

SPICER MANUFACTURING COMPANY, SOUTH PLAINFIELD  
WORKS, BUILDINGS 6 AND 22  
(Stamping and Machine Shop/Heat Treat Buildings)  
333 Hamilton Avenue  
South Plainfield  
Middlesex County  
New Jersey

HAER NJ-144-F  
*HAER NJ-144-F*

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD  
National Park Service  
U.S. Department of the Interior  
1849 C Street NW  
Washington, DC 20240-0001

## HISTORIC AMERICAN ENGINEERING RECORD

### SPICER MANUFACTURING COMPANY, SOUTH PLAINFIELD WORKS, BUILDINGS 6 AND 22

(Spicer Manufacturing Company, South Plainfield Works, Stamping and Machine Shop/Heat Treat Buildings)

HAER No. NJ-144-F

Location: 333 Hamilton Avenue  
Borough of South Plainfield  
Middlesex County  
New Jersey

U.S. Geological Survey Plainfield Quadrangle  
UTM Coordinates 18.549712.4491934

Dates of Construction: c1915-1923

Present Owners: DSC of Newark Enterprises, Inc.  
70 Blanchard Street  
Newark, NJ 07105

Present Use: Demolished

Significance: The South Plainfield Works, originally developed by the Spicer Manufacturing Company beginning in 1910, was a nationally-significant center for the manufacture of universal joints and propeller shafts for automobiles and aircraft. The Stamping Building (Building 6) was built during the first phase of plant expansion to make sheet metal universal joint components. The Machine Shop and Heat Treating Building (Building 22) was probably built during or immediately after World War I, to expand heat treating facilities and to enhance division of labor among the plant's various machine shops.

Project Information: Surviving structures of the former South Plainfield Works were part of the Cornell-Dubilier Electronics Superfund Site, and were demolished in 2007-2008 as part of site remediation activities outlined in the September 2004 Record of Decision as administered by the U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers. Federal authority brought the project under the purview of federal acts and regulation protecting significant cultural resources from adverse project effects.\* Prior to demolition, the Spicer Manufacturing Corporation structures were determined eligible for inclusion on the National Register of Historic Places by the New Jersey State Historic Preservation Office, because of the South Plainfield Works' significance in American transportation history. Documentation of the plant to standards of the Historic American Engineering Record was completed to mitigate the removal of the significant resources.

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National Historic Preservation Act of 1966 (PL 89-655), the National Environmental Policy Act of 1969 (PL 91-190), the Archaeological and Historical Preservation Act (PL 93-291), Executive Order 11593, Procedures for the Protection of Historic and Cultural Properties (36 CFR Part 800).

Project Manager and Historian

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Buildings 6 and 22 were adjacent one-story, steel-framed brick structures at the South Plainfield Works, built at different times for different functions. Historical maps and bird's-eye views indicate Building 6, the Stamping Building, was constructed c1915 during the first period of plant expansion. Sheet steel was stamped and drawn into universal joint components including the housings or casings, and retainers for the springs added to some joint models after c1912. Building 22, designated the Machine Shop and Heat Treat Building on a 1926 map, was built along the Stamping Building's northeast wall during or immediately following World War I to expand a variety of operations. In addition to providing more space for heat treating immediately southwest of the plant's first heat-treating facilities, Building 22 had areas for finishing steel bushings and forged steel journals reflecting increased departmentalization of the plant's numerous machining operations, a service department evidently addressing product problems, and a department making unidentified "special parts." The latter were probably non-catalog products made to order. There was also a small area for storage of machine belts used in many departments. Buildings 6 and 22 were structurally distinct, but shared a concrete block wall in 2007 which probably reflected the original re-working of the older structure when the later one was first constructed. Two openings in this wall, one fronting a concrete ramp in Building 22, linked the two structures and may reflect conditions as of c1918-1923. No original equipment or other interior partitions survived in 2007 (Figures 1-7; Spicer Manufacturing Company 1915; Dunham-Clarín Company 1917; Spicer Manufacturing Corporation n.d.: 6, 1919, 1920: 15, 1923, 1926).

### **Stamping Building**

As first built, the Stamping Building was a 201-by-90-foot, 15-foot-high, three-bay-wide structure with 12-inch-thick brick walls on concrete foundations, and a concrete floor. Interior brick pilasters 15 to 17 inches wide around the perimeter defined ten 20-foot-wide transverse bays, each of which was divided by columns into three longitudinal bays approximately 30 feet wide. The pilasters and two longitudinal rows of columns supported roof joists and purlins. At the horizontal top of the northwest wall, the use of wood blocks to raise the roof joist showed the slope of a very low, asymmetrical end-gable wood roof documented in 2007. One historical photograph taken prior to construction of Building 22 suggests the wood roof and its supports may be original, but these components may represent reconstruction c1918-1923 when Building 22 was built and the original northeast wall of Building 6 was replaced. The roof as documented was supported by steel columns in the building interior and along the concrete block northeast wall, 6-by-18-inch steel I-beam joists, and paired 3-by-8-inch wood purlins at longitudinal 8-foot-centers. The roof peak was above the northern line of interior columns, which were 14.7-foot-high, 7-by-7.5-inch riveted lattices on 3-inch-high concrete bases. The southern interior line of columns, as well as those in the northeast wall, were 14.6-foot-high 4-by-9-inch I-beams on 4-inch-high concrete bases. 2007 conditions and one historical photograph indicate that original fenestration included large metal sash with fixed and tilt sections, running continuously on both long sides in 10.4-foot-high, 18.5-foot-wide sections. The less well-lit northwest wall originally had two 8.8-foot-high windows, 8 and 14 feet wide, and three hinged or sliding doors. The windows on the southwest and northwest walls were largely infilled with concrete block and smaller fixed-sash lights sometime after the Spicer Manufacturing Corporation period of occupation (Figures 2 and 7; Photographs HAER Nos. NJ-144-F-1, NJ-144-F-2, and NJ-144-F-4).

The southeast wall was extended or modified several times c1916-1926 for office or storage space. By c1917, an 8-foot-wide, brick-sided, shed-roof section extended the northmost longitudinal bay, penetrated at the 8.7-foot-high exterior by two small fixed-sash windows and a 6-foot-wide opening which was fitted in 2007 with an 8-foot-high metal roll-up door. Part of the original Stamping Building wall was evidently removed for

this small addition, leaving one brick pilaster free standing to support the southeastmost roof joist. By 1926, this small addition was extended 9 feet southwest to meet the end wall of a contiguous but structurally-separate wood-framed 36-by-14-foot shed-roof addition built near the south corner of Building 6 (Figures 3, 6, 7; Dunham-Clarín Company 1917; Spicer Manufacturing Corporation 1926; Day 1929; Photographs HAER Nos. NJ-144-F-2 through NJ-144-F-3).

Following the Spicer Manufacturing Corporation period of occupation, part of Building 6 was used to distribute power to the plant from New Jersey Public Service, with a main switchboard (Nall 1940: 15). This equipment was not present in 2007. Aside from window infilling noted above, the main post-1930 modifications visible in 2007 were interior wood-framed office spaces, and the partitioning of the building into two sections with a transverse concrete-block wall (Figure 7).

### **Machine Shop and Heat Treat Building**

As constructed c1918-1923, 90-foot-wide Building 22 was similar in scale and material to Building 6, with three longitudinal sawtooth-roofed bays supported by trusses at approximate 20-foot longitudinal centers. The two southwest bays were 201 feet long, extending 40 feet beyond the northeast bay to create an ell-shaped footprint. The 40-by-60-foot southeast corner was originally an area used to store parts for the Service Department. Each sawtooth roof section, with the former lights facing northeast and a wood-roofed southwest slope, reached an exterior peak 25.7 feet high and low points 17.8 feet above the ground. The lights as documented in 2007 were covered with roofing material. Brick exterior roof ends had ceramic-pipe parapets; the brick monitor wall at the southeast end of the northeast bay was replaced with siding of unidentified material and light wood framing, probably c1941-1947 when an addition discussed below was built. Roof trusses beginning 13.4 feet above the concrete floor were supported by 16-inch-wide brick pilasters along the interior of the northeast wall, composite 6-by-6-inch riveted steel columns with paired channels, and by the steel columns noted above in the concrete block wall separating Buildings 6 and 22. Each steel truss had a composite 4-by-4-inch lower chord of paired steel angles, upper chords of paired 3-by-6- and 2-by-4-inch steel angles, and vertical and horizontal braces of paired 2-by-2-inch steel angles. Paired 2-by-8-inch steel angles braced the trusses longitudinally, between columns and between two points in each bottom chord (Figures 4-7; Spicer Manufacturing Corporation 1923, 1926; Sanborn Insurance Company 1925; Day 1929; U.S. Department of War 1941; Photographs HAER Nos. NJ-144-F-3 through NJ-144-F-6 and NJ-144-F-8 through NJ-144-F-9).

The original exterior of 14-inch-thick brick walls on concrete foundations was penetrated by a number of steel-sash windows, probably with fixed and tilt sections, all but one of which was infilled with concrete block and smaller windows sometime after c1930. On the northeast wall, there appear to have been six 10.3-foot-high windows approximately 18 feet wide, with 7-inch-high concrete sills and 8-inch-high I-beam lintels. Man-doors in the remaining two bays on this wall — part of which was rebuilt in concrete block after c1930 — provided access to the journal and heat treatment areas. On the northwest wall, there was a 23.4-foot long, 8.8-foot high window in the northmost longitudinal bay, with a 7-inch-high concrete sill and a 15-inch-high I-beam lintel. This window, penetrated at its southwest end by a man-door probably installed after c1930, survived in 2007. At each end of the southmost longitudinal bay, original construction included window openings of similar scale and type; the central 10 feet in each opening consisted of a 12.5-foot high wood roll-up door in 2007, which may represent a post-1930 modification. Two doors in the northwest wall, one of which was an 11-foot-high wood roll-up, opened into the central longitudinal bay and appear to correspond

to the locations of original doors. Physical evidence suggests the opposite end of the same bay was accessed through two small garage doors, into the original space used to store service parts. The northeast end of this space had a 14-foot-long, 13.4-foot-high window which survived in 2007 (Figures 4-7; Photographs HAER Nos. NJ-144-F-3 and NJ-144-F-4 through NJ-144-F-6).

At the northeast corner of Building 22, a 96-by-36-foot concrete-block-wall, steel-framed room with a shed roof was built c1941-1947 and involved removal and reconstruction of some earlier wall sections. Aside from the exterior modifications noted above, Building 22 remained structurally intact in 2007 with the addition of some interior office and bathroom space, and a transverse concrete-block wall (Figures 1, 6; Sanborn Insurance Company 1925; U.S. Department of War 1941; Photograph HAER Nos. NJ-144-F-9).

## **SOURCES OF INFORMATION/BIBLIOGRAPHY**

### **A. Historical Photographs**

One photograph (No. 1146) in the collections of The History Factory, Chantilly, Virginia shows the northeast side of Building 6 prior to construction of Building 22. Several other photographs in this collection show stamping operations, but in some cases it is not clear if they represent work at the South Plainfield Works. One photograph in a company publication appears to show stamping in Building 6 (Spicer Manufacturing Corporation n.d.: 6).

### **B. Bibliography**

Day, Joseph P.

- 1929 3 Factories for Sale Formerly Occupied by Spicer Mfg. Co. Joseph P. Day Real Estate Agent, New York, New York. Original in the collections of The History Factory, Chantilly, Virginia. Archive Number 11-0-0-8-4 (827).

Dunham-Clarín Company

- 1917 Map of Property Situated at South Plainfield, Middlesex County, New Jersey, Property of Spicer Manufacturing Corporation, July, 11, 1917. Original in the collections of The History Factory, Chantilly, Virginia. Archive Number 11-0-0-6-3942.

Nalls, R.L.

- 1940 Cornell-Dubilier Electric Corporation. Federal Bureau of Investigation Plant Survey, Newark, NJ, File No. 99-92. National Archives and Record Administration.

Sanborn Insurance Company

- 1925 Insurance Maps of Plainfield, New Jersey. [updated to c1947]. New York, New York. Copy in the collections of the Alexander Library, Rutgers University, New Brunswick, New Jersey.

Spicer Manufacturing Company

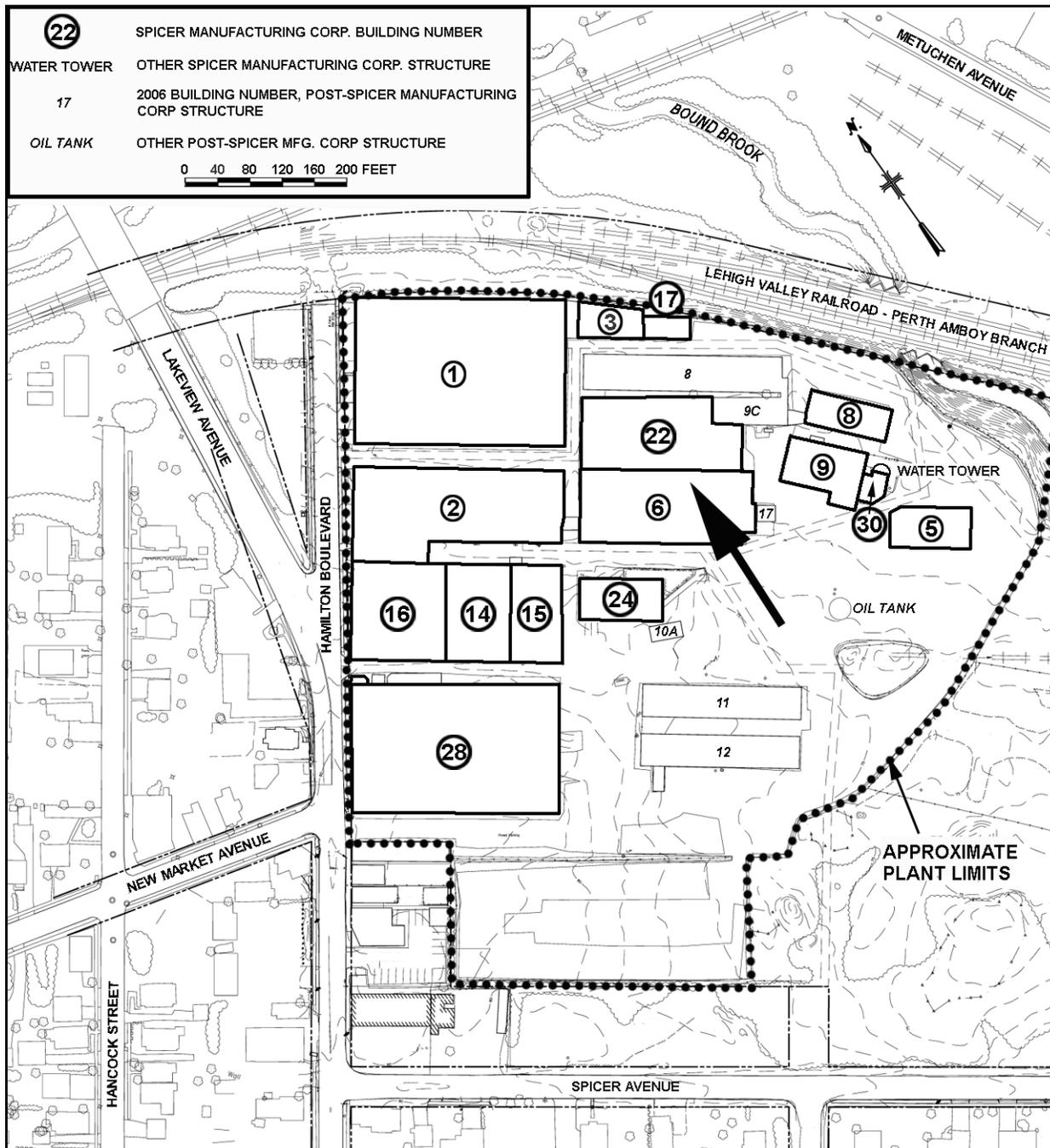
- 1915 Bird's Eye View of the Spicer Manufacturing Company." Original in the collections of The History Factory, Chantilly, Virginia. Archive Number 1-5-6-3-1 (741).

Spicer Manufacturing Corporation

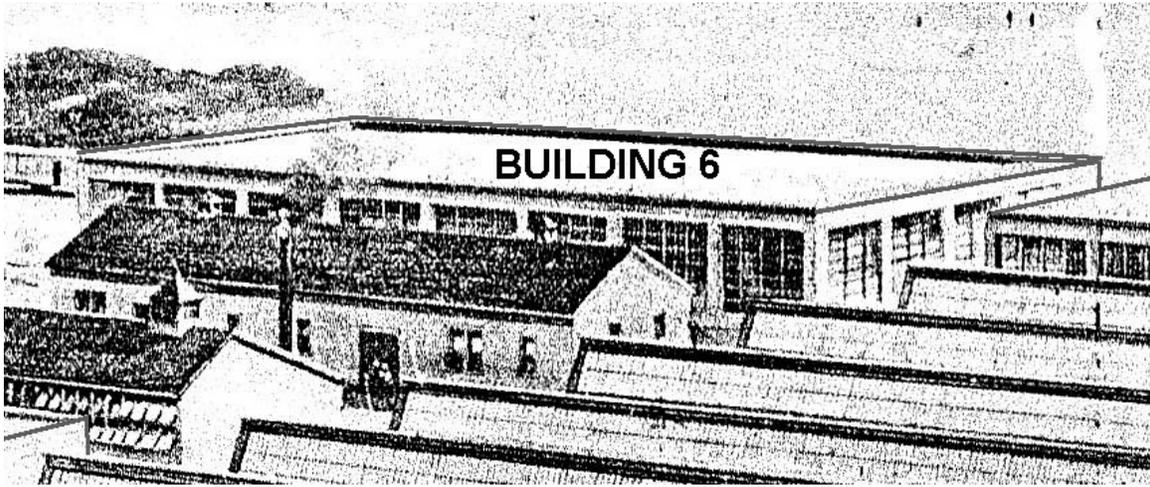
- n.d. Spicer Propeller Shafts for Motor Cars. Original in the collections of The History Factory, Chantilly, Virginia. Archive Number 5-3-0-1-6 (401).
- 1919 Spicer Universal Joints Catalog No. 13. Original in the collections of The History Factory, Chantilly, Virginia. Archive Number 5-3-0-1-6 (401).
- 1920 Spicer Universal Joints and Propeller Shafts. Original in the collections of The History Factory, Chantilly, Virginia. Archive Number 5-3-0-1-6 (401).
- 1923 South Plainfield Works of the Spicer Manufacturing Corporation, South Plainfield, New Jersey. Copy in the collections of The History Factory, Chantilly, Virginia. Archive Number 05050000102021301.
- 1926 Department and Building Location Plan, Spicer Manufacturing Corporation, South Plainfield, New Jersey. Original in the collections of The History Factory, Chantilly, Virginia. Archive Number 5-4-0-0-(432).

U.S. Department of War

- 1941 A Brief of F.B.I. Plant Survey of Cornell Dubilier Electric Corporation [sic]/South Plainfield, New Jersey. National Archives and Record Administration.



**Figure 1. BUILDINGS 6 & 22 LOCATION AT FORMER SPICER MANUFACTURING CORP. PLANT**



**Figure 2. DETAIL TO SOUTH OF BUILDING 6 c1915**  
Source: Spicer Manufacturing Company 1915

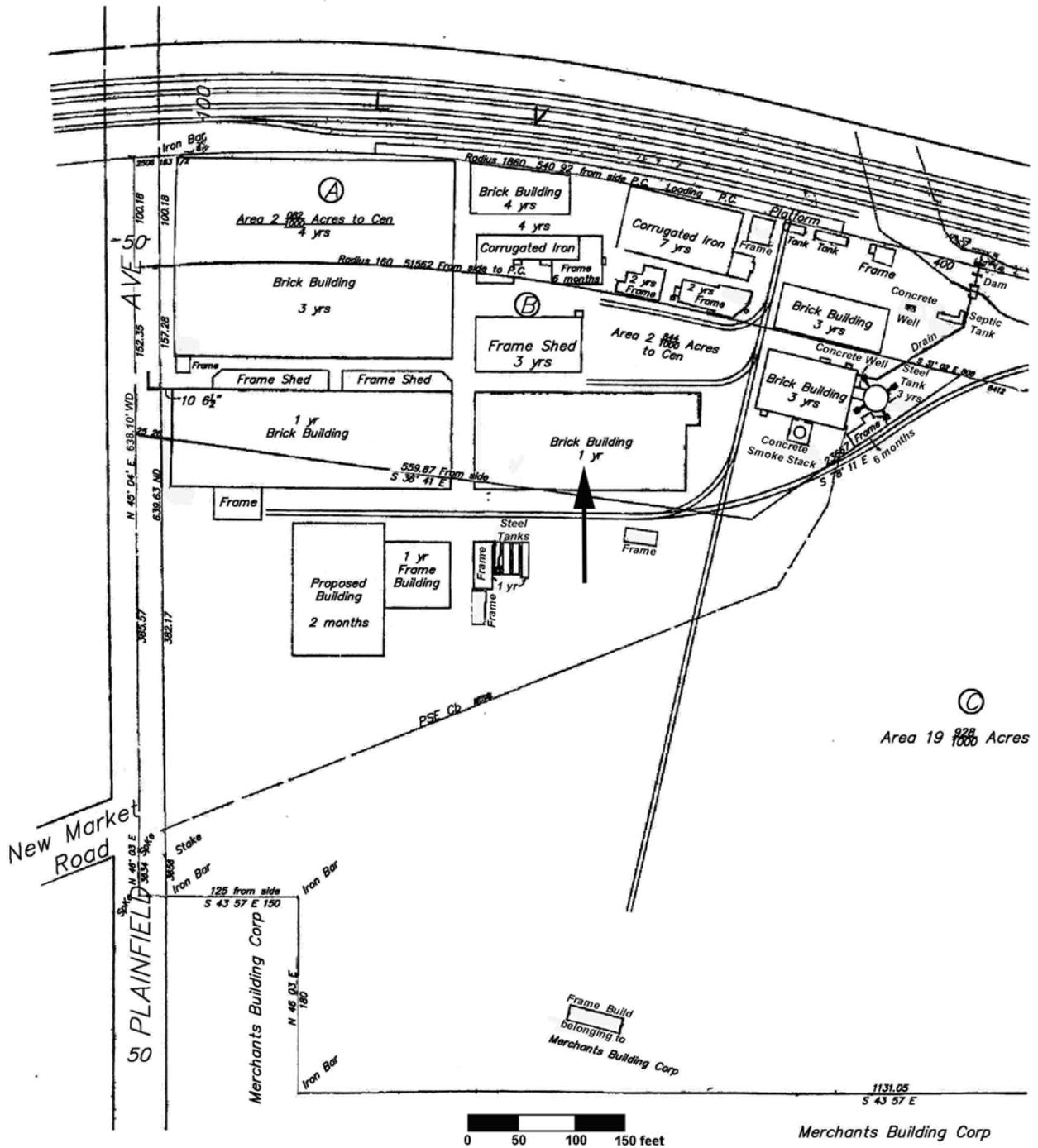
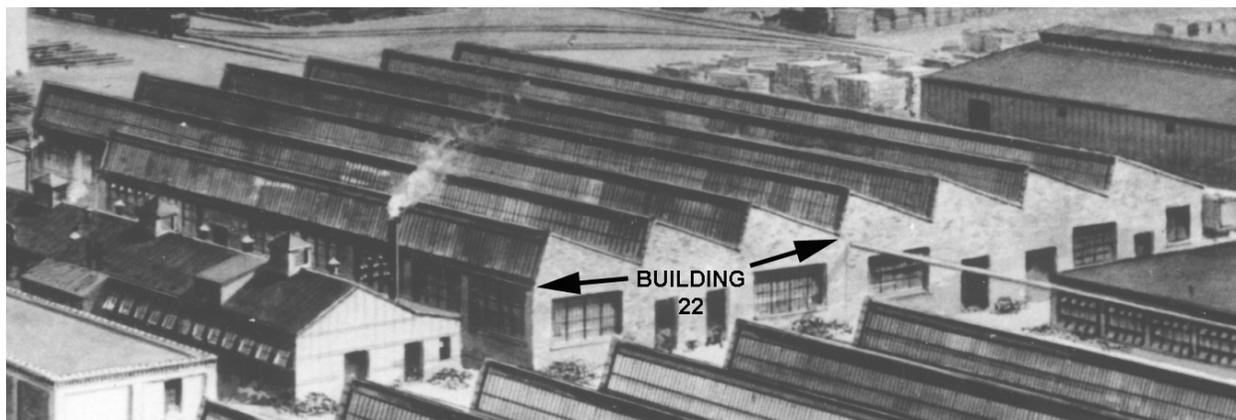


Figure 3. BUILDING 6 AND 1917 SOUTH PLAINFIELD WORKS  
 Source: Dunham-Clarín Company 1917, with re-lettering



**Figure 4. BUILDINGS 6 AND 22 AT 1923 SOUTH PLAINFIELD WORKS**

Source: Spicer Manufacturing Corporation 1923

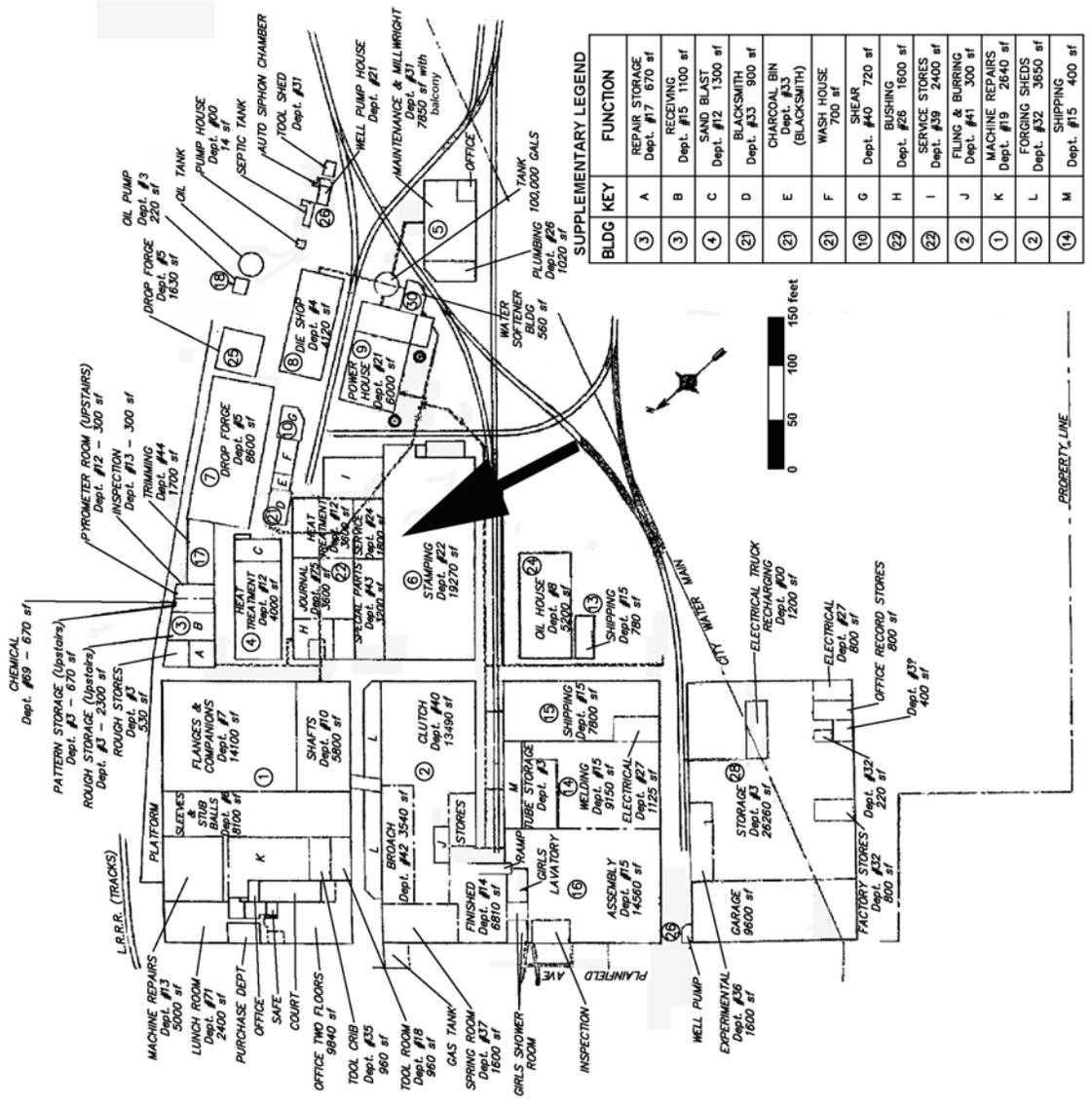
In this south-facing view, Building 22 as labeled is accurately represented at center, including the asymmetrical length of the three longitudinal bays. To the right of Building 22, a four-bay sawtooth-roofed structure is a highly inaccurate representation of Building 6, showing the wrong type of roof and an additional longitudinal bay. The inaccuracy is confirmed by one historical photograph, and the images shown in Figures 2-3 and 5-6.

SPICER MANUFACTURING COMPANY, SOUTH PLAINFIELD WORKS, BUILDINGS 6 AND 22  
 (Spicer Manufacturing Company, South Plainfield Works, Stamping and Machine Shop/Heat Treat Buildings)

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DEPARTMENT				BUILDING			
No.	Name	Area	No.	Name	Area		
1	Office & Drafting	37760	1	Administration	11640	19968	
2	Stores	37760	2	Machine Shop	25920	25920	
3	Stores	37760	3	Receiving & Mfg.	7346	7346	
4	Dies	4120	4	Heat Treat & Sand	5300	8876	
5	Forge	10260	5	Blot	19968	19968	
6	Sleeves & Balls	8100	6	Millwright	8640	8640	
7	Flanges	14100	7	Stamping	4120	4120	
8	Shafts	5800	8	Die Shop	6000	6000	
9	Shafts	5800	9	Power House	1425	1425	
10	Shafts	5800	10	Shear Shed and Wash House	9025	9025	
11	Heat Treat	9600	11	Shipping	16920	16920	
12	Heat Treat	9600	12	Office Shed	1705	1705	
13	Inspection	700	13	Pump House	226	226	
14	Finished & Semi-Finished	6810	14	Blacksmith Shop & Heat Treat	1000	1000	
15	Stores, Receiving, & Shipping	35072	15	Machine Shop	16800	16800	
16	Tool Room	960	16	Assembly & Prod	16920	16920	
17	Machine Repair	8310	17	Office Shed	1705	1705	
18	Power House	6850	18	Pump House	226	226	
19	Stamping	19270	19	Blacksmith Shop & Heat Treat	1000	1000	
20	Service	1800	20	Oil House	5205	5205	
21	Service	1600	21	Forge	1626	1626	
22	Plumbing	1020	22	Well Pump House	170	170	
23	Electrical	1925	23	Storage & Garage	41600	41600	
24	Guards	22	24	Well Pump & Water Softener	560	560	
25	Guards	22	25	Blot	19968	19968	
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98	Guards	22	98	Blot	19968	19968	
99	Guards	22	99	Blot	19968	19968	
100	Guards	22	100	Blot	19968	19968	
Total		250002	Total		250002		



**SUPPLEMENTARY LEGEND**

BLDG KEY	FUNCTION
(3) A	REPAIR STORAGE Dept. #17 670 sf
(3) B	RECEIVING Dept. #15 1100 sf
(4) C	SAND BLAST Dept. #12 1300 sf
(2) D	BLACKSMITH Dept. #33 900 sf
(2) E	CHARCOAL BIN (BLACKSMITH) Dept. #33
(2) F	WASH HOUSE 700 sf
(10) G	SHEAR Dept. #40 720 sf
(2) H	BUSHING Dept. #28 1600 sf
(2) I	SERVICE STORES Dept. #39 2400 sf
(2) J	FILE & BURRING Dept. #31 300 sf
(1) K	MACHINE REPAIRS Dept. #19 2640 sf
(2) L	FORGING SHEDS Dept. #32 3650 sf
(1) M	SHIPPING Dept. #15 400 sf

Figure 5. BUILDINGS 6 AND 22 AT 1926 SOUTH PLAINFIELD WORKS  
 Source: Spicer Manufacturing Corporation 1926, with re-lettering



