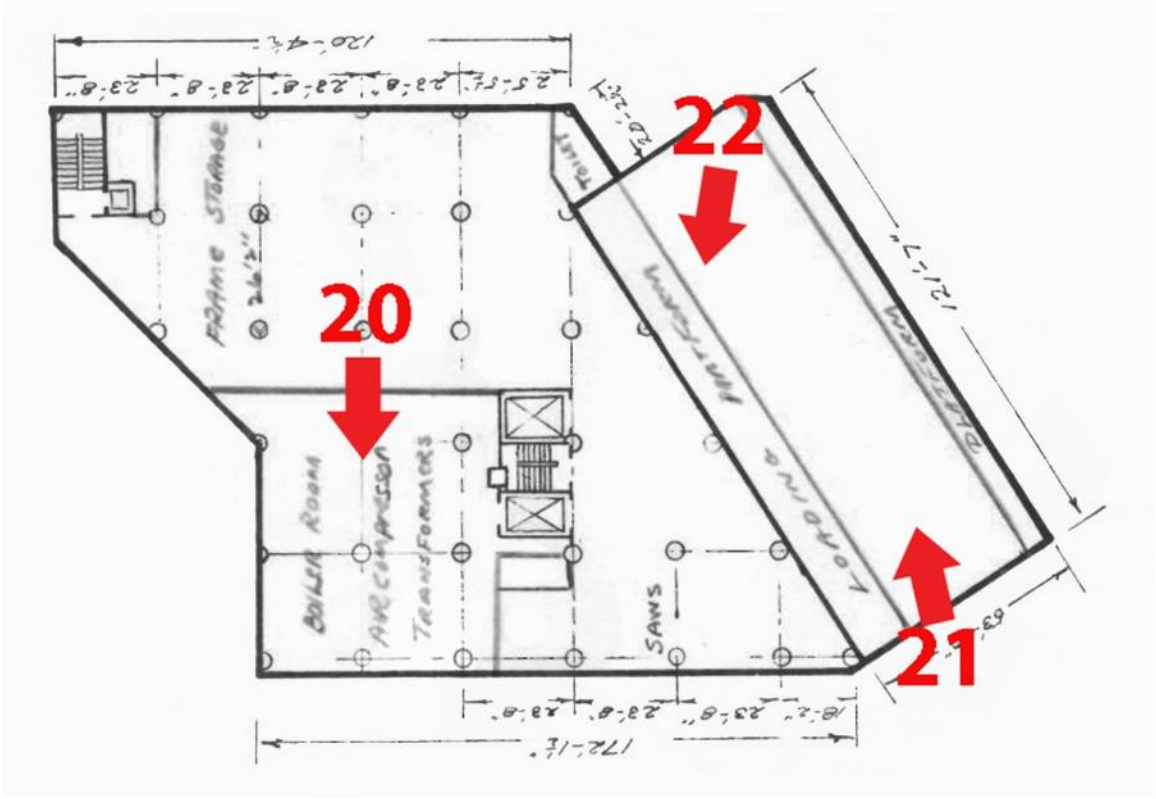


Figure 10: Second Subbasement and Crane Shed Photokey


Figure 11: Site Plan, showing nominated boundary (approximate), which consists of the entire block bounded by MLK Jr East Busway (along the former Pennsylvania RR line), Centre Avenue, Morewood Avenue, and Baum Boulevard, excluding the unrelated building at the northeast corner of Centre and Morewood Avenues.

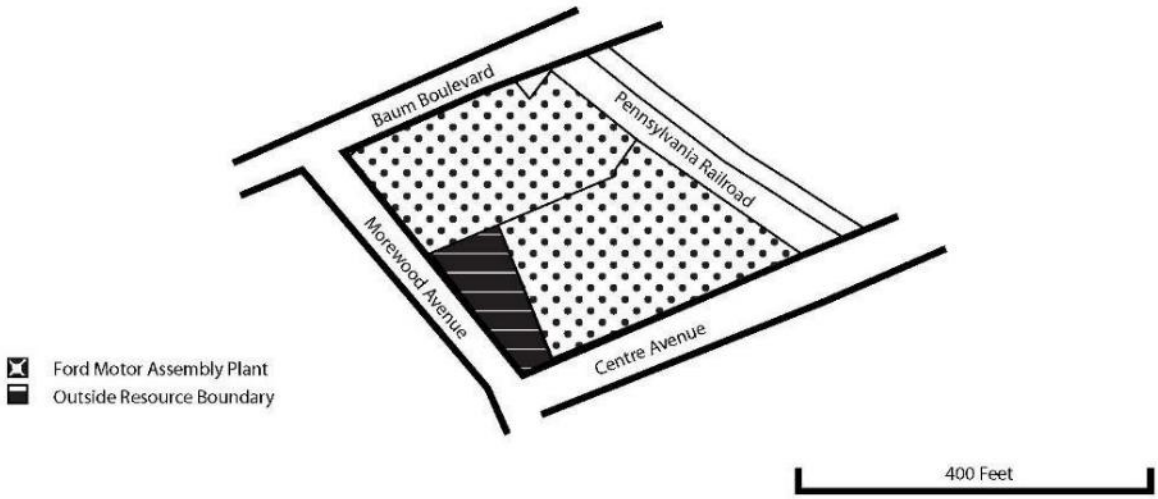


Figure 12: Sketch Map

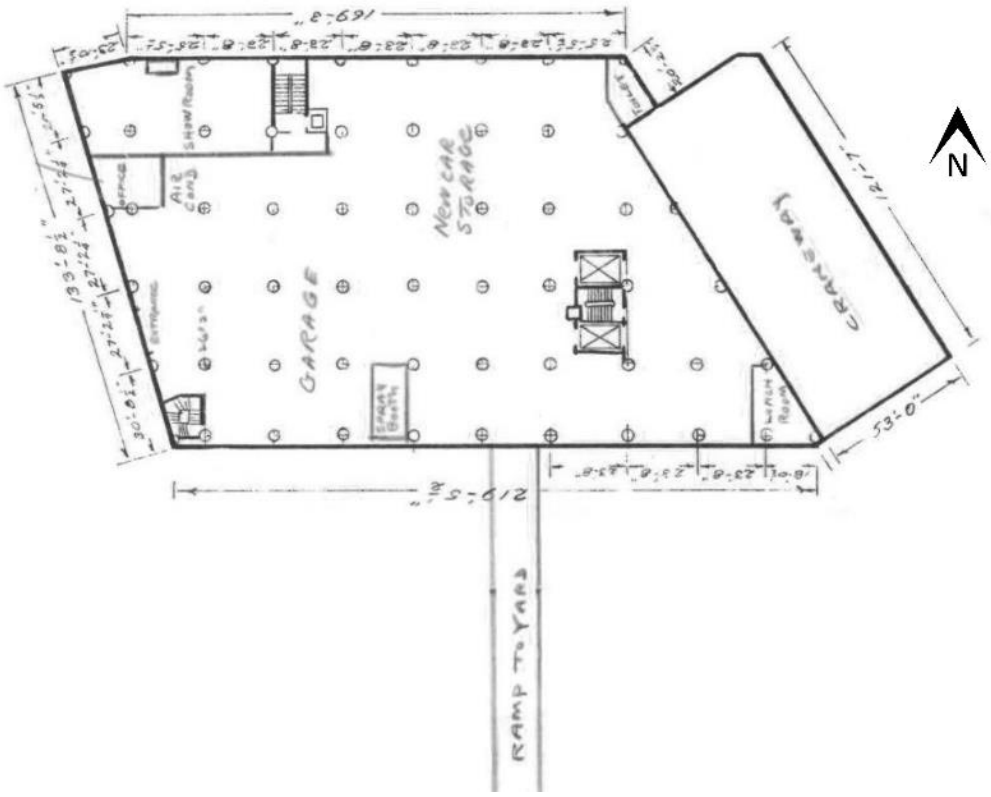


Figure 13: First floor plan, c.1940

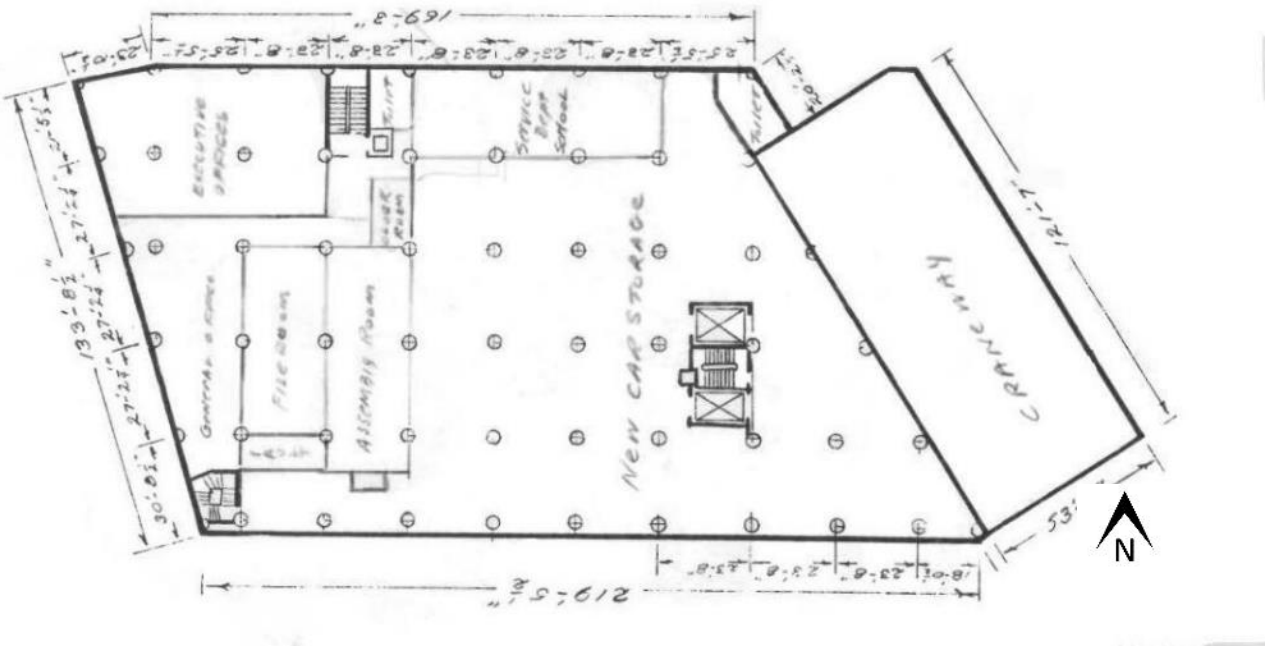


Figure 14: Second floor plan, c.1940

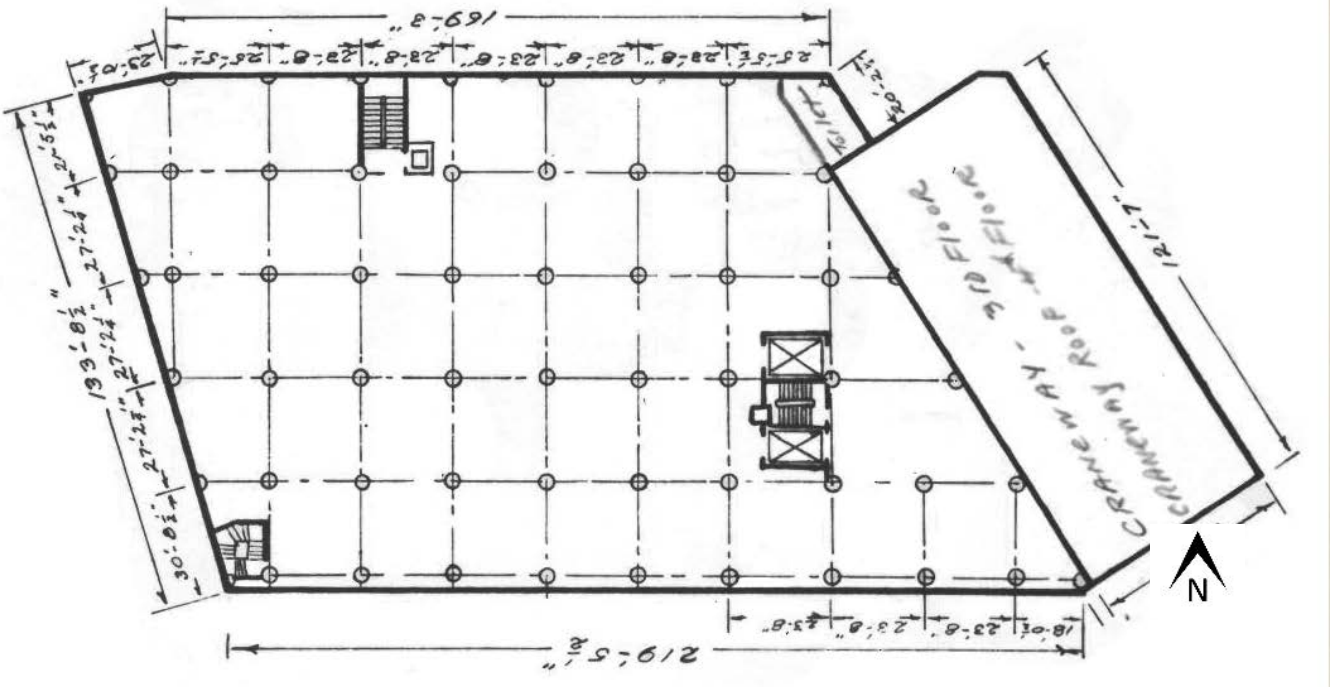


Figure 15: Third and fourth floor plan, c.1940

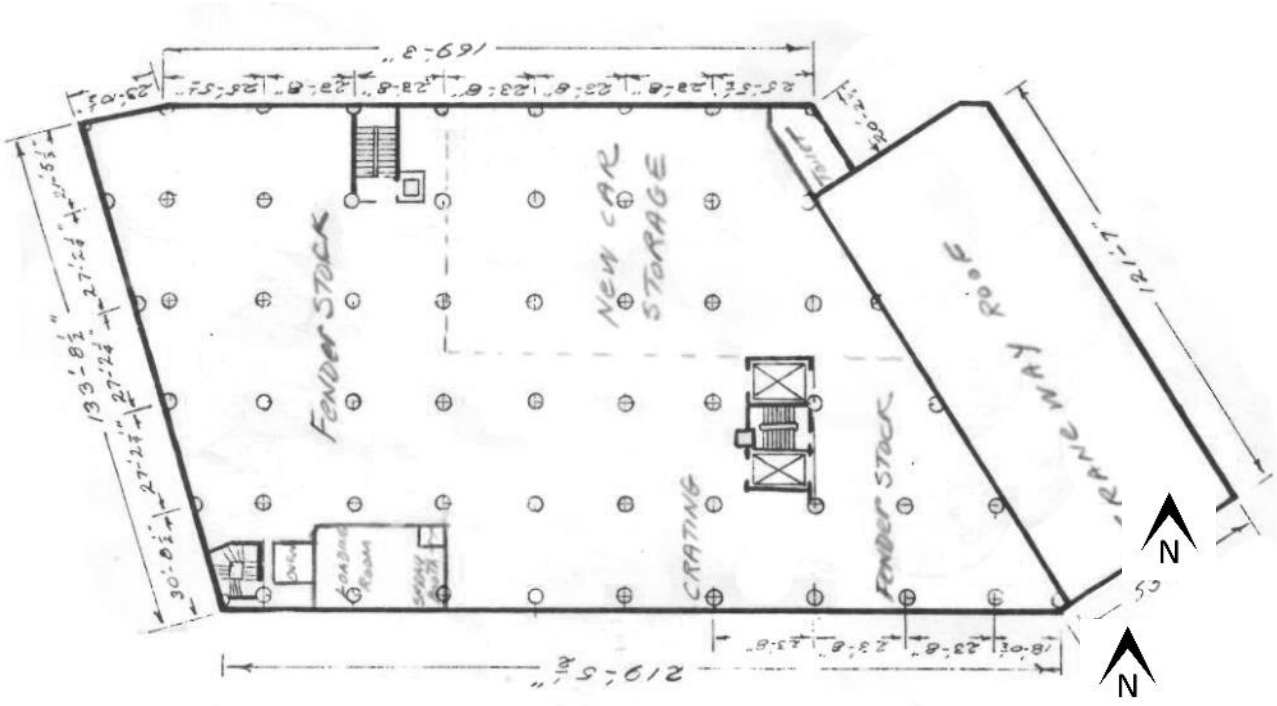


Figure 16: Fifth floor plan, c.1940

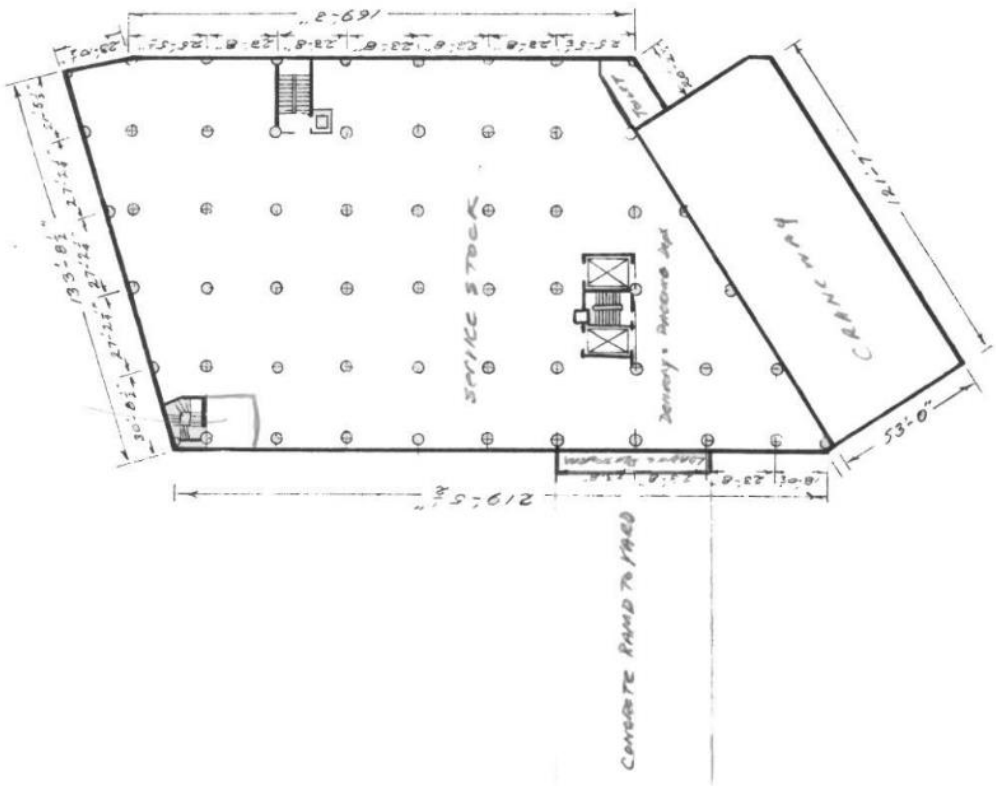


Figure 17: Basement floor plan, c.1940

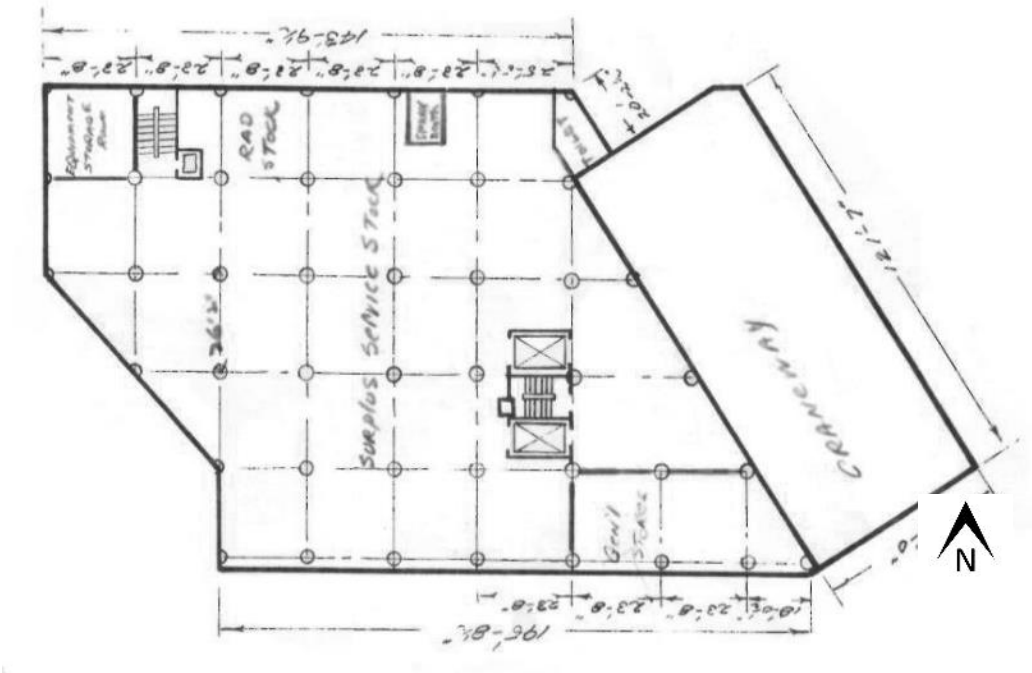


Figure 18: First subbasement floor plan, c.1940

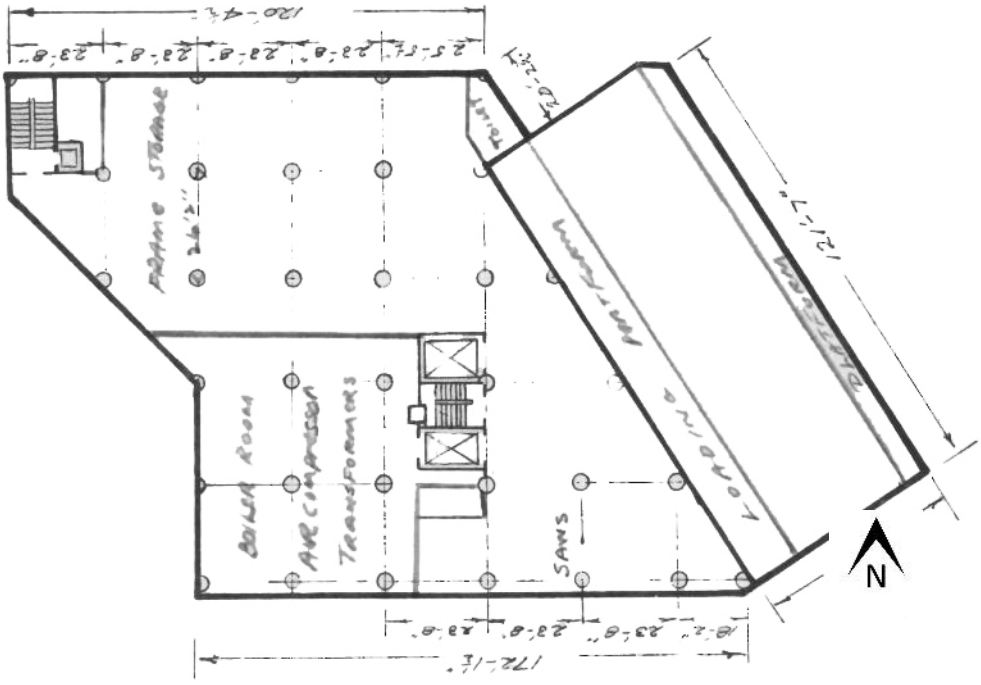


Figure 19: Second subbasement floor plan, c.1940

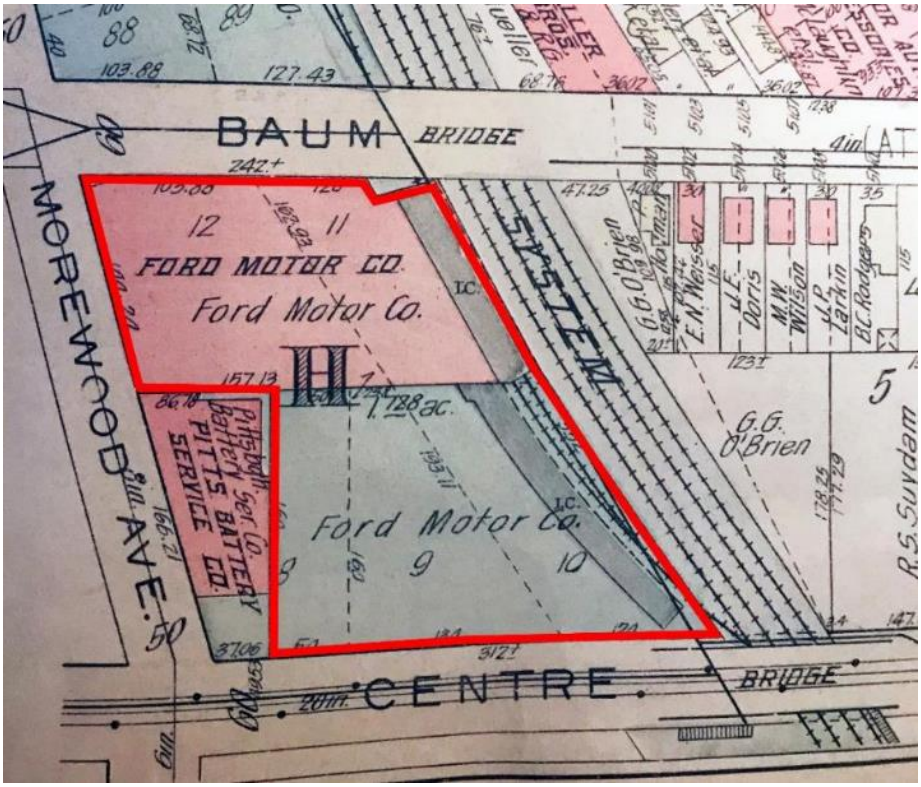


Figure 20: 1924 Sanborn of Ford Motor Company Plant


Figure 21: c.1915 rendering by the building's architect, John Graham, Sr.

Figure 22: 1923 view of primary (north and west) elevations of Main Building; Crane Shed at far left.

Figure 23: 1942 view of Crane Shed east elevation (left) and Main Building north elevation (right).

Figure 24: 1942 view south (left) and east (right) elevations.

Figure 25: Interior view of Chicago assembly plant, also designed by John Graham, Sr.; the Pittsburgh plant is similar.

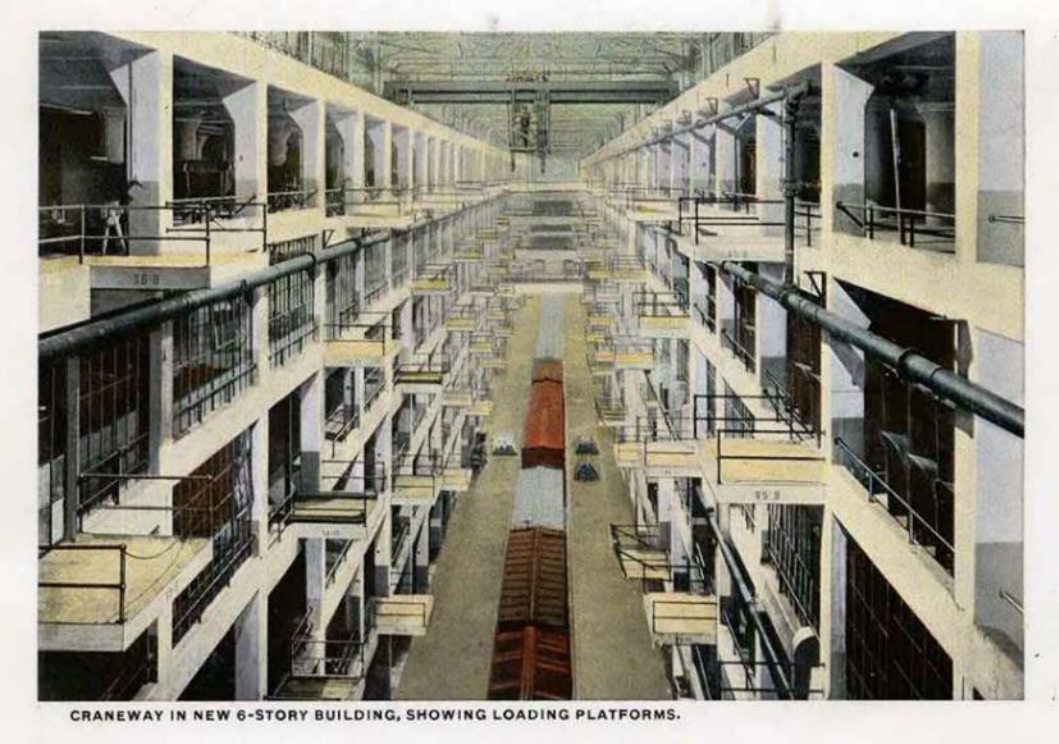


Figure 26: c.1917 postcard of interior of Ford's Highland Park craneway and loading platform; the Pittsburgh plant is similar.

Photo 1: Ford Motor Company Assembly Plant, Primary (north and west) elevations

Photo 2: Ford Motor Company Assembly Plant, East elevation of Crane Shed and north elevation of Assembly Plant

Photo 3: Ford Motor Company Assembly Plant, Roofline detail

Photo 4: Ford Motor Company Assembly Plant, South elevation

Photo 5: Ford Motor Company Assembly Plant, North elevation of Crane Shed

Photo 6: Ford Motor Company Assembly Plant, East elevation

Photo 7: Ford Motor Company Assembly Plant, South elevation of Crane Shed

Photo 8: Ford Motor Company Assembly Plant, First floor showroom interior


Photo 9: Ford Motor Company Assembly Plant, First floor interior

Photo 10: Ford Motor Company Assembly Plant, Second floor interior

Photo 11: Ford Motor Company Assembly Plant, Third floor interior

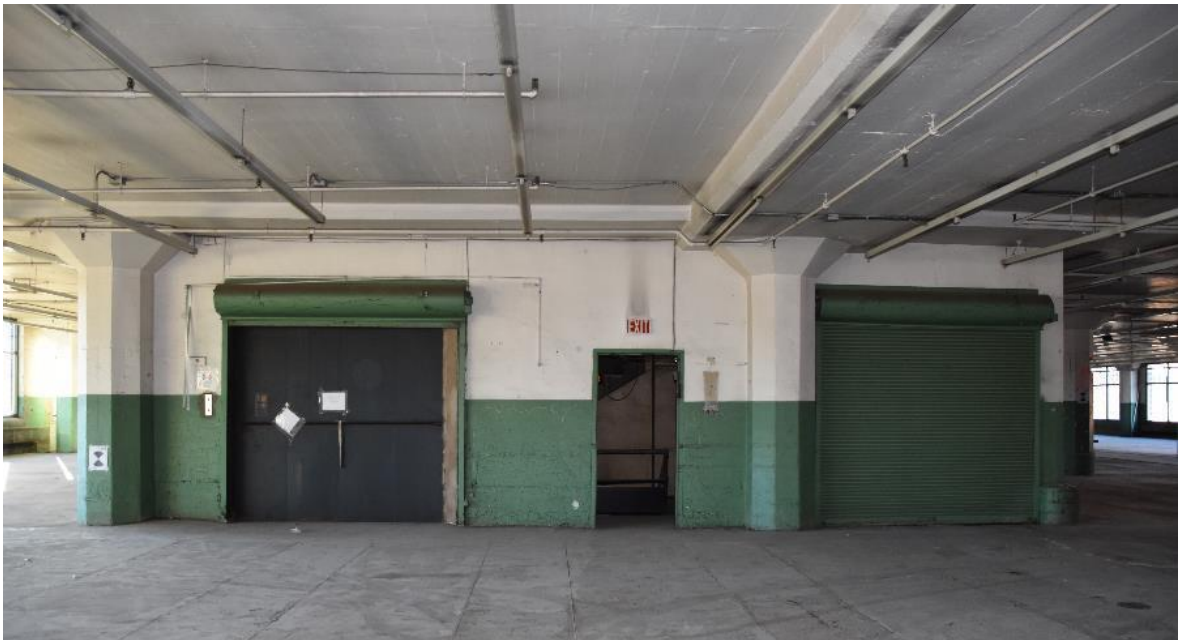


Photo 12: Ford Motor Company Assembly Plant, Third floor interior

Photo 13: Ford Motor Company Assembly Plant, Secondary stair

Photo 14: Ford Motor Company Assembly Plant, Fourth floor interior

Photo 15: Ford Motor Company Assembly Plant, Fourth floor interior

Photo 16: Ford Motor Company Assembly Plant, Fifth floor interior

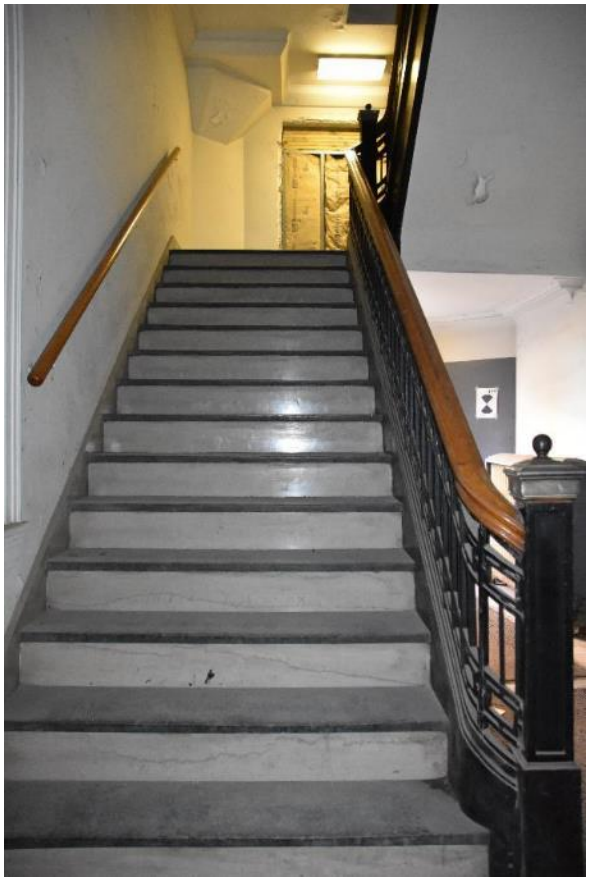

Photo 17: Ford Motor Company Assembly Plant, Main stair

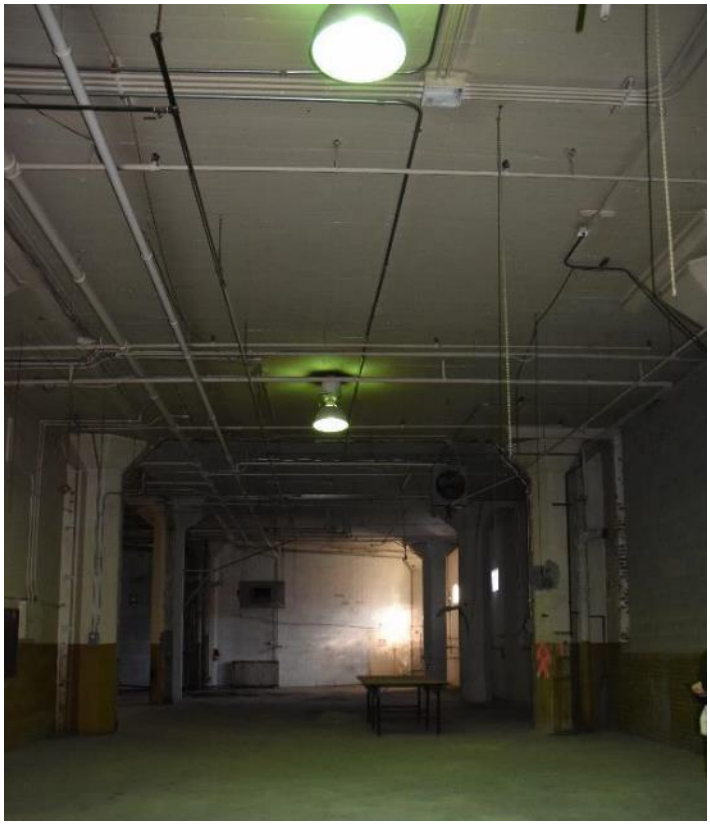

Photo 18: Ford Motor Company Assembly Plant, Basement interior


Photo 19: Ford Motor Company Assembly Plant, First subbasement interior

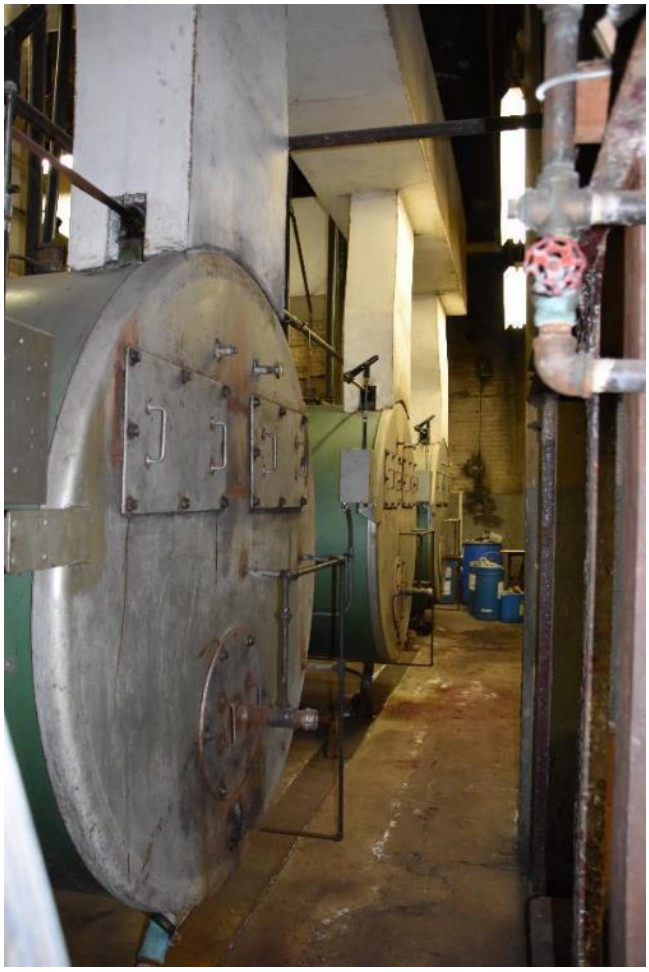

Photo 20 (left): Ford Motor Company Assembly Plant, Second subbasement interior

Photo 21 (right): Ford Motor Company Assembly Plant, Crane Shed interior

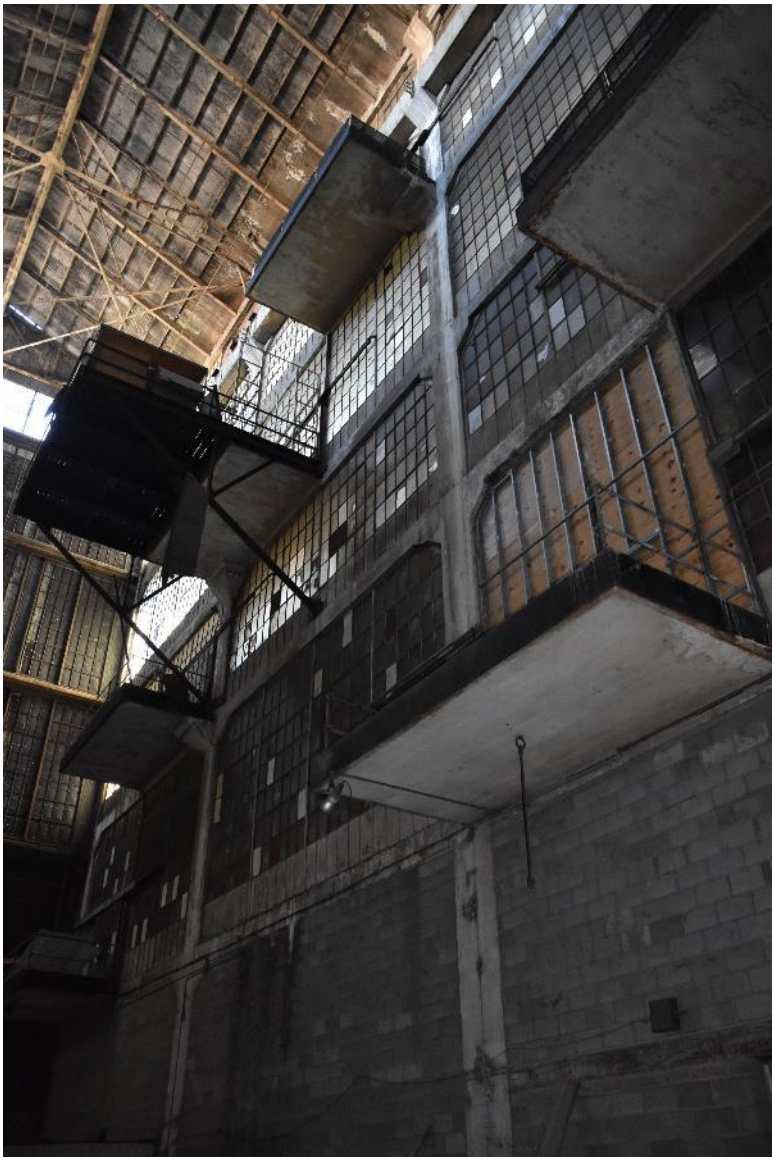

Photo 22: Ford Motor Company Assembly Plant, Crane Shed interior


5000 Bloomfield 4600
Baum Blvd
DON'T START
Finish Crossing
If Started
TIME REMAINING
To Finish Crossing
DON'T CROSS
PUSH BUTTON
TO CROSS


SCHOOL BUS


1950
1952


D 27
D 31
D 28


205


EXIT


295
463


139


GP
Georgia-Pacific
REGULAR
SHEATHING
FIRE

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
EVALUATION/RETURN SHEET

Requested Action: Nomination

Property Name: Ford Motor Company Assembly Plant

Multiple Name:

State & County: PENNSYLVANIA, Allegheny

| Date Received: | Date of Pending List: | Date of 16th Day: | Date of 45th Day: | Date of Weekly List: |
|---|---|---|---|---|
| 10/11/2018 | 10/25/2018 | 11/9/2018 | 11/26/2018 | |

Reference number: SG100003134

Nominator: State

Reason For Review:

| | | |
|---|---|---|
| __ Appeal | X PDIL | __ Text/Data Issue |
| __ SHPO Request | __ Landscape | __ Photo |
| __ Waiver | __ National | __ Map/Boundary |
| __ Resubmission | __ Mobile Resource | __ Period |
| __ Other | __ TCP | __ Less than 50 years |
| | X CLG | |

__X__ Accept _____ Return _____ Reject **11/20/2018** Date

Abstract/Summary Comments: POS: 1915-1932; AOS: Industry, Architecture; LOS: local

Recommendation/ Criteria: NR Criteria: A and C

Reviewer Lisa Deline Discipline Historian

Telephone (202)354-2239 Date 11/20/18

DOCUMENTATION: see attached comments : No see attached SLR : No

If a nomination is returned to the nomination authority, the nomination is no longer under consideration by the National Park Service.

CITY OF PITTSBURGH

Department of City Planning

William Peduto
Mayor

Raymond W. Gastil, AICP
Director



September 14, 2012

David R. Maher
National Register Reviewer
State Historic Preservation Office, PHMC
Commonwealth Keystone Building, 2nd Floor
400 North Street
Harrisburg, PA 17120-0093

RE: Ford Motor Company Assembly Plant, Baum Boulevard, Pittsburgh, Allegheny County

Dear Mr. Maher:

As requested in your letter dated July 24, 2018, the following is meant to fulfill the City of Pittsburgh's obligations as a Certified Local Government for providing comment on National Register Nominations. The public involvement process included emailing notices to interested parties of both the Historic Review Commission and the Planning Commission of the City of Pittsburgh, including members of the press. Written comments from the public were requested at that time. The nomination was also posted on the City's website on August 22, 2018. The City's position on the nomination is outlined below.

**Ford Motor Company Assembly Plant, Pittsburgh, Allegheny County**

The City of Pittsburgh supports this nomination because the property meets the requirements of National Register Criterion A in the area of Industry and Criterion C in the area of Architecture. We agree that it is very significant as one of the few-remaining automotive-related buildings and factories of "Automobile Row," and that it also retains a high degree of integrity, and thus should be protected and preserved. At this time the building is not listed on the Local Register of Historic Places. One of the goals of the City's preservation plan is to list additional properties on the National Register.

I can be contacted at 412-255-0739 or via email at sharon.spooner@pittsburghpa.gov.

Regards,

Sharon Spooner
Historic Preservation Specialist
City of Pittsburgh

Pennsylvania State Historic Preservation Office
PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION



October 9, 2018

Joy Beasley, Keeper
National Register of Historic Places
National Park Service, US Department of Interior
1849 C Street, NW, Mail Stop 7228
Washington DC 20240

Re: Crown Can Company, and Strawbridge & Clothier Warehouse, Philadelphia; Scranton School for the Deaf, Lackawanna County; and Ford Motor Company Assembly Plant, Allegheny County

Dear Ms. Beasley:

Enclosed please find National Register of Historic Places nominations for the above four properties. Included is the signed first page of each nomination, CDs containing the true and correct copy of each nomination, and CDs with tif images. Also enclosed are letters of support for the Crown Can Company and Ford Motor Company Assembly Plant. The proposed action for Crown Can, Ford Motor, and the Strawbridge & Clothier Warehouse is listing in the National Register. Our Historic Preservation Board members support each of those nominations.

SHPO staff and Board members also unanimously support the nomination of the Scranton School for the Deaf. The current owner, Marywood University, has decided to formally object to listing, as they are currently offering the property for sale. Their notarized letter of objection is enclosed. They have acknowledged that the pending owner, or a new owner, may choose to pursue listing in the future. The current action proposed for that property is a Keeper's Determination of Eligibility.

If you have any questions regarding the nominations or our request for action, please contact me at 717-783-9922 or afrantz@pa.gov or David Maher at 717-783-9918 or damaher@pa.gov . Thank you for your consideration of these submissions.

Sincerely,

April E. Frantz
NR Reviewer/Eastern Region

enc.