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The Massachusetts Historical Commission (MHC) has converted this paper record to digital format as part of ongoing projects to scan records of the Inventory of Historic Assets of the Commonwealth and National Register of Historic Places nominations for Massachusetts. Efforts are ongoing and not all inventory or National Register records related to this resource may be available in digital format at this time.

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Commonwealth of Massachusetts
Massachusetts Historical Commission
220 Morrissey Boulevard, Boston, Massachusetts 02125
www.sec.state.ma.us/mhc

This file was accessed on: Monday, November 17, 2014 at 5:58: PM
Photograph
(3" x 3" or 3-1/2" x 5", black and white only)
Label photos on back with town and addresses for all buildings shown. Record film roll and negative numbers here on the form. Staple 1-2 photos to left side of form over this space. Attach additional photos to continuation sheets.

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Sketch Map
Draw a map of the area indicating properties within it. Circle and number properties for which individual inventory forms have been completed. Label streets including route numbers, if any. Attach a continuation sheet if space is not sufficient here. Indicate north.

See attached Sketch Map and Historic Plan/Sketch Map

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**Form A - Area**

Massachusetts Historical Commission
80 Boylston Street
Boston, Massachusetts 02116

**Assessor's Sheets**

**USGS Quad**

**Area Letter**

**Form Numbers in Area**

---

**Town**

Cambridge

**Place (neighborhood or village)**

East Cambridge

**Name of Area**

Blake & Knowles/Worthington Pump Company

**Present Use**

mixed industrial/office

**Construction Dates or Period**

1889-1918

**Overall Condition**

fair to good

**Major Intrusions and Alterations**

parking lot, alterations to foundry

**Acreage**

3.5

**Recorded by**

Margo Webber

**Organization**

Preservation Consultant

**Date (month/year)**

April/1995

---

*Follow Massachusetts Historical Commission Survey Manual instructions for completing this form.*
AREA FORM

ARCHITECTURAL DESCRIPTION  □  see continuation sheet
Describe architectural, structural and landscape features and evaluate in terms of other areas within the community.

The former Blake & Knowles Steam Pump Company complex occupies most of the two-block area bounded by Third, Bent, Fifth, and Binney Streets in East Cambridge, with Rogers Street running north/south through the middle of the complex. This was within the heart of East Cambridge's turn-of-the-century industrial district, although the area is today bounded by a mix of vacant land and new commercial/light industrial uses across Binney and Third Streets, and by an early 20th century working class residential area above Bent Street to the east. Two very large Telephone Company buildings on Rogers Street have replaced parts of the site. Once over six acres, the surviving complex occupies approximately 3.5 acres.

The Blake & Knowles Steam Pump Company began construction of its buildings on this site in 1889. A series of manufacturing buildings were erected between 1889 and 1918 and remained in use by the company and its successor/parent company, the Worthington Pump and Machinery Company, until 1927. During this forty-year period, the complex expanded to fully occupy the two-block area described above, as

HISTORICAL NARRATIVE  □  see continuation sheet
Explain historical development of the area. Discuss how this area relates to the historical development of the community.

This large industrial complex was built between 1886 and 1918 to house the offices and manufacturing facilities of the Blake & Knowles Steam Pump Company. George F. Blake, a Medford brickmaker, invented a pump in 1862 that removed water from brick yard clay pits, greatly improving the brickmaking process. In 1864, Blake formed the George F. Blake Company to manufacture these pumps, establishing a shop on Province Street in Boston, and also eventually manufacturing water meters, brick presses and other brickmaking equipment of his own invention. In 1879, Blake also acquired rights to the Knowles pump, invented by Lucius Knowles of Worcester, although not until 1897 did the two companies merge to become the Blake & Knowles Steam Pump Works. By 1889, the company was already designing and manufacturing a greater variety of pumping machinery than any other firm.

A series of large manufacturing buildings gradually evolved on the East Cambridge site, within the heart of Cambridge's new manufacturing districts of East Cambridge and Cambridgeport. After the Civil War, the early small scale glass and soap factories were gradually replaced by massive industrial growth in the fields of woodworking, pump manufacture, rubber, sugar refining, publishing and gasworks. Formerly an

BIBLIOGRAPHY and/or REFERENCES  □  see continuation sheet


□ Recommended as a National Register District. If checked, you must attach a completed National Register Criteria Statement form.
**Bibliography and/or References (continued)**


**City Directories**, City of Cambridge, 1895-1954.


**INVENTORY FORM CONTINUATION SHEET**

**MASSACHUSETTS HISTORICAL COMMISSION**
**MASSACHUSETTS ARCHIVES BUILDING**
**220 MORRISSEY BOULEVARD**
**BOSTON, MASSACHUSETTS 02125**

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<td>#1 Machine Shop</td>
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<td>2</td>
<td>Office Headhouse</td>
<td>265 Third</td>
<td>1892</td>
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<td>180 Bent/101 Rogers</td>
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<td>Third St.</td>
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<td>275 Third</td>
<td>c.1890</td>
<td>5</td>
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<tr>
<td>8</td>
<td>Erecting &amp; Assembling Building</td>
<td>Binney St. at Fifth</td>
<td>1903</td>
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<td>9</td>
<td>2nd Machine Shop</td>
<td>195 Binney</td>
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<td>195 Binney</td>
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Cambridge
Blake & Knowles/Worthington Pump Co.
Data Sheet
Architectural Description (continued, p3)

At the northeast corner of Binney and Third Street stands the Smith Shop and Brass Foundry (#8), dating from c.1890. Possibly built as two separate structures and later combined, it now consists of a one story central hipped section with a monitor roof, flanked by a frame, hipped roof northern wing with monitor and a brick-faced southern wing, also with monitor. The southern wing has a two-story brick ell across its rear elevation, also of 1890s origins.

At the southeast corner of Binney and Fifth Streets stands the Erecting and Assembling Building (#7). Completed by 1903, this handsome four-story square building fronts on Binney Street, and has a raised, slightly peaked three-bay center section flanked by narrower three-bay ends with corbelled cornices. Full-height piers define each recessed bay, within which segmental arched windows (with inappropriately infilled tops) are rhythmically placed. The eight-bay Fifth Street elevation repeats the uniform full-height piers and segmental-arched window opening design. This building was originally a full-height open space surrounded by 2nd, 3rd, and 4th story galleries, but the floors have been filled in at all three upper levels.

A separate engine and boiler plant was housed in a small building to the west of the Machine Shop but was demolished c.1916 to make way for two new machine shops.

The Second Machine Shop (#9) was completed in 1917, consisting of a four-story concrete and brick building fronting on Binney Street, directly south of the Erecting and Assembling Building. As the first concrete and steel building in the complex, its design includes multi-lite steel sash windows in fully-glazed bays, with brick spandrel panels beneath each bay.

The Third Machine Shop (#10) was completed a year later in 1918. Very similar in design, it is five stories high and has a concrete parapet with two peaked gables near the facade's ends as decorative elements and a shallow stepped gable in the parapet of the narrow south elevation. The brick spandrels and multi-lite steel sash repeat the designs of the adjacent 1917 building. Each of these two buildings is only three bays deep, to which a one-story full length rear ell has been added. In the 1970s, some of the industrial sash were replaced by slightly different multi-lite sash.

While the complex's western block remains largely intact, the eastern block no longer retains its integrity. Three integral structures, a machine foundry, brass foundry and cleaning house, all of which stood between Fifth Street and the Main Foundry (#3), have been demolished and replaced by the immense Telephone Building. Heavily altered by modern "renovations," neither the Main Foundry nor the connecting Core Shops retain their historic context within a cluster of industrial buildings.
Historical Narrative (contined, p2)

island at high tide, major landfill of East Cambridge occurred to take advantage of its location. It was close to Boston's railroad yards and close to ship transportation along the Cambridge waterfront. A new elevated railway system connecting to Boston as of 1894 improved access for employees. A spur track of the Grand Junction branch of the Boston & Albany Railroad ran directly into the Machine Shop from Fifth Street.

The Machine Shop and Main Foundry were the key structures of the operation. The Machine Shop boasted a 300-foot long, three-story space in which a travelling crane run on overhead tracks could lift upwards of fifteen tons. A separate engine and boiler plant was housed in a small building to the west of the Machine Shop. The Machine Shop was soon expanded northward to Fifth Street. The Main Foundry was also equipped with two electric travelling cranes, each with a 35-ton capacity, and its furnaces could melt fifty tons of iron a day, considerably more than the average foundry of the day. It was designed by L. H. Gager, of Palmer, MA and featured an unusual truss system of reinforced double wood trusses rising up within the clerestory to support the beam on which the crane ran.

By 1900, pumps being made here ranged from a few hundred pounds weight to the highest grade of water-works pumping engines weighing over one million pounds. The company employed 96 draughtsmen and pattern-makers to design its new machinery and a total of 1000 employees for their manufacture. Pumps were designed to handle any fluid, semi-fluid or liquor, acid or alkali, from the lightest pressure up to 25,000 pounds per square inch, as well as pumps for gas or vapor under vacuum or various degrees of compression, and adapted to be driven by steam, air, or water pressure, and later by gas engines and electric motors.

As demand for the company's products grew, additional buildings were added to the complex. At first, many of these were small wooden sheds north of the Main Foundry as far as Sixth Street. Later, they included the Erecting and Assembling Building of 1903 (#7), as well as a brick pattern shop, drafting building, brass foundry, cleaning house, a large cylinder shop, a larger engine and boiler house, and another large machine foundry, none of which now survive.

Although operated independently, the Blake & Knowles plant became part of the International Steam Pump Company sometime between 1900 and 1910. In 1916, it was reorganized together with seven of the largest pump manufacturers in the country as the Worthington Pump and Machinery Corporation. The Cambridge plant was referred to as the Blake & Knowles Works.

During this period, the company became one of the foremost pump manufacturers in the nation. Industrial historian Orra Stone stated, "the output comprised a vast amount and variety of pumping and allied machinery, covering the requirements of almost every industrial activity and extending over a world-wide area."
Historical Narrative (continued, p3)

Products included pumps for marine use, waterworks pumps, pumps for tanneries, soap works, cotton, woolen, paper and silk mills, quarries, foundries, chemical works, mines, artesian wells, elevators, sewage facilities, fuel oil, air compressors, steam engines, etc. Practically every facet of modern industry required some sort of pump mechanism which Blake & Knowles could provide.

During World War I, much of the plant was shifted to wartime needs for the government: pumps for destroyers, submarine chasers, mine sweepers, etc. The plant was nearly doubled in size with construction in 1917-1918 of the two reinforced-concrete Machine Shops along Binney Street (#9, #10), increasing production capability and employment needs.

Industrial Cambridge continued to expand and thrive into the 1920s. Within this steady economic climate, a 300% gain in manufacturing occurred during the 1920-1930 period. The Blake & Knowles Works continued its military production. As of 1930, the firm outfitted more than 90% of the United States Navy's vessels, with each ship requiring between 25 and 50 pumps of various types. Other key products introduced in the 1920s included the Worthington two-cycle solid-injection Diesel engine and the Worthington Locomotive feed water heater and pump, both of which were considered milestone inventions within their respective fields. Blake & Knowles remained in operation here until 1927, when operations were relocated to another Worthington plant in Holyoke.

Subsequent years saw the industrial complex subdivided for various industrial uses. Beginning in 1929, the smithshop/brass foundry was leased first to the Enterprise Manufacturing Company, a coppersmith. By the mid-1930s, the building was taken over by the Kendall Boiler & Tank Company, a boiler repair service, which still occupies the building. The main foundry became a Motor Freight Station, and warehouse, among other short-term uses. It was converted to office use in the 1980s. Among subsequent warehouse and industrial uses, the north portion of the machine shop was used in the 1950s as a distribution warehouse by Carling Beer.

Following Blake & Knowles' departure, the two Binney Street machine shops were first acquired by United Carr Fasteners. Carr Fastener Co. was founded in 1912 by Fred S. Carr of West Newbury, MA. It began as a maker first of canvas fasteners for carriages, and later for upholstery and canvas work on automobiles, particularly the "Dot" fastener. The firm grew quickly, and in 1929 merged with U. S. Fastener of South Boston to become United Carr Fasteners. Relocated to the Binney Street machine shops at this time, the firm eventually grew to occupy all three machine shops and the erecting building—except for the foundry, the entire westerly block. United Carr was acquired by TRW in 1969, but continued to occupy the buildings. The present occupant, American Engineering Corp., is a spin-off of the TRW operation, continuing a combined industrial/office presence.
Architectural Description (continued, p 2)

well as half of one block westward to Monroe Street and the full block northward to Sixth Street between Rogers and Bent Streets. Only the center core of the complex, the block bounded by Third, Rogers, Fifth, and Binney Streets survives intact, while the easterly block to Bent Street has undergone major demolition and alterations.

The main building of the complex is the Machine Shop (#1), built in stages between 1889 and 1900. It runs the full length of the block between Third and Fifth Street, with a two-story office headhouse fronting on Third Street. Its sheer size, 400' in length by 165' wide, emphasizes its importance. Originally designed as a three-story open space with 20-foot galleries around the edges, two upper floors have been added in this century. The exterior retains its original form: a central four-bay, three-story portion with gently sloped ridge roof which is flanked by three-bay wings of two-story height, each with a gently sloped roof. The outer walls have two rows of segmental-arched windows (many later infilled) in each bay, while the third-story elevations have paired windows set further apart, and wall surfaces sheathed in asphalt siding.

The Office Headhouse (#2) dates from the early 1890s and occupies most of the block along Third Street. Two stories in height, its rectilinear form is accentuated by the square-capped, full-height piers and raised parapet of the central three-bay section. A corbelled band above the third story bays, granite sills and coursing, full-height piers between bays, and a matching round-arched window (now infilled) and recessed entrance in the center bay add to the symmetrical, stately design. Later alteration of the three east bays to loading doors detracts from the original design.

The complex's Main Foundry (#3) also dates from c.1890, although recent renovations have considerably changed its appearance. Substantial in size, its 200' length spans the width of the block between Bent and Rogers Streets, with its matching end facades facing these two streets. On Bent Street, the seven-bay, two-story center section has a peaked roof and decorative brickwork in the pediment. Historically flanked by two one-story wings with sloped roofs, only the southerly one now fully survives. The main foundry extends the full width of the block to Rogers Street, where a new glass and brick entrance pavilion has been added to the gabled end. Upper story walls and a newer north wing have new metal sheathing and modern windows which also detract from the original design character.

Adjoining the foundry to the south and fronting on Third Street are two Core Shops (#4, #5). These one and two-story structures, although among the complex's earliest surviving buildings, have been buried beneath new brick and vinyl-sided facades which entirely conceal/replace their original designs.

Along Third Street west of the Core Shops is now a Parking Lot (#6). On this site stood several early wood-frame buildings: a pattern shop and a drafting building, which were later adjoined to several storage buildings abutting the Foundry. An overhead passage connected the corner building to the Office Headhouse across Rogers Street.
SKETCH MAP

Blake S Knowles/Worthington Pump Co.
Cambridge
April, 1995
no scale

Map numbers correspond to Data Sheet

1-story commercial

1-story commercial

BLAKE STREET

(NYNEX)

#3 Main Foundry

#4 Core Shop 1

#5 Core Shop 2

#6 Parking Lot

#2 Office Headhouse

#1 Machine Shop

#10 3rd Machine Shop

#7 Smith/Foundry

#8 Erect'g & Assembley Bldg

#9 2nd Machine Shop

1-story commercial

FIFTH STREET

THIRD STREET

ROGERS STREET

BENNE STREET

BINNEY STREET

(AT&T)
HISTORIC PLAN/
SKETCH MAP

Blake S Knowles/
Worthington Pump Co.
Cambridge

Based on 1919 plan
not to scale
THE WORTHINGTON PUMP AND MACHINERY CORPORATION IS ONE OF THE LARGEST INDUSTRIES IN CAMBRIDGE

Historic view of Blake & Knowles as a 6-acre complex. View looks northward with Third Street in right foreground, Binney Street in left foreground.
1. #1 Machine Shop, Looking south from Fifth Street along Rogers Street.

2. Office Headhouse, Looking south from Third Street.
Community Property Address

Cambridge  Blake & Knowles Pump Co.

Area(s)  FormNo.


4. 2nd and 3rd Machine Shops, Looking south along Binney Street.
5. Smith Shop & Brass Foundry, Looking south along Binney Street.

6. Core Shops, Looking east along Third Street.
7. Foundry, Looking north along Bent Street.

8. Foundry, Looking southeast from Rogers Street.
National Register of Historic Places Criteria Statement Form

Check all that apply:

☑ Individually eligible  ☐ Eligible only in a historic district
☐ Contributing to a potential historic district  ☐ Potential historic district

Criteria:  ☑ A  ☐ B  ☑ C  ☐ D

Criteria Considerations:  ☐ A  ☐ B  ☐ C  ☐ D  ☐ E  ☐ F  ☐ G

Statement of Significance by Margo Webber

The criteria that are checked in the above sections must be justified here.

The Blake & Knowles/Worthington Pump Company is an industrial complex of 3.5 acres located in the heart of East Cambridge, once the third largest industrial center in Massachusetts. It has retained its industrial character for the past century. Although reduced in size from its historic 6 acres to 3.5 acres now, it is one of the few remaining large industrial complexes in the area. Its development contributed significantly to East Cambridge's industrial growth during the years it was located there, 1886-1927.

The Blake & Knowles Pump Company gained national recognition for the innovative pumps it designed and manufactured. Its pumps served a wide range of industries including ships, waterworks, textile mills, tanneries, mines, wells, engines, etc. Practically every facet of modern industry required some sort of pump mechanism which Blake & Knowles could provide. Acquired by the Worthington Pump and Machinery Corp. in 1916, the company nearly doubled in size during World War I as it adapted for Government wartime demand. By 1930, it supplied pumps to the U.S. Navy for over 90% of its ships.

The complex demonstrates the incremental growth historically characteristic of local industry as well as the architectural styles commonly used during its construction periods, primarily 1889-1903 and 1917-1918. The westerly block bounded by Third, Binney, Fifth, and Rogers Street is largely intact, containing the company office, the three machine shops, erecting building, and brass foundry.

Although it does contain the main foundry, an historically important part of the operation, the easterly block has been considerably altered and is not recommended for inclusion in a National Register district due to its loss of integrity.

The westerly block retains integrity of location, design, materials, workmanship, feeling, and association and meets National Register Criteria A and C at the local level.
INDEPENDENT PROPERTIES

- Eligible
- Eligible, also in district
- Eligible only in district
- Ineligible
- More information needed

CRITERIA:

- A
- B
- C
- D

LEVEL:

- Local
- State
- National

STATEMENT OF SIGNIFICANCE by Kathleen Kelly Broomer

Nine buildings occupying one and one-half blocks in the heart of industrial East Cambridge comprise the historic core of operations for the Blake & Knowles Pump Company, later known as the Worthington Pump Company. Built between ca. 1889 and 1918, the buildings reflect the company’s incremental growth as one of the foremost pump manufacturers in the nation.

The westerly block (i.e., between Binney and Rogers Streets) is largely intact, and includes the original machine shop (the first major building constructed by Blake & Knowles), an adjoining office, a smith shop/foundry, and an erecting/assembly building, all built between 1889 and 1903, plus two additional machine shops constructed in response to a near doubling of the company’s production under Worthington ownership during World War I. The easterly block (i.e., between Rogers and Bent Streets) has been significantly altered, most notably by the conversion of the main foundry to office use ca. 1980 (replacement sash, new glass and brick entrance pavilion, new sheathing on upper levels), and, in recent decades, the demolition of five connected buildings. Another eight buildings were demolished north and west of the extant complex.

MHC staff concurs with the consultant’s recommendation to confine a potential district nomination to the westerly block.