

YORK MANUFACTURING COMPANY
(York Ice Machine Company)
Bounded by West Philadelphia, North Hartley,
and Roosevelt Streets
York
York County
Pennsylvania

HABS No. PA-6011

HABS
PA
67-YORK,
17-

PHOTOGRAPHS
WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN BUILDINGS SURVEY
National Park Service
Northeast Region
Philadelphia Support Office
U.S. Custom House
200 Chestnut Street
Philadelphia, P.A. 19106

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YORK MANUFACTURING COMPANY
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Location: Bounded by West Philadelphia, North Hartley and Roosevelt Streets, York, York County, PA

UTM: QUAD York, PA 18-351-580 . 4424-660

Date of Construction: 1895 - 1948

Present Owner: York County Industrial Development Corporation, 1 Market Way East, York, PA 17401

Present Use: Vacant. Industrial park; to be partially demolished 1994

Significance: By the 1880s, the York Manufacturing Company was one of the nation's leading producers of refrigeration equipment. In the early twentieth century it helped establish experimental and verifiable industry standards through the efforts of its testing laboratory. In the twentieth century, York pioneered new applications of cooling including dehumidification and cooling.

The plant is of added interest as the work of one of York's principal architects, J.A. Dempwolf. Dempwolf designed the original core group of buildings in 1895 and made the first enlargement to the plant shortly thereafter.

Project Information: This documentation was undertaken in April of 1994 in compliance with a Memorandum of Agreement among the Advisory Council on Historic Preservation, the Pennsylvania Historical and Museum Commission and York County Industrial Development Corporation as a mitigative measure prior to demolition and rehabilitation of portions of the above site.

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Historical Background:

The York Manufacturing Company complex began in 1874 as a small machine shop located at the northwest corner of West Clarke Street and North Penn Street in the western portion of York, Pennsylvania, little more than a block from its second and principal home. Its first building was a two-story brick loft whose first story served as a foundry and its second as the erecting room for the machinery produced by the company. There its operators, Jacob Loucks and S. Morgan Smith, produced agricultural implements and machinery, steam engines, washing machines and tinkered with water wheel manufacturing.¹ When Smith withdrew to focus on water-powered machinery, Loucks continued his general manufacturing.² In 1885, the company produced its first ice manufacturing machine for a business in Mississippi; five years later, a national ice shortage caused by a mild winter led to a boom in the ice manufacturing business that transformed the York Manufacturing Company.³ This led to an enlargement of the original business with the construction of a larger erecting building, permitting the original building to function as the foundry.

In the fall of 1889, the York Manufacturing Company was acquired by a local paper manufacturer, Philip H. Glatfelter who brought capital to the business.⁴ With the ice machinery business continuing to grow, Glatfelter commissioned York architect J.A. Dempwolf to design a new plant at the present site along the Pennsylvania Railroad and what is now Roosevelt Street.⁵ This new building was a steam engine powered plant whose separate structures represented the various tasks and products of the business. In the core of the site was an immense power plant (Building 1) that powered the principal engine in the engine house (Building 2) which drove the machinery of the site. To the west was a large brick foundry with a monitor roof (Building 13) that extended the depth of the site from the railroad tracks to the central Gas Alley. Along the north side of the site was placed the erecting and machinery building (Buildings 4 and 4a) to which was attached the administrative offices (Building 5). To the south of the power plant, adjacent to the first foundry building, was the boiler plant (Buildings 9 and 11).

This complex was technologically sophisticated for its day. The buildings were linked internally by rail tracks that permitted the movement of heavy castings and machinery on steel-wheeled carts.⁶ Railroad sidings, from the north, provided direct access to an open yard between the foundry, the power plant and the machinery and erecting hall. This permitted the direct delivery of coal to the large hoppers that fed the huge furnaces and the boiler, and also permitted the shipping of assembled machinery. In addition to turning a large engine, the boiler plant generated electricity which was used to run the motors for the overhead cranes which moved the major castings, placed machinery and otherwise made it possible to operate a modern machine shop.

Shortly after the plant was finished, Dempwolf furnished plans for an immense addition to the original complex.⁷ This entailed the construction of a second foundry building (number 13) adjacent to the first, the construction of a finishing and annealing building

parallel to Building 13 (Buildings 18 and 18a) and the construction of a linking building running east west, parallel to Gas Alley (Building 15). This portion corresponded to the arrival of a new plant manager, Thomas Shipley, who had worked in the Frick Refrigeration Company operation in western Pennsylvania. Shipley persuaded Glatfelter to concentrate solely on refrigeration, eliminating the other machine production. By adding a research laboratory and developing new machinery and new products, the York Manufacturing Company became the leader in its field and gave them a significant advantage in the market.

The early 20th century saw the York Company grow even more rapidly as new types of refrigeration, particularly the absorption system, and new applications from ice-skating rinks to air-conditioning, generated more work. By 1903 essentially the entire site north of Gas Alley was filled leaving space only for the open yard at the west end of the erecting and machine shop (Buildings 4 and 4a), a smaller yard between the office building and the power plant and the court between Buildings 18 and 14 which was later infilled by Buildings 17, 17a and 15. Between 1903 and 1919, York began acquiring the property between Gas Alley and West Philadelphia Street. Dated photographs in the "Boss" Shipley scrapbook show the immense machinery hall (Building 20) under construction before 1910, with the adjacent pattern storage buildings also under construction.⁸ The relationships seem to have been considered in two directions -- across Gas Alley as well as in terms of the new adjacencies. Thus the pattern storage building of 1905 (Building 22 and 22A) was built nearly directly across Gas Alley from the foundries where the patterns were used for gray metal casting. By 1917 or 1918, this entire block was filled as well and the factory was heading west along the railroad!

Similarly, with the success of the absorption method, new buildings were begun beyond Hartley Street for the construction of large welded tanks between 1904 and 1906.⁹ These joined the wood-working shop where patterns had been made since the arrival of the plant along the Pennsylvania Railroad. A new group of buildings followed to the north of the railroad between North Hartley Street and North Manchester Street, near the Stephen Morgan Smith Turbine Plant. Here bolts were produced in a "Bolt Machine Shop", with a drop forge, galvanizing room and forge. To the east, also above the railroad tracks was a cork storage bin, suggesting its use for gaskets. These new facilities augmented the functions of the original plant, typically replacing an earlier smaller facility, which in turn enabled the freed-up space to enlarge its function. Thus the original erecting and machine shop at the corner of Roosevelt and the Pennsylvania Railroad was reduced to the single function of erecting when a second and much larger machine shop was constructed in 1909 across Gas Alley.

The manufacturing approach of the York Manufacturing Company is described by the variety of its surviving buildings.¹⁰ Unlike modern manufacturing, where different components might be manufactured and assembled in separate plants -- often from separate corporate suppliers, York manufactured nearly all of its components from a

remarkable array of industrial processes. Metals were smelted to meet specific requirements, cast in foundries, annealed in great ovens to provide for hardness, and then cleaned, polished, machined and finally assembled in stages that moved through much of the vast site. Thus the variety of buildings represented the various manufacturing processes, most of which had their own specialized spaces and facilities.

As markets changed, the York Manufacturing Company plant also changed. The 1892 catalog of the company discounted the absorption method in favor of the compression method; however, by the early 20th century, research in the York labs had proven absorption to be more efficient in low temperature work resulting in the construction of the immense sheet metal shops across Hartley Street. Similarly, as the volume of work increased to thousands of units per year, the five-story reinforced concrete Building 7 was added so that smaller units could be assembled and painted in an assembly line operation. As manufacturing changed, many of these buildings found different uses. When gray iron casting was shifted to the Grantley Street Plant in 1926, the old foundries fell silent, being turned into storage and warehousing; similarly the five story warehouse (Building 7) served in the 1950s as a machine shop and warehouse.

So long as the machine products remained large, the vast industrial halls produced for their manufacture continued to be effective. Size and production continued to be roughly equivalent. Thus in 1874, 14 employees occupied 3000 square feet of plant; with the opening of the new plant in 1897, fifty employees were working in 107,000 square feet of plant; by 1910, 1500 employees worked in 566,000 square feet with a separate chemistry laboratory, three machine shops, two erecting shops, a welding department, a wood-working shop, boiler shop, and fitting shop for the small pieces.¹¹ The relationship between size and profit began to break down in the early 20th century as York research in the 1920s and '30s led to smaller and smaller machines with more and more capacity. For example, a 100-ton machine in 1910 weighed 101 tons, stood 17 feet high and operated two cylinders; by 1930 it had been reduced to 10 tons of machinery, stood nine feet high and continued to use the old two-cylinder engine; in 1950, a 16-cylinder engine operated a machine that was 3'6" high and weighted less than two tons. Efficiency had been increased nearly 50 times, while operating costs had dropped as well. The volume of refrigeration capacity was increasing as rapidly as the machine size was dropping. Smaller machines required smaller spaces for manufacturing and assembly, in turn making the vast halls outdated.¹²

The corporate name changed several times; in the 1920s, the primary function of manufacturing ice machines resulted in the name of the York Ice Machine Company; In the 1940s, the name changed again to the York Company. By 1956 when the York Corporation was purchased by the Borg-Warner Company of Chicago, the original plant at Roosevelt and the Pennsylvania Railroad had been reduced to a modest role in the plant operations.¹³ In 1957 it was reported in the Borg-Warner Annual Report that:

All heavy machinery sections, tools and welding operations in our old West York plant of our York division are being transferred to York's new and modern Grantley plant, also located in York, PA., in an effort to have the lowest cost and most efficient plant for the production of large air-conditioning units.¹⁴

At the same time, other York production lines, including its automatic transmission division and its foundry operations were moved to other sites. Most of its older buildings were used for storage and warehousing; retrofittings that had been undertaken were of the most minimal sort. Modern heating plants were installed in foundry buildings which had not needed heating in their original use; modern lighting was installed where skylights were covered by roofing paper. Modern offices with wall to wall carpet and dropped ceilings were installed in older office buildings. Though several of the original buildings were adapted to other users, the general state of the plant began a general decline, resulting in its final disastrous condition in the winter of 1994. At that time, freeze-thaw cycles were pushing bricks out of the walls, floors were flooded and rotting through and the general state was of massive deterioration brought on by nearly three decades of disuse.

Interestingly, the York Ice Machine Company did not disappear despite its disappointing relationship with Borg-Warner. The early 1980s building down-turn resulted in huge layoffs for the York Division with its staffing level falling by 1500 from its already reduced staff of 1800. In 1985, when Borg-Warner was taken over by another company, the executives of the York Division bought their way out and re-established the company as York International. Run again with an eye to originality and quality, York International is producing the ventilation equipment for the "Chunnel" and produced the refrigeration units of the luge and hockey venues for the 1994 Norway Olympics.¹⁵

York Manufacturing Contributions:

The contributions of York Manufacturing to the field of refrigeration and manufacturing were many and varied. Initially, under the direction of Stewart St. Clair, the company demonstrated the virtue of tight manufacturing standards in mechanical compression refrigeration that made it possible to produce machinery that relied on mechanical seals rather than relying on oil for the vacuum.¹⁶ Working from the premise that "In mechanics there is no standstill; it is progress..." the company established its own laboratory for the refining of steam engines and for the production of pure, clear ice similar to lake ice which remained the standard of excellence.¹⁷

Thomas Shipley came to York Manufacturing in 1897 from Frick Refrigeration and proposed the total dedication of York to refrigeration products.¹⁸ The operations were largely redesigned under Shipley's direction, becoming smaller and more efficient than their competitors. Touting the success of York, Shipley engineered competitions with

other manufactures that resulted in victories and commissions for his firm. The lab research was equally important. By 1900, researchers at Shipley's lab had developed tests to establish standards, determining the unit ton for refrigeration measurement so that it would be possible to establish accurate data against which improvement could be measured.¹⁹ In 1903, with the successes caused by the research work in his own labs, Shipley was able to persuade the industry to organize its own professional organization under the name of the Ice Machine Builders Association of the United States.²⁰ With the advent and success of absorption units in 1905, York solidified its position as an industry leader.

In the early 20th century York began adding new applications for its machinery. In 1903 it supplied an enormous unit for Carnegie Steel to dehumidify the air in the blast furnace of the Aetna, PA steel plant; ten years later, York added a chiller to a water-based air-conditioning system to create the modern air-conditioning system for the Empire Theater in Montgomery, Alabama. In the next decade a York plant provided the first cooling for an office building for the Joaquin Light and Power Co.²¹ In 1930, experiments with Freon-12 led first to the air-conditioning of the B&O's fast passenger line, the Columbian which ran between Washington, D.C. and New York; a similar system was used to cool the United States Senate office building in 1931. Five years later it had been further reduced to become the modern window air-conditioner unit. York plants cooled the ocean liner the United States.²² By the 1950s, York was developing the theories on which the heat pump is based, continuing its active leadership in the field.

York Manufacturing Company's role in the community economy has varied over its history. When it was begun, it was one of many small and medium-sized manufacturing companies in York. By the early twentieth century, the York Manufacturing Company had become one of the city's principal employers, rivalling the giant S. Morgan Smith plant. After World War II, the York Company was reported as the city's largest employer with 6000 employed. The company's decline in the 1960s reduced it to less than 500 employees in the late 1980s when the managers bought the remains of the company from Borg-Warner.

Individuals Associated with the Plant:

Jacob Loucks -- (active 1874 - 1890) The Loucks name was long associated with milling in the York area; it appears on a local map in 1838 and by the 1840s the family operated numerous paper and flour mills in the vicinity of York. Jacob Loucks and S. Morgan Smith founded the York Manufacturing Company on 2 September 1874 in the 40 foot by 70 foot building at North Penn Street and West Clarke Street. Like its later successors, it was a steam-powered plant, with railroad access. When his partner Stephen Morgan Smith left the business in 1879, Loucks continued on his own; under the supervision of engineer George Jarmin, the first York ice machine was produced and shipped to Mississippi in 1885.

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Philip H. Glatfelter -- (1837 - 4 July 1907) active 1889 - 1907. Glatfelter made the shift from agriculture to manufacturing, working first in a mill in Rockdale, MD owned by Jacob Loucks. There he met Loucks's daughter Amanda, and soon married her. In 1872, he purchased his own mill, a paper company, in Spring Grove, PA, and soon made it one of the nation's most important plants. In 1882, Glatfelter hired J.A. Dempwolf to design his enlarged mill at Spring Grove.²³ By the 1880s, only his plant could make the large rolls of paper needed by Philadelphia's largest newsprint user, George W. Childs, for the *Philadelphia Public Ledger*. In 1889, Glatfelter purchased the York Manufacturing Plant from his father-in-law and installed himself as president and added his brother, W. L. Glatfelter, as treasurer while retaining the brother of Jacob Loucks, George W. Loucks, as Secretary. Stuart St. Clair was brought in as general manager of the plant.

The year after Glatfelter purchased the plant, the 1890 ice shortage led to overtime, and night shifts and started the company on its direction toward solely producing ice machinery.²⁴ With Glatfelter's additional capital the modern plant was constructed at Roosevelt and the Pennsylvania Railroad. With the hiring of Thomas Shipley (see), the York product line became one of the most important in the nation. By the time of Glatfelter's death in 1907, York was the largest employer in the city and had become a modern research driven business.

John A. Dempwolf -- (1848 - 1926) John Dempwolf, principal architect for the York Manufacturing Company, worked with brother Reinhart Dempwolf (1861 - 1945) and later with his son, Frederick G., who took over the office in 1926.²⁵ Both brothers were born in Brunswick, Germany, the sons of a millwright who moved to the United States in 1867. After being apprenticed to William Gotwalt, carpenter, John A. Dempwolf took a two-year course in architecture and drawing at the Cooper Union in New York City between 1873 and 1874. After working in 1874 with Philadelphian Stephen Decatur Button on the York Lutheran Church, he worked with Button on some of the Centennial Exhibition buildings. His practice got underway in 1876 and for half a century his firm was the principal designer of York. He became a member of the American Institute of Architects in 1901 and was made a Fellow of the AIA in 1910.

Dempwolf's commissions included the splendidly colorful York Central Market, of 1879, recalling the work of fellow German Leopold Eidlitz, the York Collegiate Institute of 1882 with later additions, some seven or eight commissions at Gettysburg College including Glatfelter Hall of 1888 and the handsome Victorian, West Market Street Market which still serves York's needs in the heart of the city. In addition, in 1881, Dempwolf was Glatfelter's chief architect at the Spring Grove Paper Mills, Main Street at Codorus Creek, Spring Grove which cost \$250,000 (including machinery) and was published in the *American Architect and Builder's News* v. 9 p. 296; pl 286 June 18, 1881 and many other industrial buildings, many of which took form of the German *rundbogenstil*. The York Manufacturing Company buildings were listed as "General

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Plant 1895" and "Addition on Hartley Street, Foundry &c 1899." Dempwolf had an important regional practice that stretched from Harrisburg and York to Gettysburg, and nearby Hagerstown, MD, that gave the region its own distinctive character.

Thomas Shipley "Boss" Shipley -- (active 1897 - c. 1920) Shipley came to the York Manufacturing Company from the western Pennsylvania Frick Company with two other Frick employees, E. W. Gardner and A.B. Strickler. Shipley had trained as an engineer at night school at the Cooper Institute before working with the Frick Company in western Pennsylvania. Under his direction of the York Manufacturing Company, the product line was shifted entirely to refrigeration and all of the company resources were directed to those needs. He established the company's first testing laboratory, leading toward verifiable standards. Shortly afterwards in 1903, Shipley persuaded his fellow manufacturers to use his standards for the industry. With verifiable standards, Shipley took an adventurous course in competing with his fellow manufacturers, and typically bested them on efficiency and economy of operation, resulting in commissions for work.

Stewart Lauer -- (active c. 1916 - 1956) Lauer rose from working on the foundry shop floor in the early 20th century to be president of the company in the 1940s and early 1950s. It was under his tenure that the York Ice Machinery Company was sold to the Borg-Warner Company in 1956. Lauer remained as head of the York division after the take-over.

Architectural Description of Existing Structures

Description of Site:

The principal buildings of the York Manufacturing Company are located on a six-and-a-half acre site between North Hartley, Roosevelt (formerly West York Street), and West Philadelphia Street on the south and the Pennsylvania Railroad tracks on the north. The site is bisected by Gas Alley which runs east west and serves as the principal open space of the site. Rail tracks which parallel the site to the north entered the site on several sidings, the chief of which was in the center to the rear of what is now called Building 4. At that point, the rail line extended through the site to the south.

The complex contains the original buildings of the plant together with infill structures that have filled the entire site over half a century of growth and expansion. Central to its conception was the power plant with its giant smokestack; the foundry and castings section were to the west, while the assembly and erecting portions of the factory flanked the power-plant to the north and south. Offices occupied their more architectural structures along the east side of the site, facing the city. In the early twentieth century, a second range of buildings was constructed to the south across Gas Alley with the principal structure being a vast machine shop and attendant pattern storage facilities. In the same years, additional plant facilities were constructed to the west of Hartley Street, beyond the limits of the project area.

The project area contains the first group of buildings on this site of the York Manufacturing Company as well as the first phases of development across Gas Alley. The accompanying text describes the plant history, while the building descriptions principally discuss the structures affected by the present undertaking of the York County Industrial Development Corporation. This includes demolition of some buildings and rehabilitation of others. Within the above described block, several of the buildings are not part of the project because they will remain in active use by present tenants. These related buildings that are outside of the project area are described in more cursory fashion to complete the historical record.

Building groups represented manufacturing processes with raw materials arriving and finished products leaving from the railroad tracks to the north. Building numbers referred to in the architectural description are taken from plant documents.

The neighborhood of the York Manufacturing Company is a mixed residential - industrial community centered along railroad tracks that linked the region to the rest of the nation. Housing appears to date from the 1870s and 1880s, denoting the point in time when the new industry began to move into the region. Houses are typically narrow, row house type structures, built at the sidewalk, and with small rear yards, following the norms of regional industrial communities.

Evolution of the Site (Plan):

The evolution of the site is made clear by three groups of documents, the original linens by J.A. Dempwolf, on file with the York County Historical Society, various views and perspective renderings of the plant from York Manufacturing Company materials in record group 834 of the York County Historical Society, and in Sanborn Map Company Atlases. In addition, the record of site acquisition from county deed records adds to the historical evidence of the development of the plant. The 1876 Pomeroy, Whitman and Co. *Atlas of York, PA* shows the north portion of the site as being empty and the south portion being partially occupied by row houses. This remained the same in the 1892 Sanborn's *Atlas of the City of York* (pl. 6). In 1903, the Frederick Roe *Atlas of the City of York* (pl. 4) shows the site north of Gas Alley between West York Street (now Roosevelt) and North Hartley Street nearly filled and additional purchases occurring to the south toward West Philadelphia Street as well as the property that would become the boiler plant across North Hartley Street. The 1932 update of the Sanborn's *Atlas of the City of York* (pl. 6), shows the company at its largest expanse with buildings extending for three blocks along the railroad tracks.

Property Acquisition:

The history of the acquisition of the York Manufacturing Company's second site began in 1893 with the purchase by the York Manufacturing Ltd. from Edwin Parkhurst (Volume 9M Page 372, 3/15/1893)²⁶ which was the principal property stretching along West York Street, Gas Alley and south of the Railroad tracks, extending nearly to North Hartley Street. This same tract was sold to the York Manufacturing Company in 1895 when the main plant was built (10NN/112 10/9/'95). It was included in the overall sale of the York Corporation in 1956 (43C/281 6/30/'56). Borg-Warner in turn sold the property to the present owner, the York Industrial Park Inc. in 1960 (50G/66 9/13/'60).²⁷

The remaining group of houses on the east side of North Hartley Street between Gas Alley and the railroad tracks were acquired between 1897 and 1899 permitting the construction of the addition of 1899. These transactions included the purchase of three lots and a "dower funds and message" along North Hartley Street and the railroad tracks from Percy Lanius (11D/509 12/16/'97), and individual houses from Samuel Markel (11F/574 2/7/'99), Caspar Hoker (11F/571 2/7/'99), Margaret Rudy (11P/503 4/3/'99) and Julian Doll (11P/506 4/3/'99). The last portion above Gas Alley to be acquired by the York Manufacturing Company was the group of four houses fronting on West York Street that were retained by the Parkhurst estate from the original sale in 1893. These were finally sold in 1910 and according to the *York Dispatch* were to be converted into a two-story office building.²⁸

In the early twentieth century, the company began purchasing properties to the south along West Philadelphia Street. These purchases started with the properties between 451 and 459 West Philadelphia Street which provided the site for Building 22 and 22a; it was followed by the acquisition of the Israel Gross estate property between 441 to 449 West Philadelphia Street which became the site of the huge new machine hall (Building 20) that was erected in 1909. A second group of properties that was not included in the project area but forms a part of the corporate history was acquired along the route of the railroad. This included much of the block west of North Hartley Street below the railroad which was largely acquired between 1901 and 1909 and another property further to the west beyond Manchester Street which was the site of the York Manufacturing Company laboratory after 1902.

The 1920s saw the company being constricted by its neighboring industrial giants and the high cost of adjacent land that was occupied by housing. This led to the purchase of a large tract of 12.5 acres at Grantley Street on the south side of the city where some of the basic processes such as the gray iron foundry could take place. With the Borg Warner takeover, this property became the principal plant and continues to be the central plant of the York International Company to the present.

Description of Individual Buildings:

For the sake of continuity and consistency with the factory nomenclature, the individual buildings are identified by the numbers which appear on the early plans and by their original uses.

Buildings Number 1 and 2 (Power Plant, Engine Room and Blacksmith Shop; 1895 with alterations)

The boiler room and its related structures were placed near the center of the plant. There the runs of its drive shafts were minimized and at the same time it could serve the entire complex. Constructed of massive red brick walls, the original core group occupied a site roughly 66' by 100' that was roofed in two volumes framing the central stack. The east volume beyond the stack contained the engine room with a pyramidal slate roof carried on wood beams. Its height was intended to mitigate the heat of the plant. On the opposite side of the stack, adjacent to a service core containing toilets, were the immense brick furnaces and the adjoining coal room which was positioned next to the railroad siding to minimize the movement of coal. As the plant grew, that side room was eventually taken over by an additional group of furnaces that doubled the power capacity and resulted in the northern blacksmith's shop and store room being converted into an additional engine room. This portion was covered by a second high pyramidal slate roof on wood structure that has also decayed to the point of destruction.

With the conversion of the north chamber to a second engine room and the addition of furnaces in the coal room, the plant doubled up on its use of space. Mechanical hoppers for the storage and flow of coal were installed down the center of the boiler house. The old blacksmith and storage shop retained its second level carried on oversized wood posts. This space had a large wood monitor roof that is mostly rotted out. The brick is in disastrous condition because of moisture infiltration into previously dry masonry and the super-structure is beginning to collapse. Numerous bricks have been expelled from the wall by the freeze-thaw forces.

By the late 1940s, the boiler plant continued to be in its original location, but it was running compressors rather than engines and a large generator.

Buildings 4 and 4a (Machine Shop and Erecting Hall; 1895 with alterations)

The main structure of the original mill was the vast machine shop and erecting shed which was constructed between the railroad tracks and the power plant. The principal volume is divided into longitudinal "naves" by a central row of built-up H-section steel columns. One note of interest is the construction of a masonry party wall between the two naves, carried on the steel frame in true curtain wall construction. On one pier at the east end is a plaque stating: "Built by the Wrought Iron Bridge Building Company, Canton Ohio, 1895." Between the outer brick walls, steel trusses carried two slated gabled roofs covering two halls. Each provided 40 feet clear span along the 220 feet of the hall. The north facade is composed of full-height brick piers on rubble local stone foundations, joined by brick arches below a massive brick cornice. Windows are small-pane wood sash stacked one above the other and crowned by fan-light sash. The west wall, by contrast, is a simple masonry plane carried on a steel lintel above the railroad car sized opening that provided access to the yard. To the south of the main double nave building was a nearly square, lower hall carried on steel columns and spanned by a shallow pitched steel truss roof. Roofs are of slate on closely spaced steel T bars.

When it was originally constructed, workers in this group of spaces machined and finished rough metal castings in the square hall and the interior nave and assembled the finished machines in the outer "Erecting Room." This last room was vast because the scale of the individual machines was immense, some being more than two stories in height and weighing nearly 100 tons. To facilitate assembly, the hall was served by immense 50-ton overhead cranes carried on steel rails along the upper end of the masonry piers and on outriggers from the central columns. They could lift and assemble the machinery at each end, and move it into position for shipping. The crane at the east end is the older of the two and is labeled "Morgan Engineering Company, Alliance Ohio" with patent dates in the early 1890s including 7 March 1892 and 2 May 1893. A second crane at the west end is a 50,000-pound capacity machine and was probably installed early in the 20th century when the new machine shop was constructed across Gas Alley. A later lift was added in the north east corner using Jones and Laughlin Steel

and Shepherd motors. Movement within the buildings was facilitated by railroad tracks in the floor that could handle small steel wheeled carts to move heavy loads. Tiny turntables at the intersection with other tracks permitted right angle turns.

The machine shop floor was altered after the completion of the new machinery hall.²⁹ The original flooring was end-grain wood block flooring which was installed in machine shops to avoid sparks and to quiet the movement of heavy machinery. That original flooring is now covered with concrete. At a later date within the last generation, a second truck entrance was added to the old machine shop nave and a spray booth was added, again presumably by the most recent tenant. Despite alterations, Building 4 and 4a are in generally good condition because roofs have been maintained.

By the end of World War II Building 4 remained an erecting shop while 4a had become a stock room.

Building 5 (Office Building, 1895)

This was the original main office building that was built as a part of the initial phase of construction. The building is a handsome, articulated, highly architectural structure that contained the president's and treasurer's offices and the timekeeper's offices on the first floor with a large drafting room on the second story. The building occupies the residual triangular space left over from the construction of Building 4 at the corner of Roosevelt Street and the railroad. The resulting site produced some odd interior configurations that were largely resolved in the building core. The building was divided into two arrays of spaces, one along Roosevelt Street that appear to have been large staff spaces, and the second parallel to the main axes of the plant that was described as a store room and presumably contained the paper records of the firm including not only business records but also the drafted paper patterns that were essential to manufacturing of large machinery.

The building, not including the corner bay, is 84 feet long along the Roosevelt Avenue front for an overall length of 95 feet while at the narrow end at the north it is 12 feet. Foundations are of rough local stone; rising walls are of carefully laid, hard pressed local red brick. Windows are simple rectangular paired sash on the first floor and with round-headed thermal wood-frame windows framed by Richardsonian brick arches in the second story. The top two stories are of a different tone red brick and were added around 1905, probably before the time that the bridge to the south and Building 6 were constructed. This portion is crowned by a copper cornice at the top and mimics the base in containing rectangular windows below round-headed windows on the fourth story. It is noteworthy that the piers of the third and fourth stories do not line up consistently with the main piers of the lower levels, further confirming their separate construction phases. Brownstone trim at window openings and at the door and front steps into the building link it to late Victorian design.

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The main door opens through a large round-arched portal and is flanked by side-lights and a small round-headed window. It opens into a modest entrance vestibule that has been altered during the colonial revival redo of the site in the 1950s. To the north is a large room that occupies most of the first floor. The 1895 plan shows that this space originally was subdivided into smaller private offices; the central office had a central fire-proof room, perhaps as a safe. On axis with the front door is the main stair, a dog-leg stair with square oak paneled newel and forceful wrought iron Japanesque banister supports that was lighted from above by a round-arched window. A secondary cross axis connects through a door into the interior alley that originally connected to the main mill complex.

The lower two stories of the structure are of loadbearing masonry (brick) with steel girders carrying fireproof corrugated metal arches infilled with cinder and cement. This sort of construction appears in much of the remainder of the site and reflects mill insurance concern about fire. The top two stories were an addition before 1904. They resulted in the infill above the original entrance and the construction of what appears to be the large drafting room. The building was massively altered in the 1950s or '60s, receiving a total colonial makeover including the creation of an executive suite on the second story with colonial revival trim and pilasters framing windows. This perhaps dates from the Borg-Warner take over in 1956. Damage in Building 5 is largely restricted to the west side where the removal of the large round-headed window above the stair has permitted moisture infiltration into the stairwell. This has caused vast damage to the masonry walls, with freeze-thaw forcing bricks out of the wall, and beginning to damage masonry units carried on steel beams in ceilings.

Building 5 remained an office to the end of its use by the plant.

Building 6 (Office; 1910 with alterations)

Building 6 is a three-story brick building that was constructed to handle the vast increase of paperwork that must have arisen with the opening of new regional offices around the country in 1903 and 1904. Its three stories and size of 110 feet by 50 feet roughly doubled the administrative facilities of the plant. The regularly spaced fenestration reflected the interior office cells within. The exterior treatment of Building 6 is generally planar with shallow panels below the windows and above the windows in the parapet. Thus, while it mimics the upper stories added to the original office building (5) in vocabulary and material, it is simpler, representing the site hierarchy and the later date of construction. The roof is flat, built-up roofing construction. Heat and utilities were originally supplied from the residual steam of the power plant. Walls are of brick and foundations are of rubble local stone. Building 6 is linked at each end by bridges connecting to other parts of the administrative structure. At its north, Building 6 connects to Building 5 by a brick bridge carried on steel beams at the second story. The bridge to Building 5 is carried on steel beams and appears to be part of the construction

of Building 6. A second bridge (detailed in copper pilasters and cornice) spans across Gas Alley to Building 45 and was probably added when that building also part of the office group in the 1920s.

According to the *York Dispatch* (30 October 1909, p. 3, col. 1) the facade incorporated four existing two-story rowhouses that stood on the site into the office building. If this was the case, the masonry dividing walls of the first and second story may be the original party walls while the intermediary piers might have been additional structure to carry the office load. This might also account for the plain construction of the rear elevation of Building 6 which is simpler than the front facades. The use of wood lintels instead of brownstone and generally simpler construction would not have been atypical for the rear of a row house. On the rear facade, the windows are 1 over 1 double-hung sash except for one large thermal window at the north end which would have been part of the addition to the row. On the main facade, the windows are accented with brownstone lintels and sills, stylistically linking the building to the adjacent office building # 5 to which it is attached at the second story by a bridge. Most of the original windows were large, double hung sash which have been replaced with modern metal frames and low E glass. The originals were probably on the order of 2 over 2 sash similar to the round-headed windows in the top story but have been replaced with colonial revival small pane sash.

The plan originally provided for a double loaded corridor off the center of the building with small individual offices on the inside, facing the mill, and larger staff offices on the east or street side. These latter offices were subdivided by modern partitions that created the corridor. The larger windows at the beveled north corner correspond to what appear to have been management offices in the corner, facing the principal offices across a narrow alley and representing the site hierarchy. Modern stairs of iron with pipe railings were added at the north end of the building, perhaps in the 1960s when this was occupied by a separate tenant. Presumably most users of the building entered through the main office, past the time clerk and then up the stairs, and across the bridge.

Interior trim and millwork is typical of the early twentieth-century Colonial Revival. Doors are unprepossessing, being domestic sized doors. Some of the millwork, particularly the beaded board wainscot at the south end, seems to derive from the original construction while other trim related to the colonial revival makeover of the interior after World War II. Building 6 is in generally good condition because of the repair to its roof during the recent past. This remained an office to the end of its use by the plant.

Buildings 9 and 11 (Boiler Shop and Store Room, 1895)

Between the boiler and engine house and Gas Alley was a large open, single-story hall that was built to house the boiler shop. The exterior brick of this block continues the theme of the entire north side of the Gas Alley with regular brick piers between pairs of

wood sash filled windows; like the older buildings this has the marble/limestone foundations stone and brownstone trim. A brick corbeled cornice with brick dentils sets off the slate roof which is bordered by massive iron pipe snow-guards.

The interior of the Boiler Shop was nearly 200 feet in length and 60 feet in width. The parallel stock room was formed by cutting a 40-foot-wide volume out of the room. Like the small machine room (Building 4a) this was another relatively low but very large space also roofed with relatively light steel trusses. The roof is now carried on steel columns that run parallel to Gas Alley, replacing the original masonry wall, perhaps at the time that the boiler shop was removed from this space and placed west of Hartley Street. This area contains the railroad tracks from the north (Building 12) and is really one space with Building 11 which continues the steel grid.

Because so much of the site has been infilled, including the original central alley that ran south of the office and between Buildings 4a and 9, it has been necessary to add glazing in the roof. This was accomplished by cutting skylights on both the north facing and south-facing planes of the roof. In recent years, as modern standards for lighting have changed, florescent lighting has been hung from the roof trusses. Like the machine room and erecting floors, this building also had the end-grain wood block flooring that was often used to eliminate static charges or for quiet. It has also been coated with cement.

This building has changed uses several times. The 1932 Sanborn's *Atlas* show that Building 9 (the larger Boiler Shop) had become used for core-making for air conditioning while Building 11 had become a place for cleaning castings after they had come from the foundry, on their way to the machine shop. By the late 1940s, it had also become a machine shop. Roof failures have significantly damaged roof framing, flooring and interior masonry; again freeze-thaw damage has forced bricks out of walls and otherwise affected the interior.

Building 13 (Foundry, 1895)

Building 13 is part of the first group of buildings erected on the site in 1895. It served as the "gray metal" (cast iron) foundry and was positioned so that it was accessible to the rail line for the delivery of its bulk raw materials to storage chambers along the rail line which bisected the mill. Sand was stored in two small chambers adjacent to the mold-making room; coke was stored in a large bin near the core ovens and the great coke-fired cupolas. The main space was a large, single-story clear span room 163 feet in the north-south axis and 60 feet east-west in width.

The building followed the general system of construction of the other structures of the group. Foundations are of local rubble stone, with brick piers rising to carry segmental arches that in turn support a massive corbelled brick cornice that surrounds the perimeter. Windows were glazed with oversized wood sash with small panes of glass;

many of these have been covered or replaced. Brownstone sills provided another link to the main buildings. Early views show that the floor was of dirt, much of it the residue of the moist sand that formed the molds into which the molten iron was poured. Above, the roof was a slated roof with a central monitor whose vertical sides were glazed with sash that could be tilted to ventilate the building when the foundry was operating. This roof has been replaced with a later metal truss roof and with an additional monitor on the west side, presumably to make up for the loss of light when Building 14 was added immediately to the west in 1899. A sense of the original shape can be gained from the end gable of the roof which projects above the continuous unifying brick wall along Gas Alley; its stepped pyramid of glass at each end brought additional light into the hall. On the exterior, the gable is sheathed in clapboards which have survived to the present.

All of Building 13's original production and operational features have been removed as its uses have changed over time. In the center of its west wall was a wood, semi-octagonal office which was intended to provide visual oversight of the entire building for the foreman. At the south-west corner was a much smaller brass foundry that supplied precision fittings. Opposite were the spaces for the core-maker, who made sand molds with wood forms which were then filled from the foundry. Early views show an overhead crane carried on steel rails that helped move heavy materials while a track at the south end suggests that the process moved from north to south, and then into the boiler shop and across to the machine shop before final completion at the erection floor.

Building 13's giant brick arches on the side toward the boiler house that originally framed the openings to the foundry cupolas; these have been removed. The only surviving side chamber is the old mill room which was converted to a toilet room when the original toilet at the south-west corner was supplanted by Building 14. In 1932 Building 13 was still a foundry but by the late 1940s it had been converted to the Testing Department where completed machines could be tested before shipping. This building has been seriously damaged by freeze-thaw activity because of roof failures and the capacity of super-dry masonry to absorb moisture. Hundreds of bricks have been forced from its walls during the winter of 1994.

Building 14 (Foundry, 1899)

Building 14 was part of a large foundry addition that was added almost immediately after the original construction and presumably reflects the influence of the hiring of Thomas Shipley on the plant. In 1897, he shifted the plant toward the single purpose of manufacturing refrigeration machines. Building 14 is framed by massive brick walls with articulating piers that mark the structural bays of the roof. With a wood truss reinforced by tie rods, the roof is similar to that of Building 16 which was added at the same time. Operable sash in the monitor, worked by a system of linkages and tie rods, provided ventilation. This was necessary because its original use as a foundry must have produced

great quantities of heat. The roof is slate carried on metal tracks in turn carried on massive wood timbers. The end walls are capped by gable ends and penetrated by large wood sash with small-pane glazing. Only the south facade on Gas Alley was visible for long -- though the west wall was incorporated into Building 15. Like the earlier buildings of the complex, its brick walls and piers stand on local marble/limestone foundations. Brownstone sills on the Gas Alley facade and large wood, double-hung nine over nine windows continue the vocabulary of the early complex.

The interior is an immense one-story brick hall from the great age of industry that stands north and south, providing even illumination through its top monitor roof. Like Building 13, it is one of the largest buildings on the site. It spans the full 163 feet in length by some 60 feet clear span on the interior making a single room. Large doors at each end opened on the north onto a rail siding, and on the south onto Gas Alley.

The floor is of concrete, probably over the original dirt that was altered when the building assumed later uses. It remained a foundry at least until 1932, but by the end of the 1940s it had been converted to a warehouse for finished machines with a painting department at the south end. A heater, a modern Scirocco (Cincinnati, Ohio, c. 1960) marks the need for heating which would have occurred when the building was no longer used as a foundry. Modern florescent lighting hangs overhead. Like Building 13, this has suffered much damage from roof failure over the last thirty years since the building had an active use. Upper walls have lost numerous bricks to freeze-thaw action.

Buildings 16 and 18 (Iron foundry, 1899)

Buildings 16 and 18, along with the aforementioned Building 14 were added as a unit to the plant in 1899. These buildings continue the same vocabulary of large wood, small-paned sash in large openings framed by brick piers. These spaces were built as a part of the Shipley expansion of the refrigeration business. A later addition, which resulted in Buildings 15 and 17 make it difficult to understand the original clarity of form that was initially intended. This addition comprised two foundries, separated by a large light court and linked along the Gas Alley end by a giant monitor-roofed volume. Giant stacks, one at the intersection with Building 14 and another on the side of Building 18 (both of which have been demolished) indicate that they were part of the foundry side of the business. These were all framed by the typical masonry walls with the exception of the north side of Building 16 which was largely glazed, perhaps in anticipation of later insertions of foundry buildings.

With the insertion of Buildings 15 and 17, Building 16 has lost most of its integrity, being apparent principally in the orientation of the monitor roof and in its having its own number. Presently, its concrete floor has been raised above the elevation of the adjacent foundries, all of its north side construction has been removed, and its giant oven has been demolished. At a later date a steel frame was inserted in Building 16 to support a lighter

version of the overhead crane running parallel to the monitor and the original axis of the room. The door onto Gas Alley is a huge sliding door hung on steel track. The windows on the south facade of Building 16 facing toward Gas Alley are immense 16 over 16 wood sash, like those of the earlier buildings; some of lintels here have been replaced with reinforced concrete. By the late 1940s this had been converted to a metallurgical laboratory.

Building 18 and 18a has a continuous skin with 16, and forms the western end of the original range of buildings. On the interior, it was steel framed on the first floor, carrying steel beams on either side of timbers that in turn support the upper story. The south end included a giant stack (removed) that served the annealing ovens. The upper story was skylighted by a hipped monitor roof that ran the entire length of the building. Its flooring of diagonal maple suggests that it was used for storage, which was made possible by the construction of a large freight elevator at the south end of the building. Because it does not appear on the original drawings, the elevator can be presumed to have been added at a later date. Windows are of the oversized wood sash with 9 over 9 glazing at the uphill or south end and 12 over 12 sash at the lower or north end.

On its first floor, Building 18 contained the early annealing ovens for the soft or malleable iron products, primarily piping for the enlarging boiler operations. These ovens were later augmented by additional annealing ovens in building 49. It remained an annealing and cleaning facility until at least 1932 but by the late 1940s had been converted to serving as a fitting shop along with Buildings 18a and 17 and 17a. It has a distinct identity because it retains its original masonry envelope. Building 18 and 18a has suffered extensive damage because of roof failure. The wood flooring on the second level is buckling and showing signs of failure.

Buildings 15 and 17 (Casting Cleaning and Storage, post-1903)

Because the north wall of the plant was enclosed by a roofed-over rail spur, the steel framed structures that were added in the old courtyard of the western foundry buildings have no distinct identity save for their roofs and their numbering in the plant plan. Buildings 15 and 17's interior construction system of massive built-up steel columns suggests that these are early 20th century, probably closer to 1903 than to the next atlas plate of 1932. Since the property had been entirely acquired by 1899, there is no guidance from property acquisition dates. That these were designed and presumably constructed at an early date is evident from their appearance in an aerial perspective of the company published in the *Bulletin* for 1906 and in 1908.

It seems clear from their size, character of construction and location that these were important parts of the foundry operation. The two-story configuration of Buildings 17 and 17a suggests that they were conceived to serve the manufacturing operations at grade level with storage above, duplicating the roles of Building 18 with which it was linked.

This is particularly suggested by the fireproof construction of Building 17 with its concrete floor, steel columns and steel-beamed ceiling carrying shallow arched masonry infill which is similar to the construction system of the lower stories of Building 5. The north end, listed as Building 17a and clearly part of the same building phase, is of heavy timber construction, suggesting that it was not subject to intense heat of giant ovens. These were used for cast cleaning and storage in the 1930s but by the late 1940s had become part of the fitting shop working in conjunction with Building 19 which was the Fitting Stock Room. Moisture infiltration, caused by roof damage has made the upper levels unsafe and caused significant failure to the masonry.

Building 15 was the last of the buildings to be inserted in the courtyard of the 1899 expansion. Its similarity of configuration with Buildings 13 and 14 and its similar ground plane confirm its use as a part of the foundry operation. Unlike the earlier buildings which were framed by massive masonry walls, this last infill with Building 17 merely consisted of a row of steel columns on the roof line between Buildings 15 and 17 and brick walls at the north and south. The open wall on the west borrowed light from other portions of the complex while outriggers on the steel piers and columns added to the outside of the wall of Building 14 made it possible to carry an immense overhead crane similar to those in Buildings 13 and 14. Building 15 continued as a foundry into the 1930s but by the late 1940s had been converted into a warehouse for finished machines.

Because of the pre-existing roof of Building 16, Building 15 was shorter (roughly 100 feet in depth) with a clear span of 40 feet. Like the other foundry buildings it was roofed with a high monitor that permitted ventilation and light. The monitor roof was operable with connecting rods that could be turned from below; windows in the monitor were small pane, single-leaf hinged in the middle to open like an awning.

Like the other foundry buildings, Building 15 is in rough shape with significant roof damage which has caused deterioration of the masonry and the steel structure.

Unnumbered Roofed-over Alley

A roofed-over alley runs along the north ends of Buildings 15, 14, and 13 and terminates at the end of Building 4. Connected to the spur off the Pennsylvania Railroad lines to the north, it linked the original part of the plant to the new shipping department across North Hartley Street. This area was roofed over between the foundry buildings and the demolished Fitting Storage Building (Building 19) which stood at the northwest corner of the site.

Its structural system, with steel columns embedded in the brick wall, is similar to that of Building 7 and is perhaps from that era. Steel girders and beams carry a sloping shed roof. Tracks are still in the floor at the west end and turn south through the west end

of Building 9. Industrial steel frames and sash light the north side between the former location of Building 19 and the Boiler Plant.

Building 7 (Machine Shop and other uses, c. 1915)

Building 7 marks a change in technology from the usual load-bearing masonry walls with steel internal structure to a modern steel frame structure with masonry curtain walls carried on the steel frame. The building occupied the remaining open court between the office buildings on the east and the erecting buildings on the west, attesting to the increasing density of the site and the struggle to keep the principal manufacturing processes together. The consequence was increased height, here five stories, which permitted great concentration of uses, but so overtaxed the site that it required the construction of above ground walkways to get the movement of the workforce off the ground which was used for moving equipment and material. This led to the construction of steel framed external stairs and corridors that linked Building 7 to Building 4 on the north and Building 20 on the south.

Despite the height, the building continued to use the conventional elements of the mill construction. Windows were fitted with 12 over 12 double hung sash. Columns were unprotected steel H sections. On the perimeter, the steel columns are buried in the wall. The first floor is concrete but the upper levels are of wood underlayment with diagonal maple stripping to assist in sliding heavy objects as was common in turn-of-the-century lofts. In the last generation, toilets and a modern heating system were added, presumably when the building was occupied by the York-Penn Co. The roof has a slight slope from the center ridge toward the perimeter and is covered in a modern built up roof. It occupies a site that is 84 feet by 60 feet.

The relatively light steel columns of Building 7 indicate that its purpose was not the erection or machining of heavy components, but rather the finishing of smaller components. This is confirmed by the presence of small 2-ton cranes on tracks in each bay. After being built to serve as a warehouse and small machine shop, Building 7 served as a painting shop in the late 1940s. In more recent years, the upper levels were converted to assembly line production with overhead conveyors. Because of its recent usage, Building 7 is in relatively good condition.

South of Gas Alley

The buildings south of Gas Alley are less clearly defined because of the circumstances of their construction. Each augmented earlier facilities of the plant to the north of Gas Alley and were constructed as sites became available. Their dissimilarities and various construction periods were later masked by the construction of a unified exterior wall that covered the entire plant. This facade along West Philadelphia Street was probably constructed at the time that the last parcel was acquired and occupied around 1919. The

jumble of buildings were built independently of each other and were later connected as other properties were purchased. Finally, probably after World War II, every available bit of land was roofed over making a virtually solid block of interlocking mill construction.

Building 45 (Office and Warehouse, after 1910)

Building 45 is a much altered building that has at least six phases of construction. It probably began as a small warehouse across Gas Alley from the main building complex after 1915. At a later date, it was doubled in size, as is evidenced by a joint in the brickwork that runs up the middle of the wall. At this time it appears to have been given a steel column structure carrying fireproof construction to support the second story; the size of the members suggests a storage use. In the 1932 Sanborn *Atlas* it was described as having a committee room on the second floor with warehouse below and by the late 1940s it was entirely offices.

Along the building's Roosevelt Avenue end was a projecting canopy, a portion of which exists at the side door while the remainder has been removed. The larger original size of the canopy is evident from the slot cut in the brick to receive roof flashing and from the filled post and beam holes. The canopy is similar to those of railroad architecture and, before the building was converted to serve as an office, perhaps was related to transportation, for delivery or pick-up. Above rubble local stone foundations, the walls are of the common red construction brick laid in common bond. At a later date, the elevator and new stair were added and the building received a new facade along Gas Alley in the darker, redder brick that was used on the West Philadelphia Street facade of the main factory block.

Above the brick walls the roof is hipped and is presently covered with asphalt shingle over the original slate. The roof is carried on the typical light steel and tie rod trusses of the other industrial buildings of the complex. Unlike many of those buildings, however, it does not have a light monitor, presumably because it was free standing on several sides. That roof can be seen through the dropped ceiling of the office area.

When Building 45 became an office building, it was extended to the south by a two-story vault wing of brick and steel with fireproof vaulting. It was presumably intended for the protection of the records of the company and not as a bank -- though it may have served as a payroll office as well. Double sets of iron doors protected the structure. Within, wood cabinets, cases with screen drawers, and racks held the records of the firm. A bridge between Buildings 6 and 45 facilitated communication within the office force. Constructed of steel with an elegantly detailed Colonial Revival overlay of copper pilasters infilled with stucco panels on wire lath, it is a sophisticated bit of design. Massive brownstone consoles link it to the earlier materials of the office buildings. A final small addition at the south-east corner was constructed after the 1932 update of the

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Sanborn *Atlas*. The final size is roughly: 120 feet by 60 feet; the original construction roughly was roughly 50 feet by 43 feet.

The internal framing of the building consists of massive steel columns and girders that carry the first and second story. The second floor, which was later converted to an office, is a clear span hall roofed by a light steel truss which is presently concealed with a suspended ceiling. The first floor has been modified to become a warren of small offices that open off a corridor from the main north entrance. A small office unit on the east side at the south end of the building is a later addition as is the adjacent three story (including basement) brick vault.

Across the north facade a new entrance, stair and freight elevator were added as a single two story unit. This contains a new industrial iron stair that opens through Colonial Revival paneled door frames suggestive of a 1920s date. Its non-industrial character probably indicates the time when this was added to the office complex along with the copper ornamented bridge across Gas Alley which was constructed to facilitate executive movement from Buildings 5 and 6.

As befitted its original industrial purpose, interior finishes were spartan. The walls were finished in plaster but later remodellings have included various ply and other sheet materials. The floors are of diagonal maple flooring, common in industrial use because it facilitated sliding materials. Doors vary from a modern glazed aluminum frame door at the loading dock to older paneled doors within. Doorways are simple, unornamented openings in the brick masonry. The basement windows are headed by segmental arches which was the original construction system. Presently, the windows are 6/6 double hung sash with steel lintels filled with soldier course bricks, a later alteration. (Many of the windows have been replaced with modern aluminum sash in a small pane configuration probably by the recent York Pennsylvania Press during its tenancy).

The condition is generally good, though much altered. It is to be preserved as a part of the York Industrial Park project.

Building 22, 22a and 24 (Pattern Storage, 1905)

The first building constructed across Gas Alley was a two-story, steel framed structure that was relatively lightly framed. Its purpose, according to newspaper articles and the Sanborn *Atlas of York*, was the storage of the wood patterns that were used for the mold-making in the ever growing foundry. Described in the *York Dispatch* (28 February 1905, p.3. col.3) as a "two story brick pattern storage house on West Philadelphia Street," its space is subdivided into three aisles by two rows of steel columns. These carry wood beams which in turn carry wooden joists and a wooden floor. The first floor was fitted out with small 2-ton Shepherd hoists that operated on the north-south axis. Pattern storage was increasingly important as the twentieth century wore on and more and more

machine models were available. Each casting had wood models, resulting in thousands of carved and shaped wood pieces that were used to form the molds in the foundries and to serve as gauges of accuracy. Because most machines were separate commissions, each pattern had to be stored and accessible if an order were received. By 1932, roughly a quarter of the site was occupied with pattern storage.

Windows were of steel frame on the east and west axis, perhaps for fire-protection while those fronting on the Gas Alley, like those of the West Philadelphia Street facade, are of two runs of oversized wood 15 over 15 double-hung sash with small panes. The east and west windows of the first floor are above the height of the cranes and above the height of the adjacent roofs, bringing light into the building. The second story was lighted by a central monitor roof that provided clear illumination into the interior.

These buildings continued as pattern storage until at least 1932; by the late 1940s, Buildings 22 and 22a had been converted to the crankshaft grinding department while other buildings including 24 had been converted to rough casting storage.

At the south brick wall that defined the end of Building 22 is a two story high stairwell that connects to the south to Building 22a which was built at the same time, and extended to West Philadelphia Street. Because of the change of grade up to West Philadelphia Street, the floor that continues from the Gas Alley level ends up almost a story below street level at the south end of the site. Even with large windows at the sidewalk level, they are well above head height, making the lowest level dark. Roof leaks on the upper levels have damaged floors and resulted in much interior damage.

Building 24 was an extension of the pattern storage complex. Unlike the first two buildings, 22 and 22a, it is three stories in height. This is evident on the West Philadelphia Street front by the three levels of smaller windows that are lined up in three columns. Like the other buildings of this group, it was framed with steel columns carrying steel U channels on either side of wood joists. This last building is significantly deteriorated because its flat roof has failed, leaking water into major areas of the floor.

Buildings 42, 43, 43a (Pattern Storage, after 1909)

The two small buildings to the east of the Machine Shop were constructed after the acquisition of the property along Gas Alley by lease to add to the pattern storage capacity of the plant. Despite their small size, these are heavy frame buildings with steel columns carrying massive wood timbers. Like Building 22 and 22a, these are two stories in height and again were placed in close proximity to the buildings that used the patterns, the foundry and the machine shops. These buildings had shifted in use in the late 1940s. Building 42 had become a small machine shop (Machine Shop #3), linked to Building 41 (Machine Shop #2) which in turn was linked to Machine Shop #1 (Building 20). Building 43 had become a dye casting department by the late 1940s. Brick walls with

segmental-arched windows are part of the general industrial vocabulary. The use of cast stone sills suggests that these are slightly later than the buildings with brownstone trim, perhaps as late as World War I when the properties which the mill had leased for yard space were sold to mill.

Because these buildings have remained in use, they are in better condition than the large industrial plant buildings.

Building 20 (Large Machine Shop also called the "Atrium," 1909)

The machine shop consists of parallel aisles flanking an immense central hall. This contained the machines that finished the rough castings and produced the giant machines that dominated early 20th-century production. Like the old machine shop in Building 4, it was spanned by giant overhead 50-ton cranes that could move the various pieces along the production process.

The building was originally free-standing with brick walls that surrounded the perimeter. Its exterior wall was subdivided by pilasters carrying a corbeled brick cornice like the older buildings of the complex. Windows are paired under segmental brick arches, with small pane wood double-hung sash like most of the earlier buildings of the group. The original construction brick was like that of the earlier complex, a reddish-orange brick of moderate hardness. This was covered with a new south facade of purplish, hard brick when the entire complex was refaced probably after the construction, around 1919, of Building 49 at the corner of West Philadelphia Street and North Hartley Street.

Giant steel columns joined by built-up steel plate girders in the north-south axis carried two stories of balconies above the work floor. Light steel trusses spanned the width of the hall, carrying corrugated wire-reinforced structural glass panels that served as roofing while also permitting light into the main hall. The bays were numbered in pairs denoting work stations in the hall. This building continued in its intended use at least into the late 1940s and probably until the plant closed in the 1950s.

The building was based on a rectangularly spaced grid of columns approximately 13 feet by 13 feet flanking the 45 feet main span of the central hall. The overall width of the main floor is 98 feet by 230 feet in depth making this the largest single space in the complex. And it has additional length with a bay that was constructed under the sidewalk along West Philadelphia Street.

Despite significant winter damage caused by ice breaking the corrugated glass ceiling, this structure remains in relatively good condition and is slated for renovation. It has been affected by the roofing-over of the open light courts that originally paralleled the east and west walls, creating additional work spaces; that to the west, now called

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Building 21, became an adjunct to the machine shop before the 1932 Sanborn's Atlas update; Building 41, the roofed-over light court to the east, also became an extension of the machine shop. All three spaces were floored in concrete and were linked by the light-rail tracks running east-west that passed through Building 22 and connected with the extension of the rail siding that entered the plant from the north.

Building 41 (Machine Shop extension, pre 1932)

This was originally an open light court between Buildings 20 and 42 that was later roofed over. That changeover occurred in two phases. The ceiling was skylighted to provide natural illumination because its sides are the two adjacent buildings. Like the main Machine Shop, the walls are labeled with A, B, C, D, and opposite AA, BB, CC, DD, presumably for organization of material. The floor is concrete and the building at one time had a crane running on steel tracks down its length. That track has since been rendered inoperable by the later insertion of piping. This remained a machine shop from its first appearance in the 1932 Sanborn *Atlas of York* and continued as such into the late 1940s and presumably into the 1950s when the plant closed.

Buildings 21 and 37 (Machine Shop extension, pre 1932)

Buildings 21 and 37 are one-story buildings that were originally light courts between Buildings 22 and 22a and Building 20. Roughly 47 feet in width, they run the 230 depth of the block to West Philadelphia Street. A single line of columns down the center of the space reduces the span of the roof trusses. Building 21 is crossed by the tracks that link Building 22 to Building 20. By the 1930s, it had been covered and was serving as an adjunct to the Machine Shop; a decade later it remained part of the machine shop with Building 21 to the north serving as the grinding department and Building 37 serving as the layout shop.

Building 37 is similarly constructed to Building 21, and like it is at the grade of the main plant above Gas Alley. Being lower than the street on the south end, its windows are well above head height. The later facade that wrapped the West Philadelphia Street facade ignores the gabled roof. A freight elevator connecting to Building 22a opens into Building 17 providing the means by which large wood patterns could be moved from the upper levels of Buildings 22a and 24.

Buildings 21 and 37 have been significantly damaged by leaks; flooded conditions have further damaged masonry leaving the buildings in deteriorated condition

Buildings 25, 26 (Flask Storage, before 1932)

These buildings were not in the project area and were largely inaccessible because they are still being used by the Leithheiser Company for manufacturing purposes. However,

in that they are a part of the original block development, they are included but with reduced detail. The east portion of Building 25 is open to Gas Alley and consisted of the extension of the rail siding that originally ran into the Boiler Shop (Building 9) and which continued across Gas Alley in the 20th century. This portion was an open yard that was roofed over by the addition of steel beams carried on the exterior walls of Buildings 22 and 25.

Building 25 is a large two-story steel framed building that was used for Flask Storage according to the 1932 Sanborn *Atlas of York*. By the late 1940s, because of its proximity to the rail line it had been converted to storage of sand, pig iron and other materials, the raw materials of the adjacent maleable iron foundry.

Buildings 26, 27, 52, 53 (Foundry, after 1911)

Like Buildings 25 and 26, these are not in the project area but are treated in cursory fashion to complete the narrative of the site fabric. Directly across from Buildings 14 and 15 are two additional foundry buildings and their ancillary links that functioned in the way the Buildings 14, 16, and 18 had done across Gas Alley. Presumably having learned that enough light and ventilation could be gained from the top, this group was built adjacent to each other with large monitors overhead. Built of load bearing brick walls on the perimeter, they are 106 feet by 43 feet (Building 26) and 106 feet by 62 feet (Building 27). They appear to be similar in configuration and design to the earlier foundry buildings and were described in the 1932 Sanborn *Atlas of York* as having "... two furnaces and one stack." The proximity of the annealing ovens in Building 49 suggests that these foundries took over or augmented the role of the soft iron complex across Gas Alley. This is confirmed by the late 1940s site plan which shows these buildings as the malleable foundry with a central electric oven. These buildings are not in the contract area but are included because of their role in the history of the site. They are presently being used by the Leitheiser Company as manufacturing space.

Like Building 16, Building 50 is built across the axis of Buildings 26 and 27. Building 53 is a small brick walled industrial building with a high, monitor roof. It housed the furnaces (removed) of Building 50. It is presently being altered as a part of the Leitheiser operation.

Building 44 (small manufacturing building, after 1917)

Building 44 was constructed independent of Buildings 42 and 43 and conformed to the usual pattern of one-story space crowned by a high, wood-framed monitor roof that was typical of the construction of the early foundry and production buildings. At a later date it was retrofitted with steel H-section columns to carry overhead cranes. This was probably in the late 1940s when the building was listed as the hardening and annealing

department for small parts, working in relation to the die casting department. This has since been further retrofitted with a conveyor for manufacturing.

The exterior was not part of the refacing of the West Philadelphia Street facades because it is set back from the street line behind properties that had not been acquired by the Depression. It consists of a shallow brick-gabled wall punctured by three large pairs of double-hung wood windows. The western-most window has been converted to a delivery door for a more recent tenant. The monitor roof rises above the main roof.

Roofing failure has permitted moisture infiltration into the entire building with significant damage to the structure.

Buildings 48, 49, 50, 51 (Foundry and Annealing Ovens, after 1907)

The buildings at the southwest corner of the main mill site form a part of a separate manufacturing unit that was constructed across Gas Alley in the early twentieth century. In addition to these buildings, it also consisted of several structures (Buildings 26, 27, 52, 53, described above) that are presently tenanted by the Leitheiser Company and are outside the project area. Because they are part of the history of the original plant block they are included in the text. The principal buildings of this group are Buildings 26 and 27 which are similar in form and construction to the early foundry buildings to the north and are listed as foundries in the 1932 Sanborn's Atlas. These are all one-story spaces with massive masonry walls surmounted by high monitor roofs, and like Buildings 13, 14, and 15 are oriented north and south.

Buildings 50 and 51 run east-west across the axis of the two foundry buildings. They are constructed in the manner of Building 16 with an east-west high monitor roof. Because of the slope of the site to West Philadelphia Street, this has an additional basement story.

Building 49 was probably the last building to be constructed of the group. Its raised roof parapet and gable roofed portion are trimmed with brownstone for sills and lintels and were clearly intended to be more decorative in design. Because Building 49 was used to house annealing ovens, it is characterized by massive steel columns and girders carrying masonry-filled, fire-proof construction. The irregular spacing of columns probably reflected the spacing of the ovens. Coal chutes from the street side, through the exterior wall mark the means by which the ovens were fired. In the late 1940s, Building 49 and its adjacent structures contained casting cleaning (Building 50) and grinding (Building 48).

These buildings show signs of severe deterioration from water infiltration which has flooded basements and otherwise affected the interior.

Buildings 27a and 42a (modern buildings)

Both of these are post-1950 construction that are outside of the project area. Building 27a is of concrete block construction with an exposed steel roof; Building 42a is similar with concrete block walls, a brick facade, cast stone copings and an exposed steel roof. The doors and windows are modern replacements when the building was converted to its present use as a fitness center.

Building 19 (demolished pre-1990)

Building 19 was part of the third phase of the plant, being erected very shortly after the construction of the first or 1899 additions because it appears on the Roe *Atlas of York* of 1903. It filled the site between the north ends of the foundry buildings and the railroad tracks along the east side of North Hartley Street. It appears to have been a two story building with regularly spaced windows along the sides and a central roof monitor. It probably served as pattern storage when it was first constructed, but by the 1932 Sanborns had been turned into fittings storage which it continued to be into the late 1940s. Appearing in the earliest views of the site, it was probably constructed around 1900 and was demolished sometime after the plant was closed.

Building 28 (demolished)

Building 28 flanked the small courtyard along the North Hartley end of the site. Its rubble foundations are still visible in the parking lot but the buildings has been demolished since 1961. It served as a fitting casting storage facility.

Notes

1. The history of the York Manufacturing Company is summarized in several plant publications as well as in several local histories. See George R. Sheets, *Made in York* (York, 1991); also York County Industrial Development Corporation, "Industrial Plaza of York: a Proposed Development Plan; a Joint Project of the York County Industrial Development Corporation" 1991, folder 31274, York County Industrial Development Corporation.
2. W. S. Stair, *The York Organization* (York: York Ice Company: 1942), p. 4.
3. Stair, p. 5
4. Stair, p. 6.
5. Forty seven sheets of the Dempwolf drawings are in the Dempwolf collection, Historical Society of York County, York, Pennsylvania (hereafter HSYC). These drawings include plans, sections and details of the major Roosevelt to Hartley buildings on linens.
6. Photographs taken for "Boss Shipley" between 1882 and 1910 show the development of the York Manufacturing Company from its origins to its maturity. These are in Box 834, Photography Collection, HSYC.
7. These drawings are included in the 47 sheets cited above. None of the sheets are dated, but a separate Dempwolf document (HSYC) lists this as an 1899 project.
8. *York Dispatch*, 1 February 1909 p. 2, col. 5 reported the construction of "...an up-to-date machine shop, three stories in height on the site of the Gross property on West Philadelphia Street." The photographs would suggest that the new building was constructed over the course of the next summer. It had taken nearly two years to marshal the resources to do the new complex; the *York Dispatch* had reported that the York Manufacturing Company had removed the dwellings on 467, 469, 471 and 473 on 1 November 1907, p. 12, col. 1. The photos of the construction show that the earlier, two-story Pattern Storage Building had been built with a temporary wall closure where it was intended to provide a direct link between it and the later Machine Hall. Earlier purchases between West Philadelphia Street and Gas Alley were reported on 31 August 1906, p. 3, col. 1: "The York Manufacturing Company secures possession of a number of properties in the rear of Philadelphia Street west of Hartley Street and several on Gas Alley that will be used to make additions to the present plant." The pattern storage building (number 22) had been built in 1905. According to the *York Dispatch* for 28 February 1905, p. 3, col. 3 this building was to stretch to West Philadelphia Street.
9. The property beyond Hartley Street was acquired in 1901 with later acquisitions until 1918; with the success of the absorption system the plant moved quickly to build a new addition to the pipe shop on the West side of North Hartley Street. See *York Dispatch*, 30 July 1904, p. 2, col. 1. It was described as being 62.5 feet on Hartley Street. On 31 August 1906, p.5, col. 4, it

was reported that a "brick addition to the malleable iron and pipe mill of York Manufacturing Company" was being added.

10. The use of the various spaces is taken from the Dempwolf plans and reflects the uses as they were in 1897 when the complex was completed. Several later sources provide insight into the evolution of the complex. A 1930 Sanborn's Atlas indicates usage at the time of the Depression and before the shift to small household window air-conditioners. This was largely in line with the original use. In 1949, a site plan shows significantly different allocations of space reflecting both the construction of the separate Grantley Street plant, and the shift in manufacturing; a 1961 site plan for Borg-Warner shows the majority of the site empty, reflecting Borg-Warner's plan to move manufacturing from the West Philadelphia Street site.

11. Typescript, "Plant History" no author listed, 5 April 1940, p. 5, file 834a, HSYC. The construction of the Grantley Street plant in 1924 doubled the site capacity and led to peak employment in 1948 of 6000. *York Gazette and Daily*, 10 February 1948, p. 31.

12. Article by Stuart Lauer (president of York Ice Machine Co.), *Shop News*, vol. IX no. 2 (July 1950).

13. "Annual Report of the Borg Warner Company for 1957," p. 7.

14. *ibid.*, p. 7.

15. For the recent history, see George R. Sheets, *Made in York*, (York: Agricultural and Industrial Museum of York, Co., 1991), pp. 199-200.

16. See *Engineers and Builders of York and St. Clair Compound Ice and Refrigeration Machinery Capacity Ranging from 2 to 200 Tons* (York: York Manufacturing Company Limited, 1892. This discusses the early approach to engineering with the claim that "proper construction eliminates the need for lubrication which is the product of bad mechanics." It was noted at this point that the company had built its own laboratory and was involved in research and the refining of technology.

17. *ibid.*, p. 87.

18. The departure of Shipley and two associates, A. B. Strickler and E. W. Gardner was noted in the Frick Company's *Seventy Five Years of Progress, 1853 - 1928* (Waynesboro, PA, 1928), which notes its contribution to the York organization.

19. "Plant History," p. 5.

20. See Stair, p. 8.

21. "Plant History," p. 9.

22. Stair, pp. 8, 12., 24, 331.

23. See Don and Jeanine Hartman, *The Glatfelders in America* (Utah, 1993), p. 318. The Glatfelders originated in Zurich, Switzerland in the 17th century, then followed the path of religious freedom to Pennsylvania. His son, William (1865 - 1930) remained active with York Manufacturing until his death. The Dempwolf connection is noted in J.A. Dempwolf, "Data of Buildings Erected and Cost of Same," file 11022, HSYC. More on Glatfelter can be found in Sheets, p. 79.

24. *Engineers and Builders of York and St. Clair Compound Ice and Refrigerating Machinery*, 1892, n.p.

25. Two principal sources are available on the Dempwolfs: Mark Shermeyer, "The Dempwolf Public Schools" (B.A. independent study paper, 1982) and J.A. Dempwolf, "Data of Buildings ...". Both are at HSYC.

26. Our deed record is divided into volume/page with the date following in the American order of month, day, year. Deeds are in the York County Court House on East Market Street in York.

27. Because much of the property is not included in the contract we have not examined all of York Manufacturing's purchases, but rather concentrated on the principal contract area with additional research to provide information about the growth of the operation.

28. "The York Manufacturing Company is having the four brick houses which it purchased on West York Street some time ago remodeled into a two story building to be used for offices purposes." *York Dispatch* 1 April 1909, p. 6, col. 1. The following year the *Dispatch* reported (1 October 1910, p. 3, col. 1) that the York Manufacturing Company was "moving into the new office building adjoining the old building located next to the Western Maryland Railroad. Early last spring the houses on the south side were purchased by the company in order to erect a three story brick office. The front and second story will be used for offices while the third floor will be used for storage purposes." That the properties would be sold to York Manufacturing was expected -- but the actual sale was not accomplished until 1910 (16W/426, March 4, 1910) indicating that the new building was constructed in the spring and summer.

29. *York Dispatch*, 30 October 1909, p. 3, col. 1.

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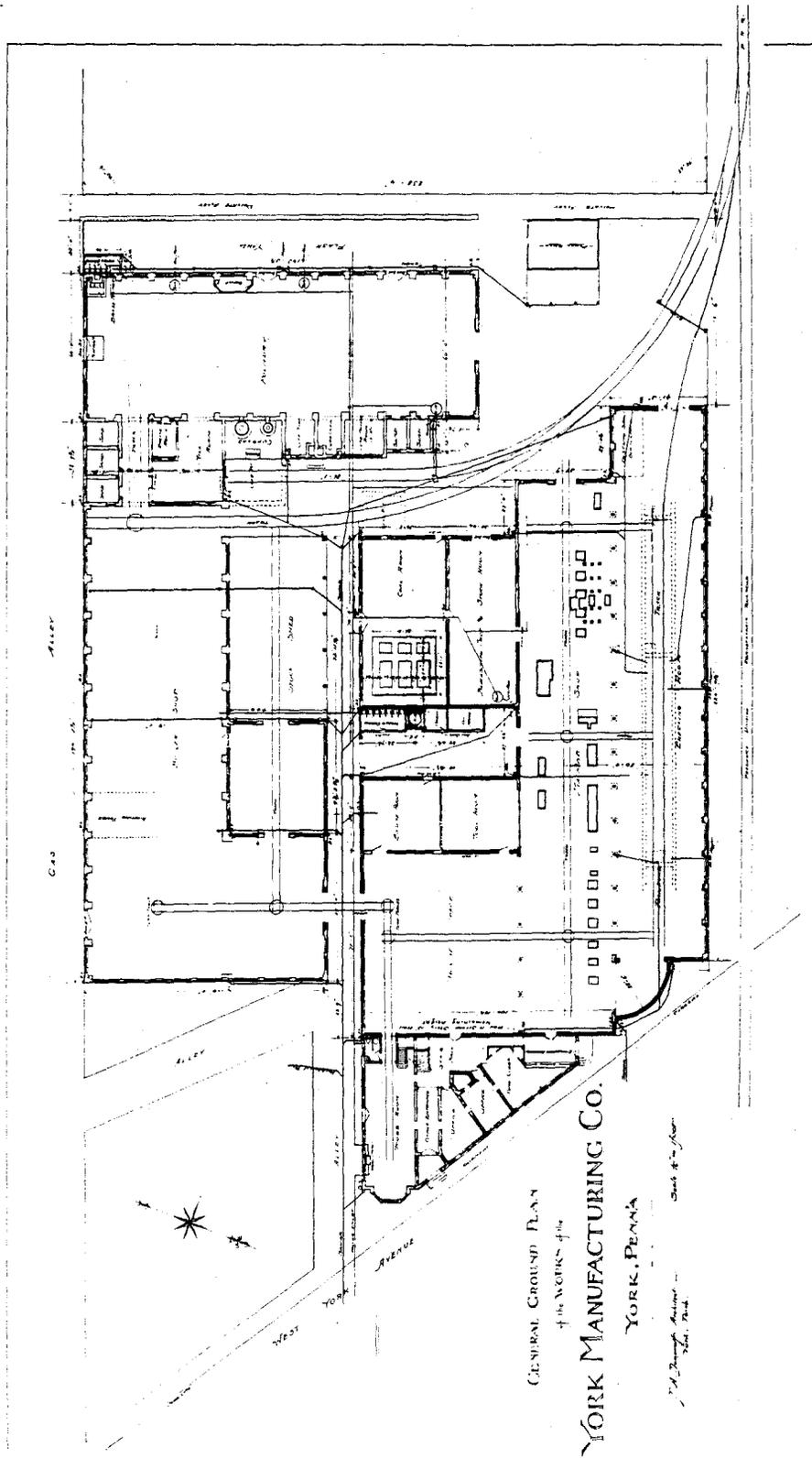
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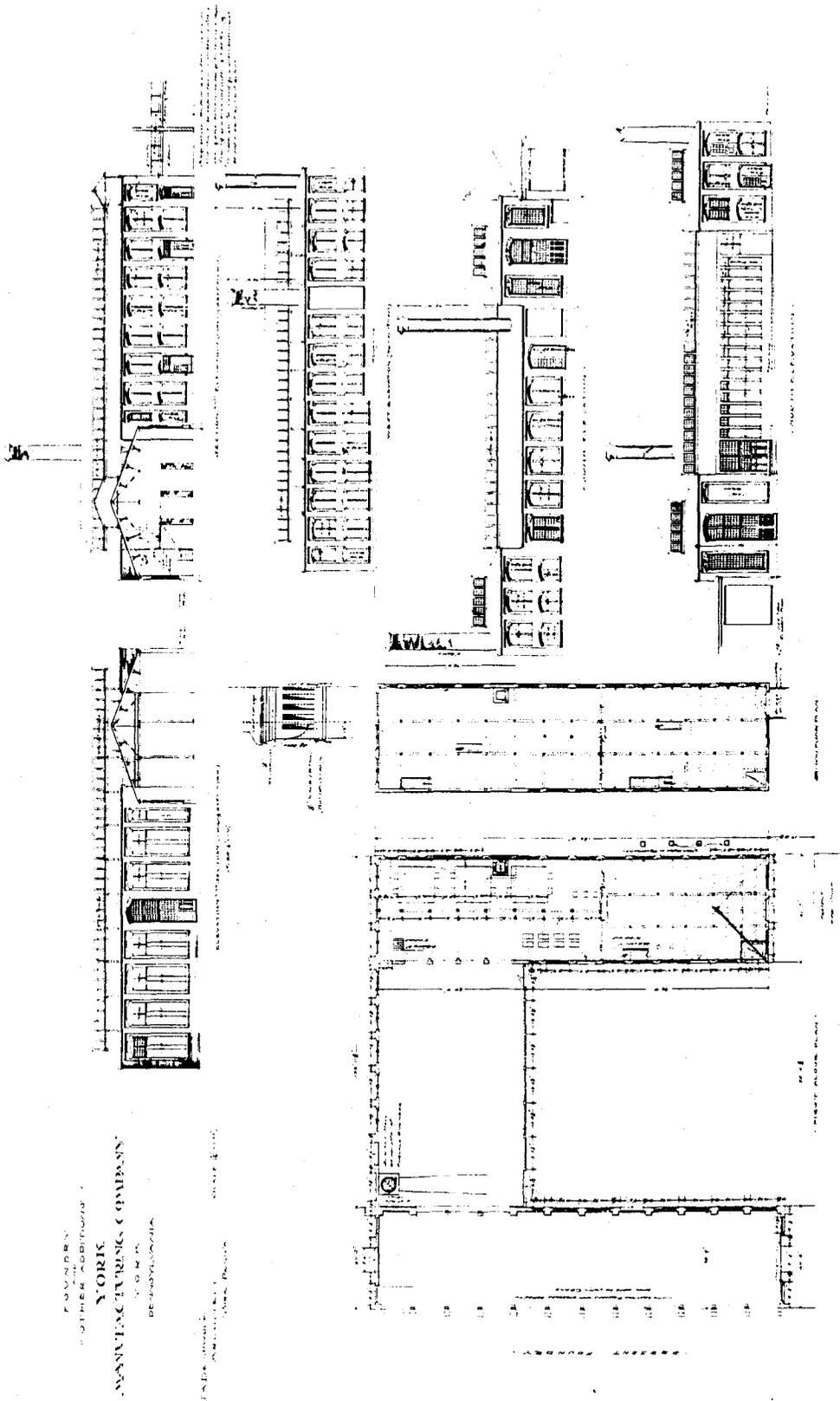
York Dispatch

York Gazette and Daily

York Manufacturing Company (York Ice Machine Company)
HABS No. PA - 6011 (Page 34)



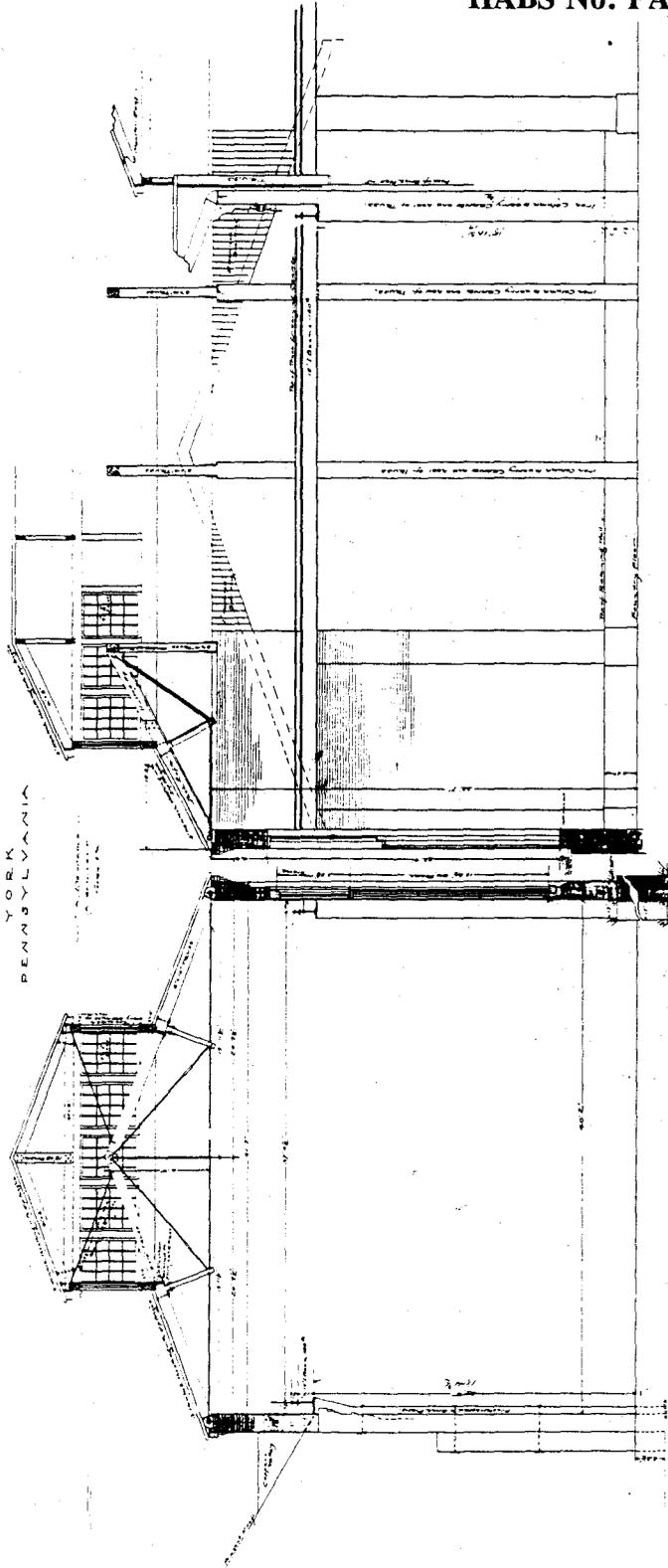




FOUNDRY
OTHER BUILDINGS
YORK
MANUFACTURING COMPANY
YORK, PA.
DE-44371-1001A

York Manufacturing Company (York Ice Machine Company)
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SECTIONS
FOUNDRY ADDITIONS
YORK MANUFACTURING COMPANY
YORK
PENNSYLVANIA

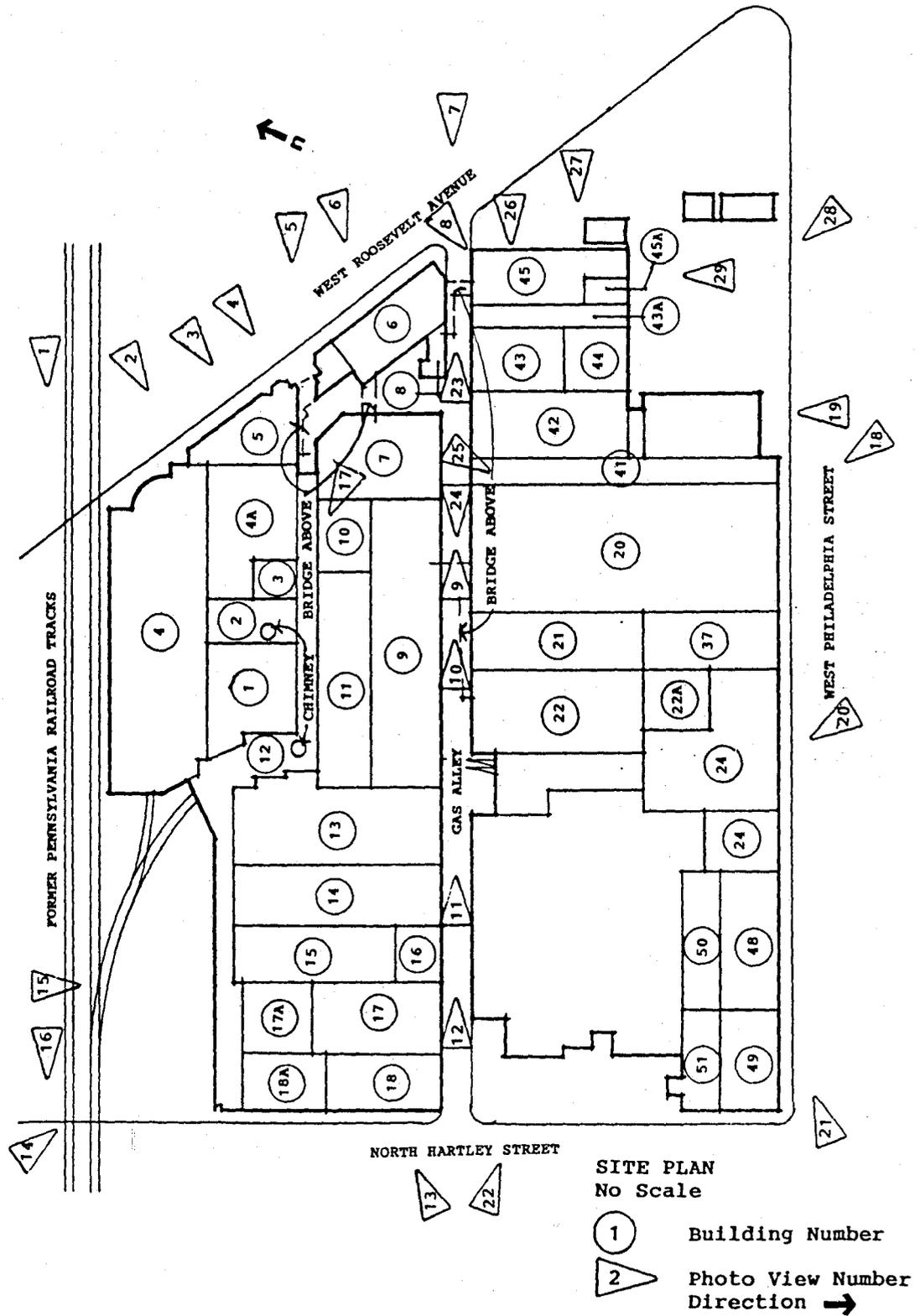


LONGITUDINAL SECTION - IRON BOUNDARY

CROSS SECTION - IRON BOUNDARY

SCALE 3/16"

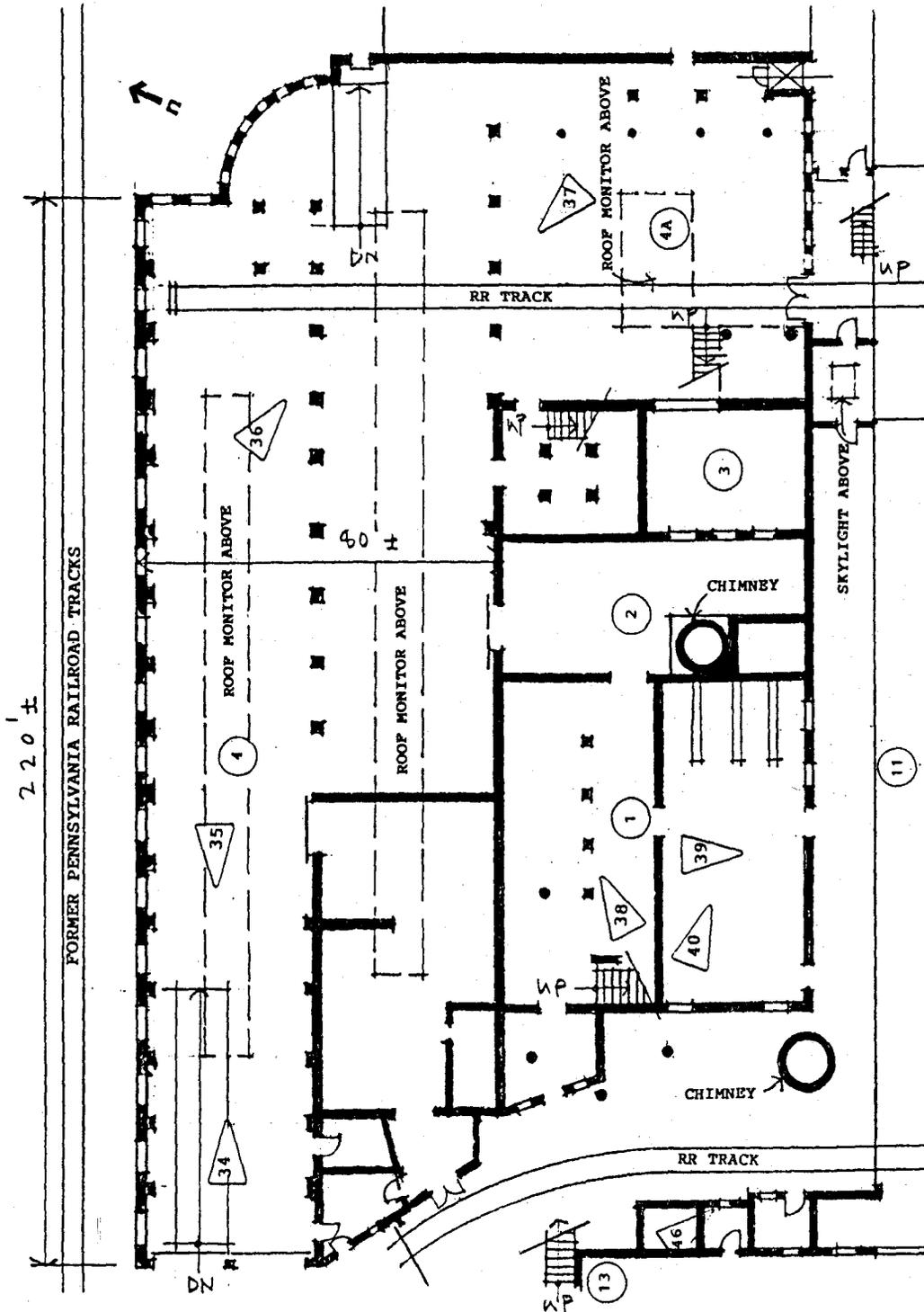
Sketch Floor Plans
York Manufacturing Company (York Ice Machine Company)
HABS No. PA - 6011 (Page 38)



SITE PLAN
No Scale

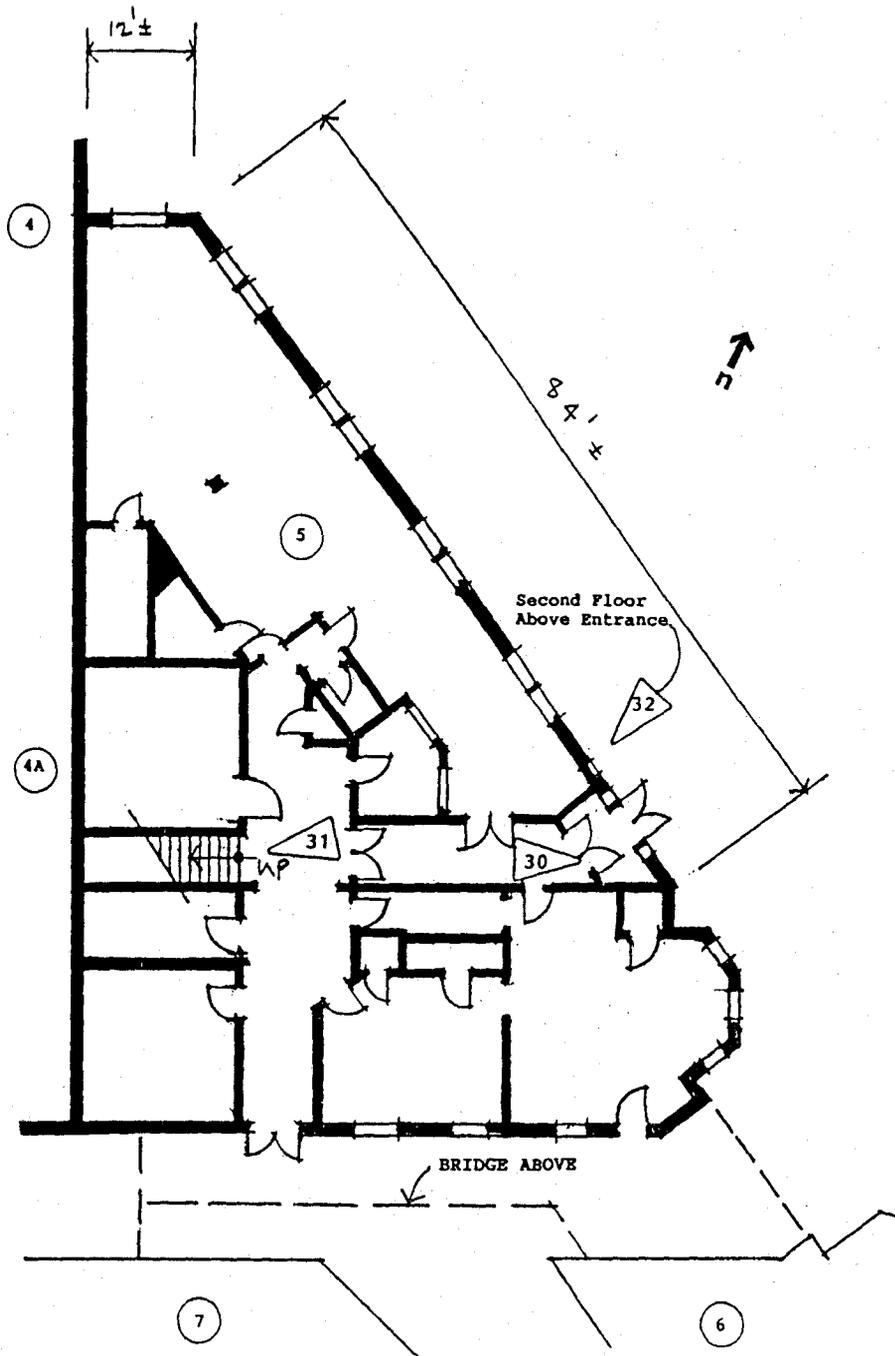
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- ② Photo View Number
Direction →

Sketch Floor Plans
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 HABS No. PA - 6011 (Page 39)



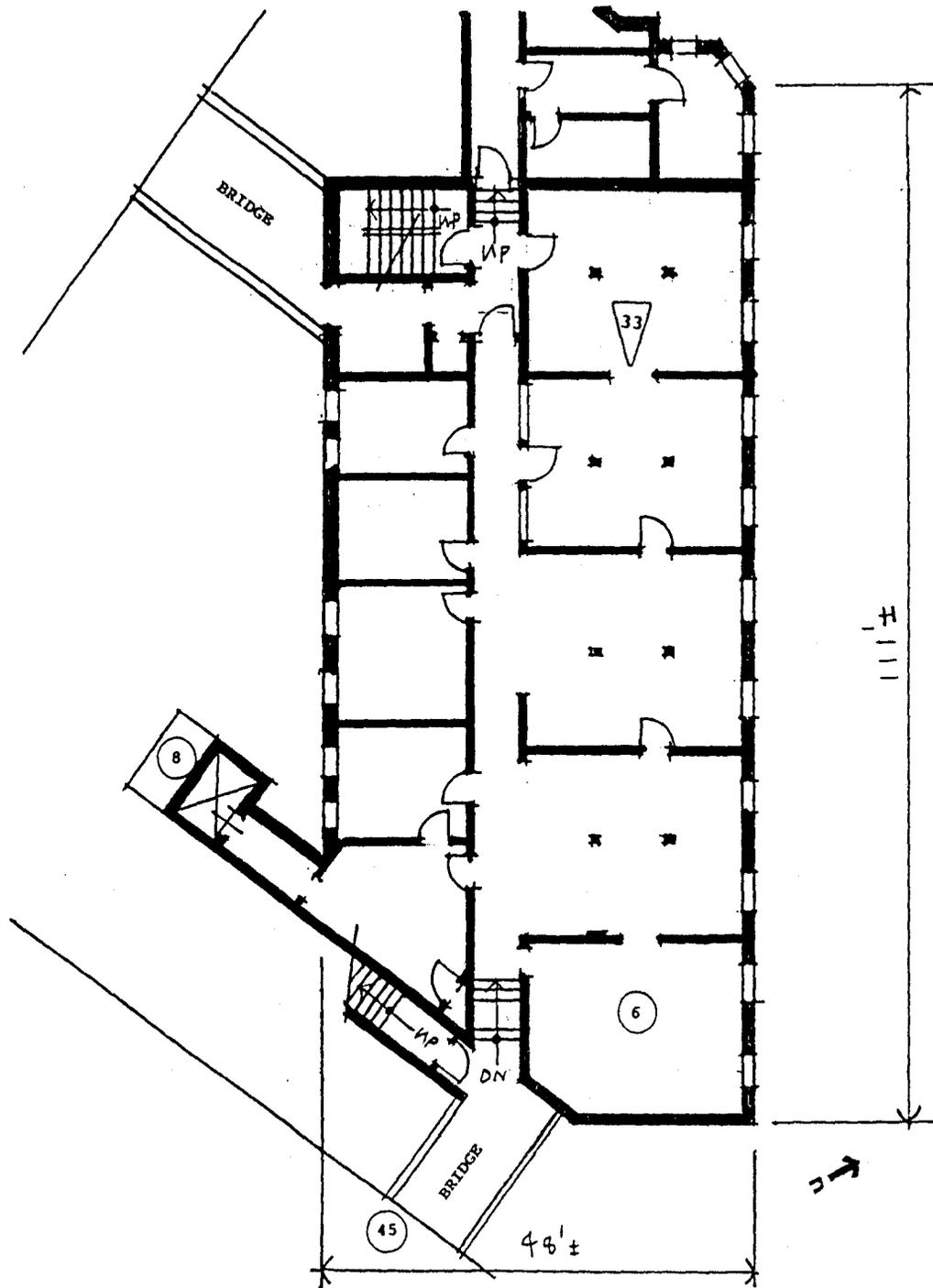
BUILDINGS 1, 2, 3, 4, 4A
 GROUND FLOOR PLAN
 No Scale

Sketch Floor Plans
York Manufacturing Company (York Ice Machine Company)
HABS No. PA - 6011 (Page 40)



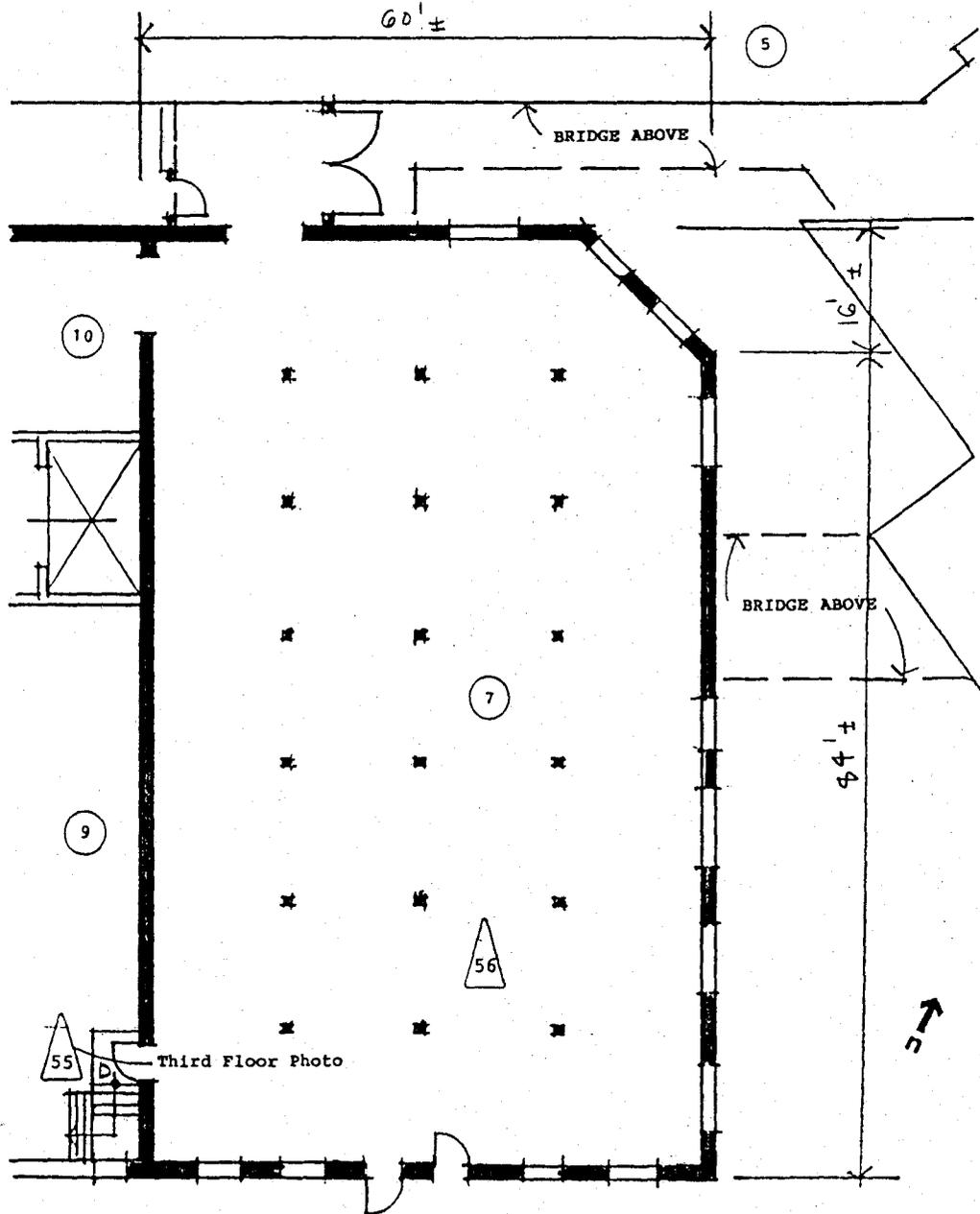
BUILDING 5
GROUND FLOOR PLAN
No Scale

Sketch Floor Plans
York Manufacturing Company (York Ice Machine Company)
HABS No. PA - 6011 (Page 41)



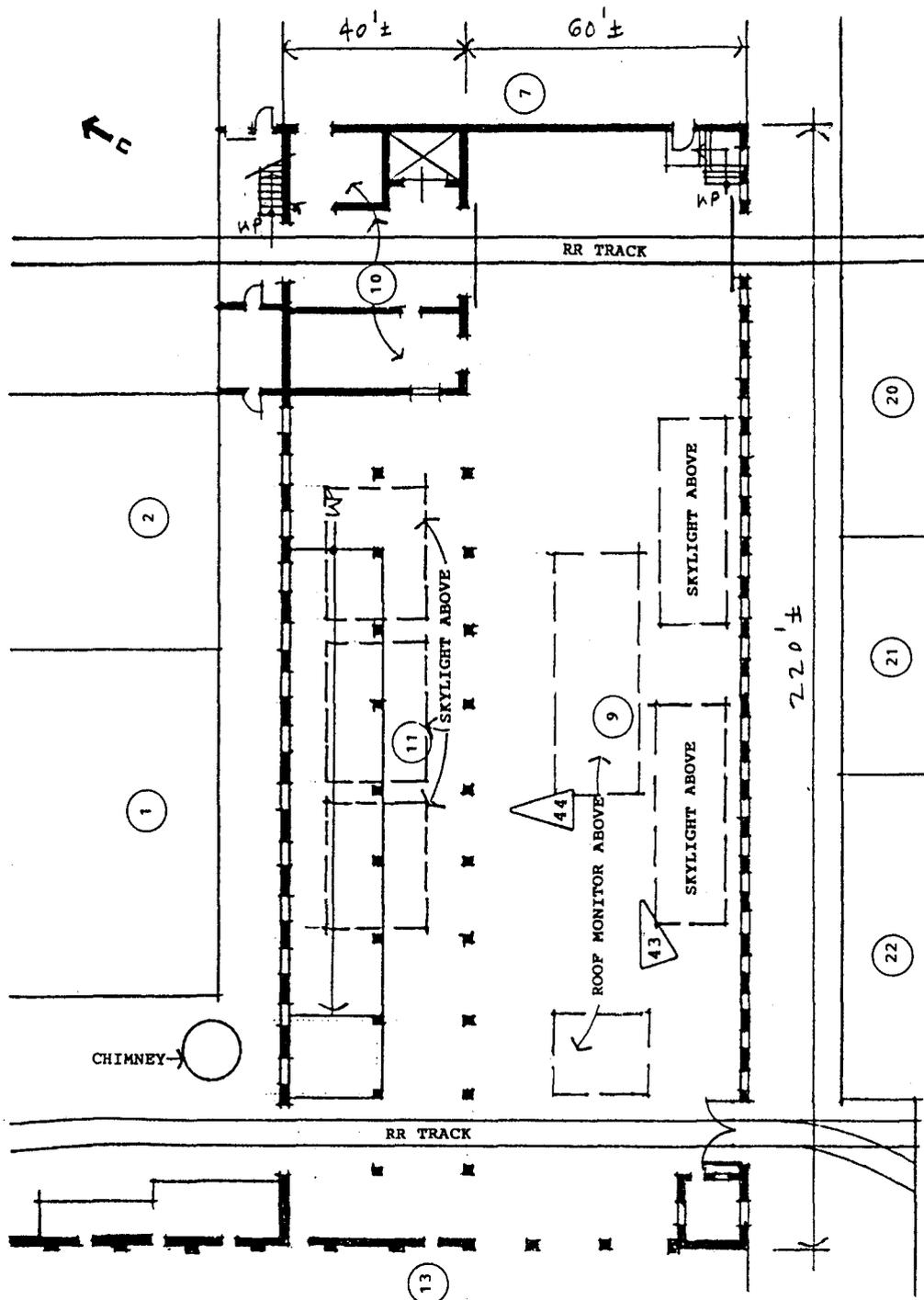
BUILDINGS 6, 8
SECOND FLOOR PLAN
No Scale

Sketch Floor Plans
York Manufacturing Company (York Ice Machine Company)
HABS No. PA - 6011 (Page 42)



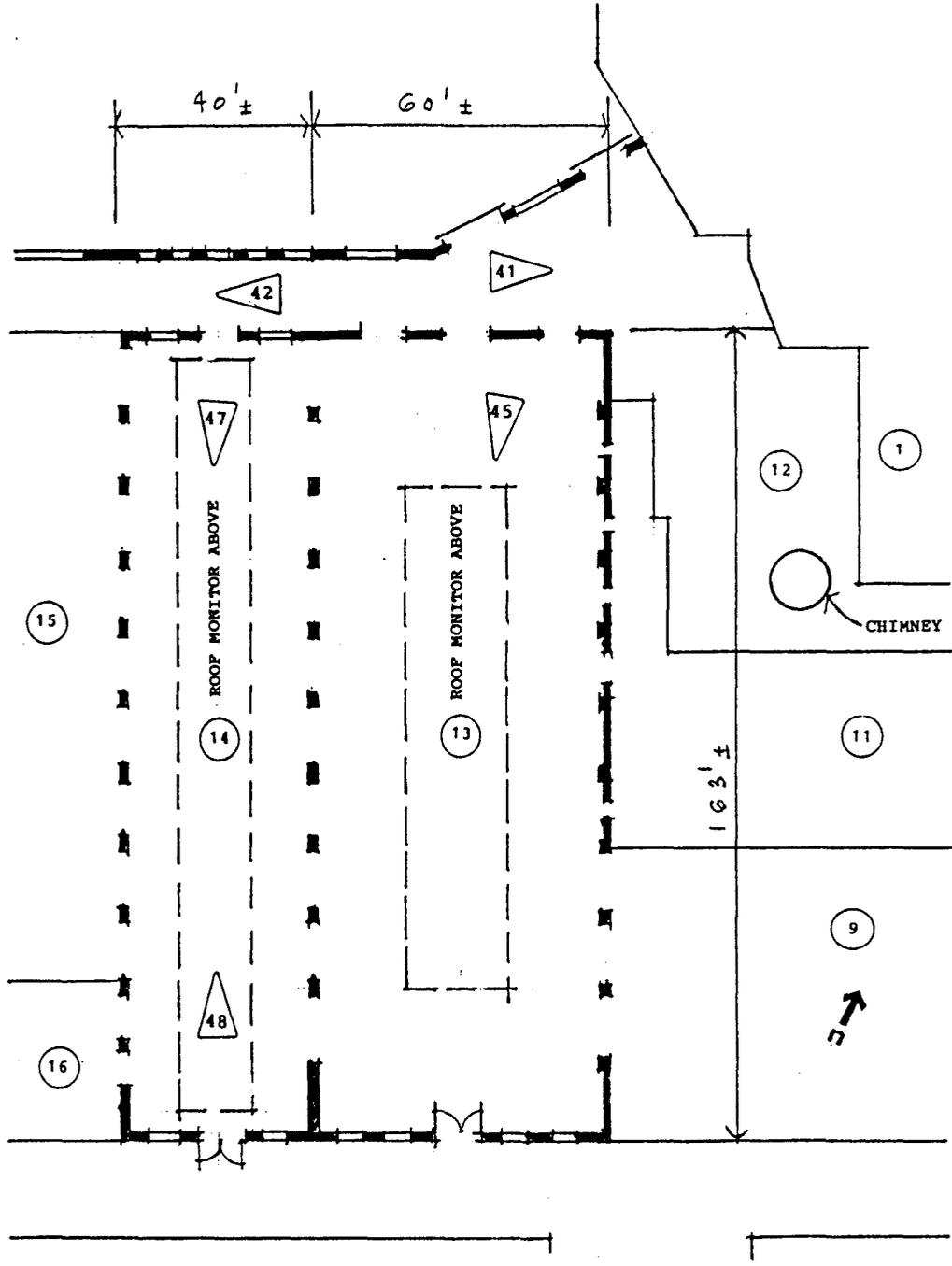
BUILDING 7
GROUND FLOOR PLAN
No Scale

Sketch Floor Plans
York Manufacturing Company (York Ice Machine Company)
HABS No. PA - 6011 (Page 43)



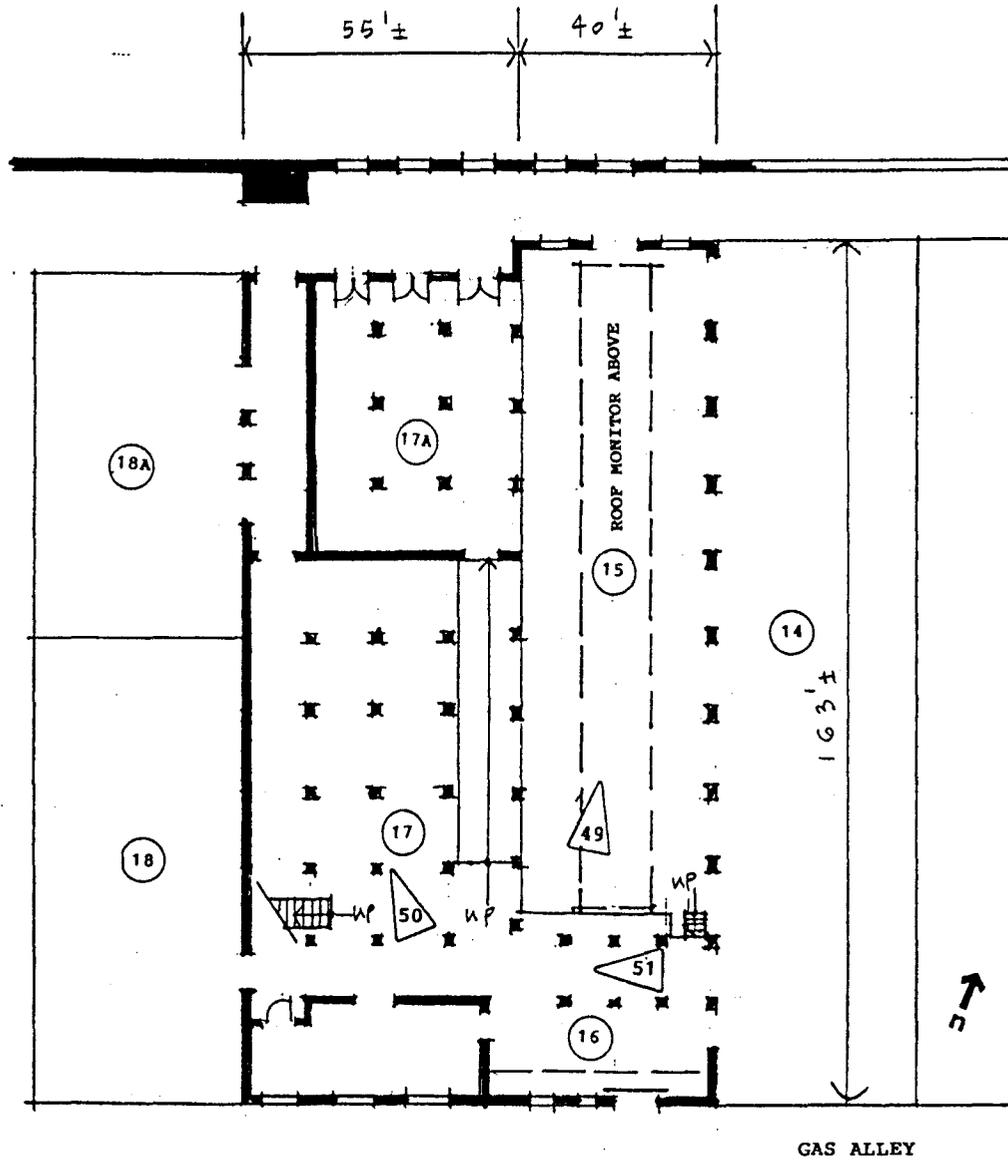
BUILDINGS 9, 10, 11
GROUND FLOOR PLAN
No Scale

Sketch Floor Plans
York Manufacturing Company (York Ice Machine Company)
HABS No. PA - 6011 (Page 44)



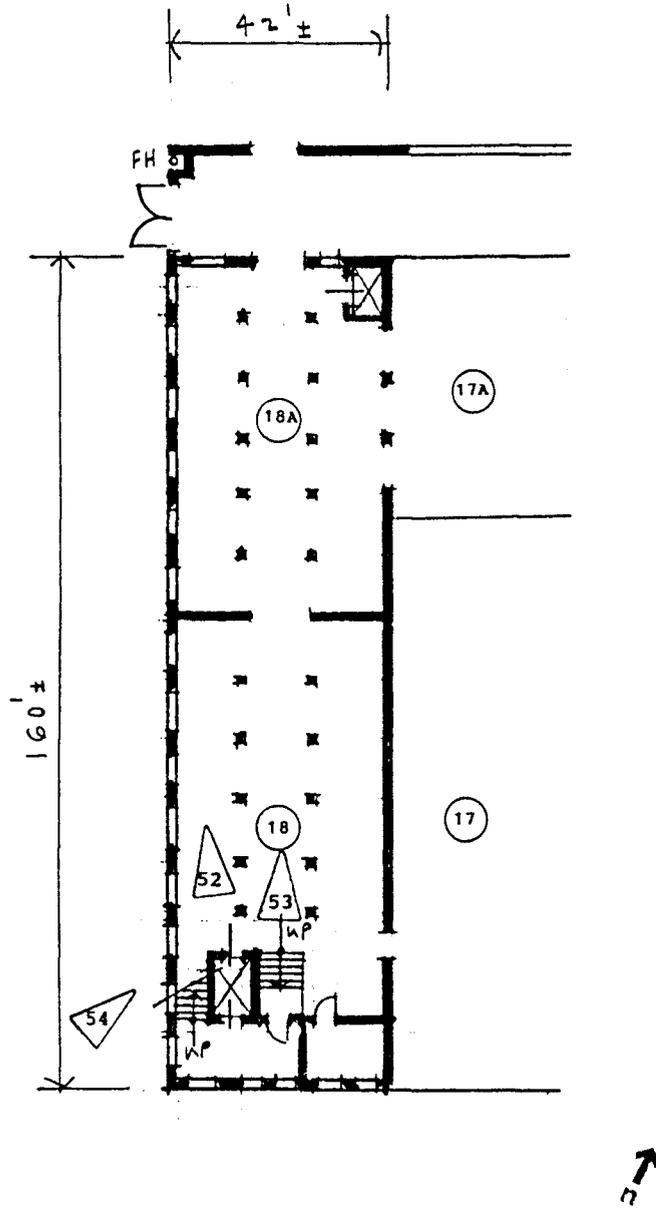
BUILDINGS 13, 14
GROUND FLOOR PLAN
No Scale

Sketch Floor Plans
York Manufacturing Company (York Ice Machine Company)
HABS No. PA - 6011 (Page 45)



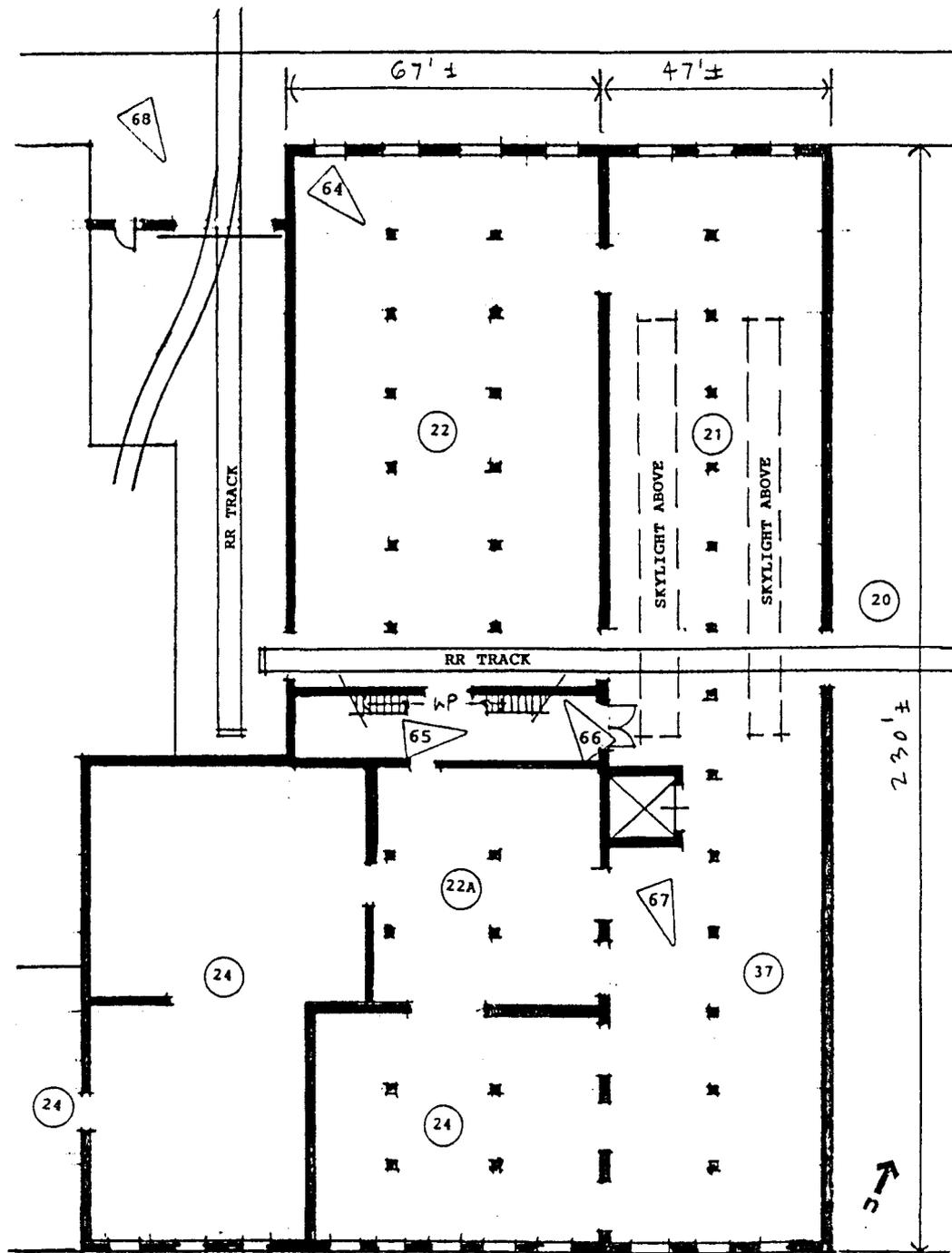
BUILDINGS 15, 16, 17, 17A
GROUND FLOOR PLAN
No Scale

Sketch Floor Plans
York Manufacturing Company (York Ice Machine Company)
HABS No. PA - 6011 (Page 46)



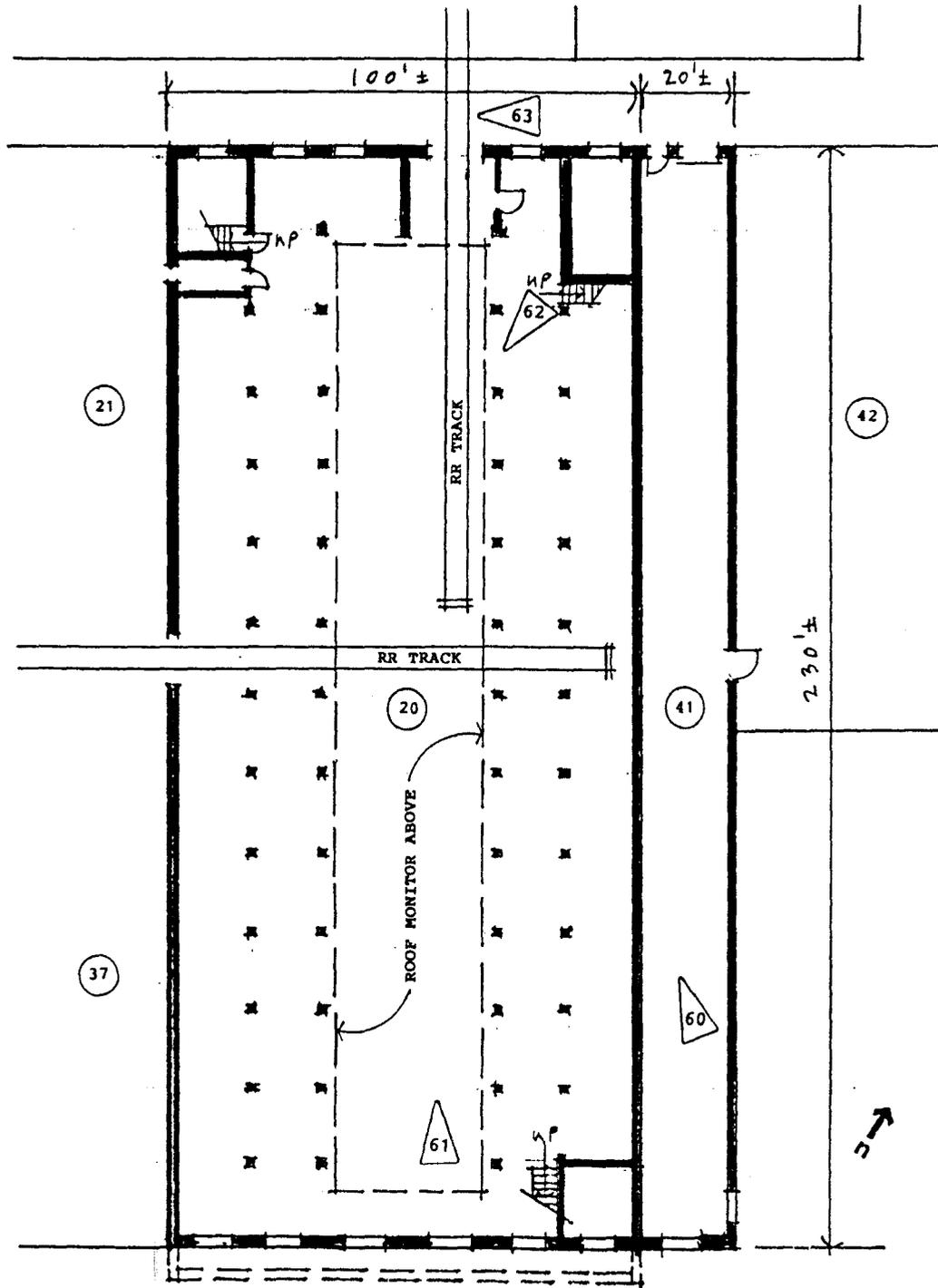
BUILDING 18
GROUND FLOOR PLAN
No Scale

Sketch Floor Plans
York Manufacturing Company (York Ice Machine Company)
HABS No. PA - 6011 (Page 47)



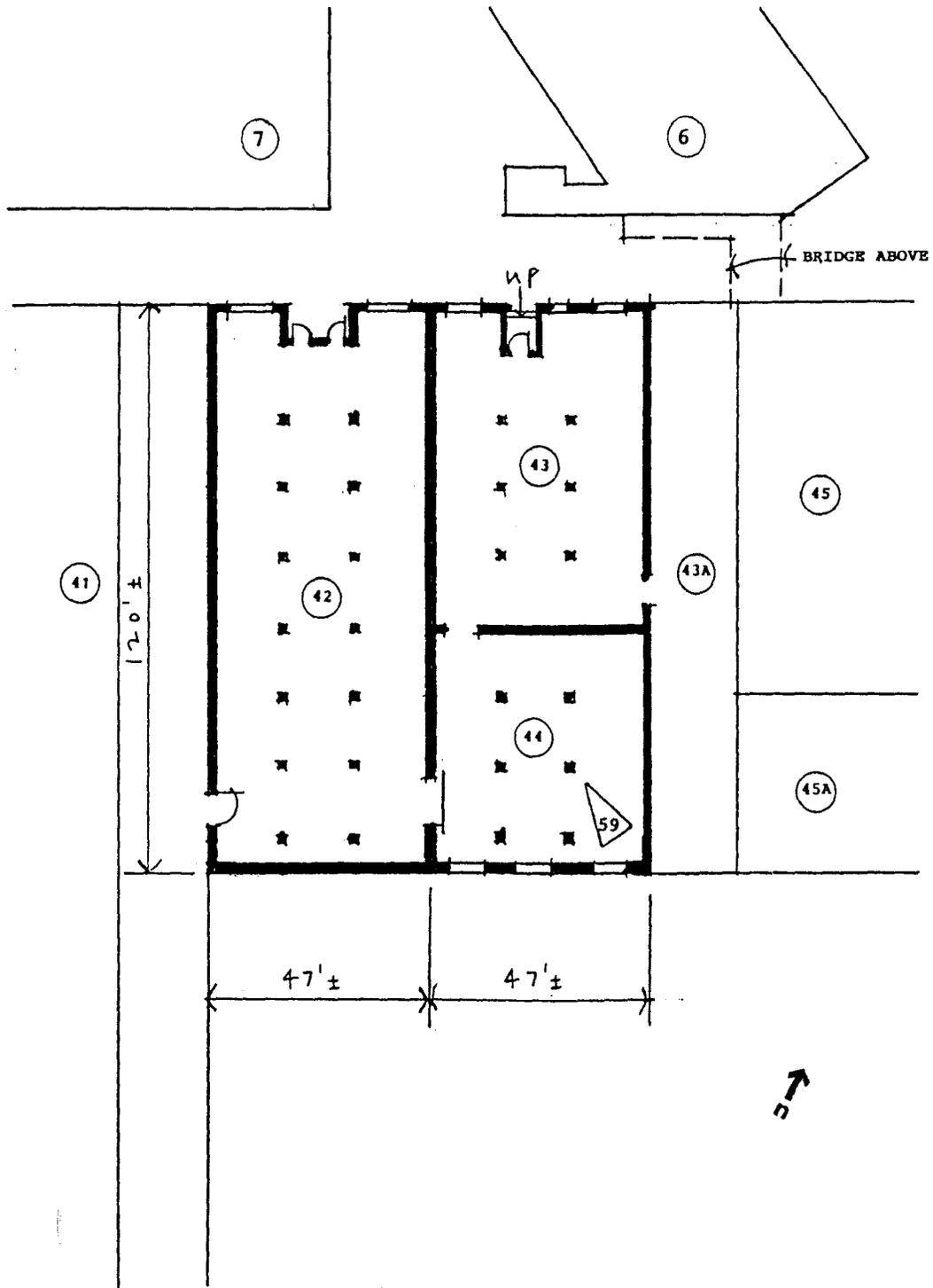
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GROUND FLOOR PLAN
No Scale

Sketch Floor Plans
York Manufacturing Company (York Ice Machine Company)
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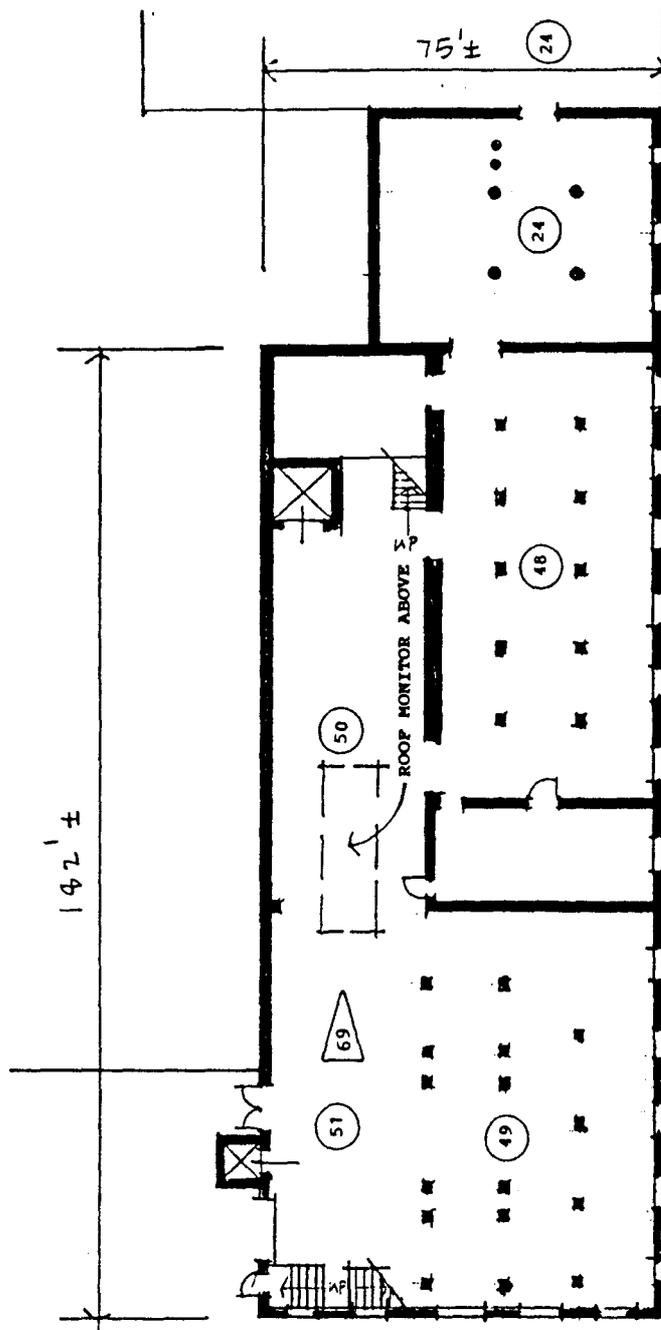
BUILDINGS 41, 20
GROUND FLOOR PLAN
No Scale

Sketch Floor Plans
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BUILDINGS 42, 43, 44
GROUND FLOOR PLAN
No Scale

Sketch Floor Plans
York Manufacturing Company (York Ice Machine Company)
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BUILDINGS 24, 48, 49, 50, 51
GROUND FLOOR PLAN
No Scale