

SPICER MANUFACTURING COMPANY, SOUTH PLAINFIELD  
WORKS, BUILDING 8  
(Die Sinking Shop)  
333 Hamilton Avenue  
South Plainfield  
Middlesex County  
New Jersey

HAER NJ-144-H  
*HAER NJ-144-H*

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, BUILDING 8

(Spicer Manufacturing Company, South Plainfield Works, Die Sinking Shop)

HAER No. NJ-144-H

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: c1910-1912

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 Die Sinking Shop made dies used in forging and stamping operations.

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 mitigation 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.

---

\*

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).

**SPICER MANUFACTURING COMPANY, SOUTH PLAINFIELD WORKS, BUILDING 8**

(Spicer Manufacturing Company, South Plainfield Works, Die Sinking Shop)

HAER No. NJ-144-H

(Page 2)

Project Manager and Historian

Michael S. Raber

Raber Associates

81 Dayton Road, P.O. Box 46

South Glastonbury, CT 06073

860/633-9026

Photographer and Electric Power Historian

Gerald Weinstein

40 West 77th Street, Apt. 17b

New York, NY 10024

212/431-6100

Additional Photography

Thomas R. Flagg

70 West 95th St, #23H

New York, NY 10025-6738

212/864-1006

Associate Historian

Eugene J. Boesch

Malcolm Pirnie, Inc.

104 Corporate Park Drive

White Plains, New York 10602

845-628-3826

## SPICER MANUFACTURING COMPANY, SOUTH PLAINFIELD WORKS, BUILDING 8

(Spicer Manufacturing Company, South Plainfield Works, Die Sinking Shop)

HAER No. NJ-144-H

(Page 3)

Drop forging, stamping, and drawing operations at the South Plainfield Works used steel dies with the negative image of the part to be created. Creating a die involved machining a cavity in a steel block with a metal-pattern-controlled vertical-spindle milling machine, careful hand finishing, and temper hardening. The process was among the most skilled of those needed at the plant, and Clarence Spicer built the Die Sinking Shop here by c1912. The framing with reinforced concrete columns and beams, replicating earlier timber-framed factory building designs, is an example of transitional concrete construction during the decade after c1905 when flat floor and roof slabs were first cast integral with columns, allowing the elimination of the deep beams seen in Building 8 and somewhat more dramatically in Building 3 (HAER No. NJ-144-E). There is no written or graphic information on work done in this building, but historical maps and views indicate the 103.2-by-42.9-foot structure retained considerable physical integrity in 2007 (Figures 2, 3, 5, 8; Lesley 1907; Spicer Manufacturing Company 1913, 1915; Spicer Manufacturing Corporation 1923; Gordon and Malone 1994: 334, 380).

The flat-roofed, one-story Die Sinking Shop was framed in reinforced concrete on foundations of similar material, and rose 17.6 feet above the foundation to a ceramic-pipe-topped parapet on a 1.2-foot-high dentilated brick cornice. Nine 13.7-foot-high, 1.7-by-3-foot exterior concrete columns, and two 3-foot-square columns at the ends of the northwest wall, defined five longitudinal and two transverse bays each 20 feet long and supported 1.5-foot-high concrete beams on all but the southeast facade. Original walls consisted of 12-inch-thick brick, penetrated on all but the northwest side by 17-foot-wide, steel-sash, fixed-and-movable-light windows with concrete sills. The larger windows were typically 10.8 or 10.2 feet high. On the northeast wall, windows in the two northerly bays were 6.1 feet high above two man-doors and an 8.5-foot-wide freight opening which in 2007 was a metal roll-up door. A 1913 plan indicates these openings, and a third largely-removed man-door opening in the central bay of the same wall, were part of original construction. This plan also suggests that a wood roll-up door in the southeast wall replaced an original window sometime after original construction. The northwest wall had four 2.2-foot-wide, 4.8-foot-high fixed metal-sash windows with concrete sills. The principal modifications to the building after 1929 were concrete-block infill placed in the lower halves of all the large windows (Figures 2, 3, 5, 8; Spicer Manufacturing Company 1913, 1915; Spicer Manufacturing Corporation 1923; Photographs HAER No. NJ-144- ; HAER No. NJ-144-H-1).

The flat concrete, composition-topped roof was supported by five interior 1-foot-square, 15.3-foot-high reinforced-concrete columns on the longitudinal centerline, and an array of 1.5-foot-high reinforced-concrete beams. One of the interior columns abutted the southeast wall. Longitudinal beams were 6 inches thick on approximate 6.5-foot centers, and transverse beams running between exterior columns were 8 inches thick on 20-foot centers. The northwest transverse bay was separated from the rest of the interior by a 7-inch-thick tile-block wall, reinforced by a 10-by-5-inch steel I-beam running between exterior columns 11.3 feet above the floor and supported by concrete flanges on the columns. A wood-framed longitudinal cement wall subdivided this bay into two office or storage areas, and similar walls southeast of the tile-block partition defined office or storage space and a bathroom. The 1913 plan suggests all the major interior spaces other than the bathroom were part of original construction, although the north-most office spaces had wood partitions and low ceilings which probably post-dated the Spicer Manufacturing Corporation's use of the plant (Figure 8; Spicer Manufacturing Company 1913; Photograph HAER No. NJ-144-H-2).

## **SOURCES OF INFORMATION/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.

Gordon, Robert B., and Patrick M. Malone

- 1994 *The Texture of Industry*. New York: Oxford University Press.

Lesley, Robert W., comp.

- 1907 *Concrete Factories: An illustrated review.....* New York: Bruce & Banning for Cement Age Company.

Oberg, Erik, and F. D. Jones

- 1945 *Machinery's Handbook for Machine Shop and Drafting-Room*. 12<sup>th</sup> edition. New York: The Industrial Press.

Spicer Manufacturing Company

- 1913 Diagram Showing Location of Watchmen's Keys – Spicer Manufacturing Company. Original in the collections of The History Factory, Chantilly, Virginia. Archive Number 1-2-6-4-1 (504).

- 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

- 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.

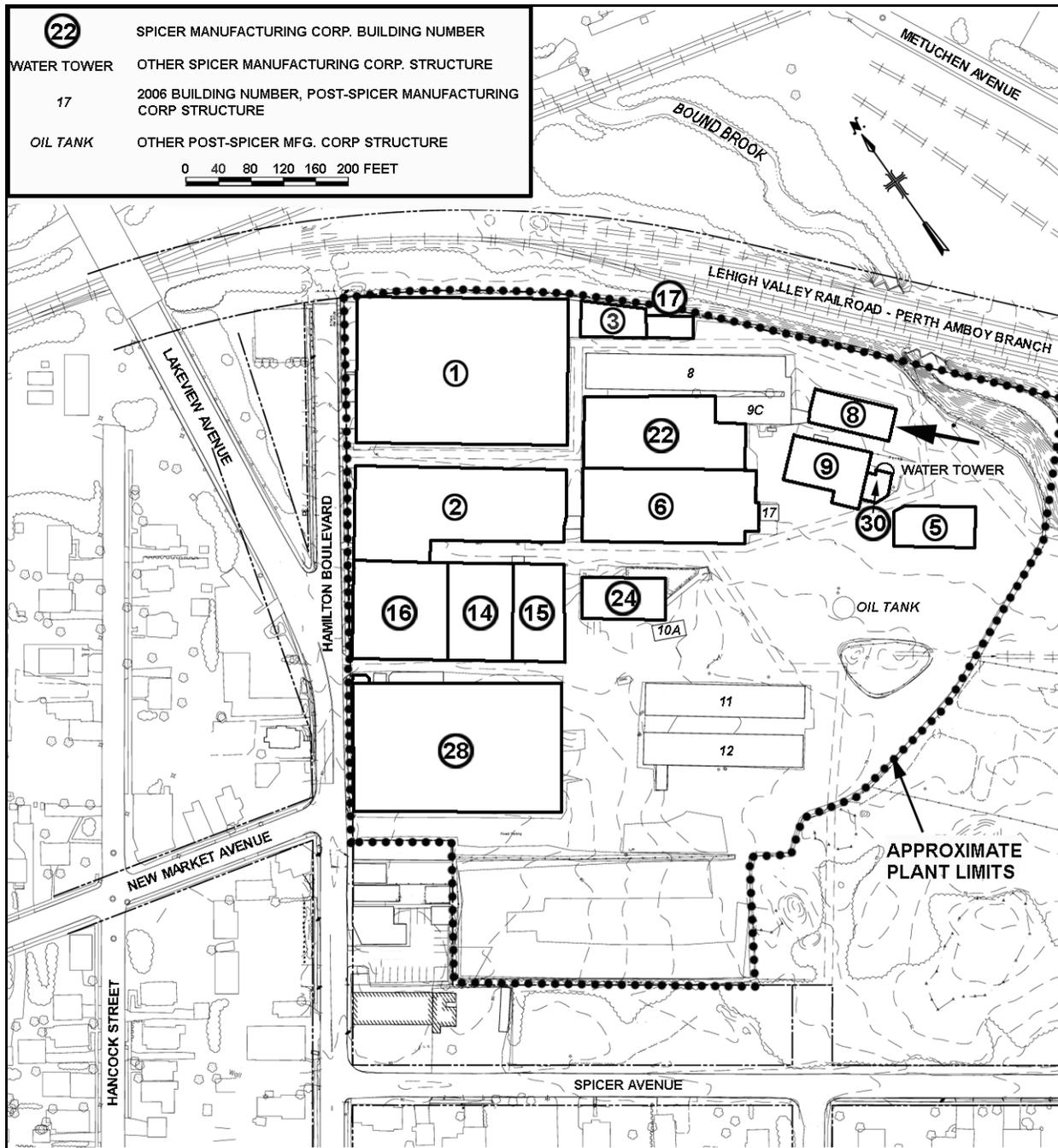
- 1926 Department and Building Location Plan, Spicer Manufacturing Corporation, South Plainfield, New Jersey. Original in the collections of The History Factory, Chantilly, Virginia. Archive Number 5-4-0-0-(432).

**SPICER MANUFACTURING COMPANY, SOUTH PLAINFIELD WORKS, BUILDING 8**

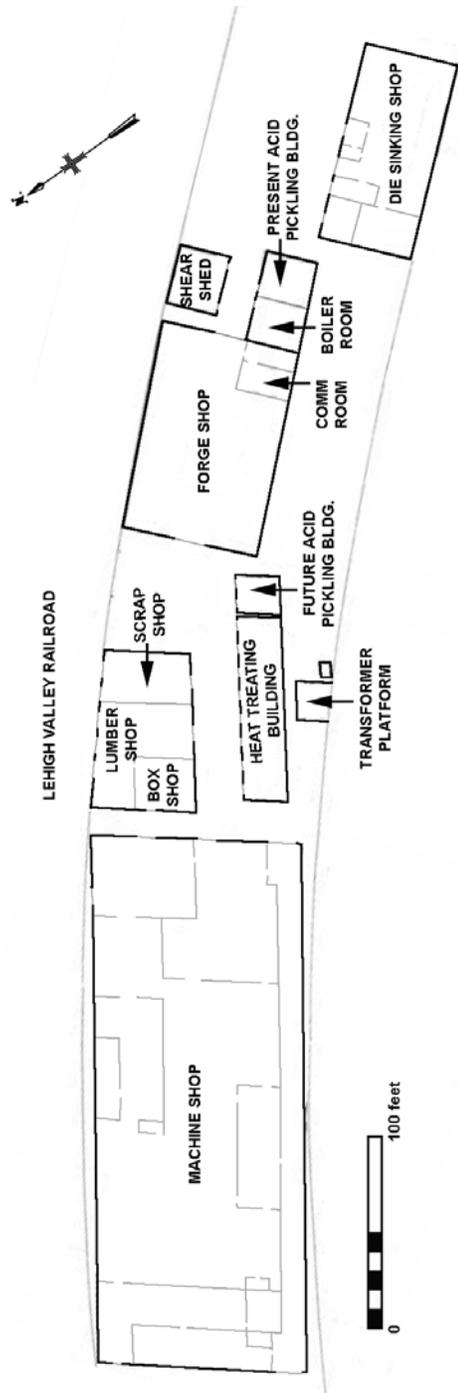
(Spicer Manufacturing Company, South Plainfield Works, Die Sinking Shop)

HAER No. NJ-144-H

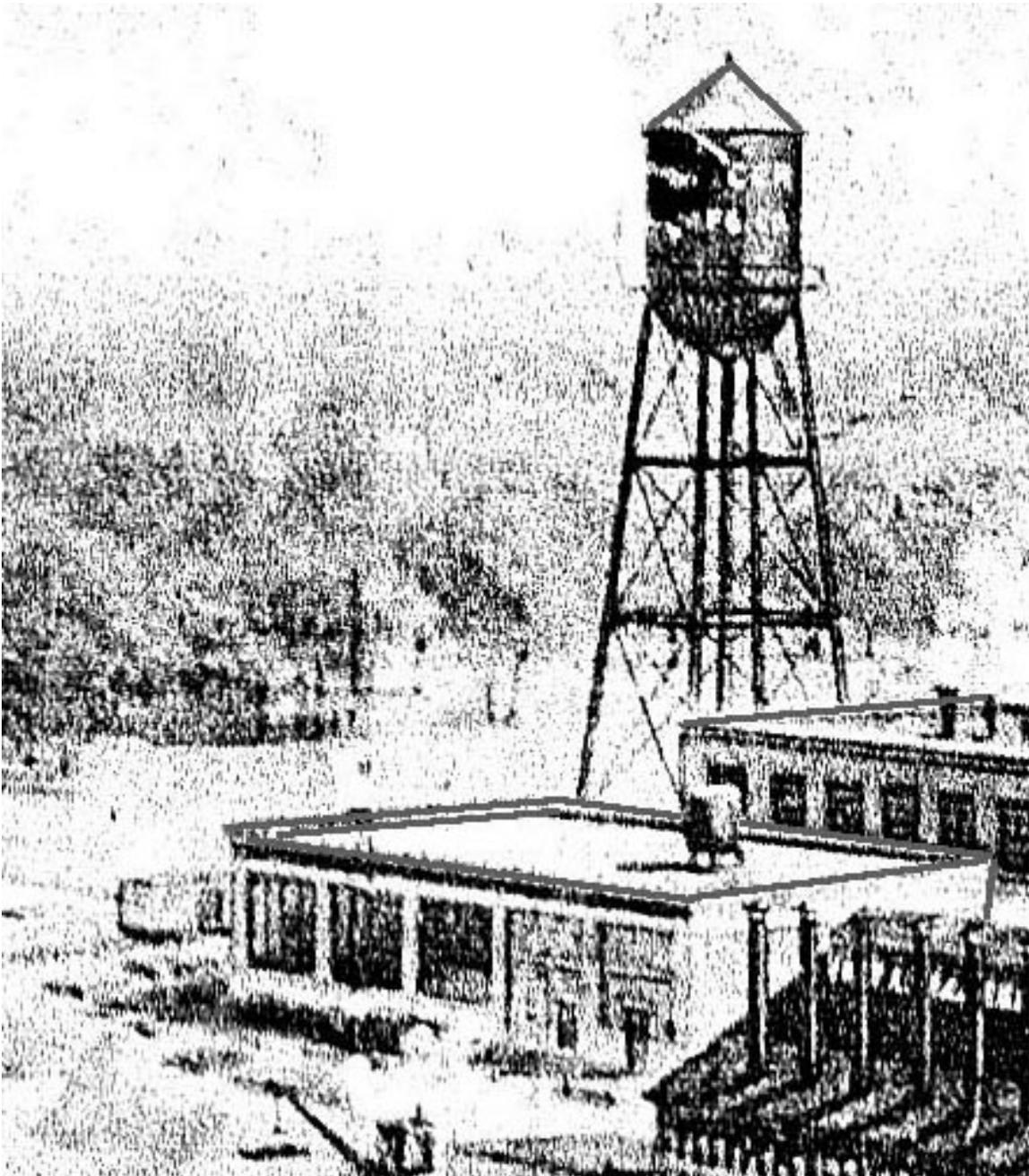
(Page 5)



**Figure 1. BUILDING 8 LOCATION AT FORMER SPICER MANUFACTURING CORP. PLANT**



**Figure 7. SOUTH PLAINFIELD WORKS IN 1913**  
Source: redrawn from Spicer Manufacturing Company 1913



**Figure 3. DETAIL TO SOUTH OF BUILDING 8 c1915**  
Source: Spicer Manufacturing Company 1915

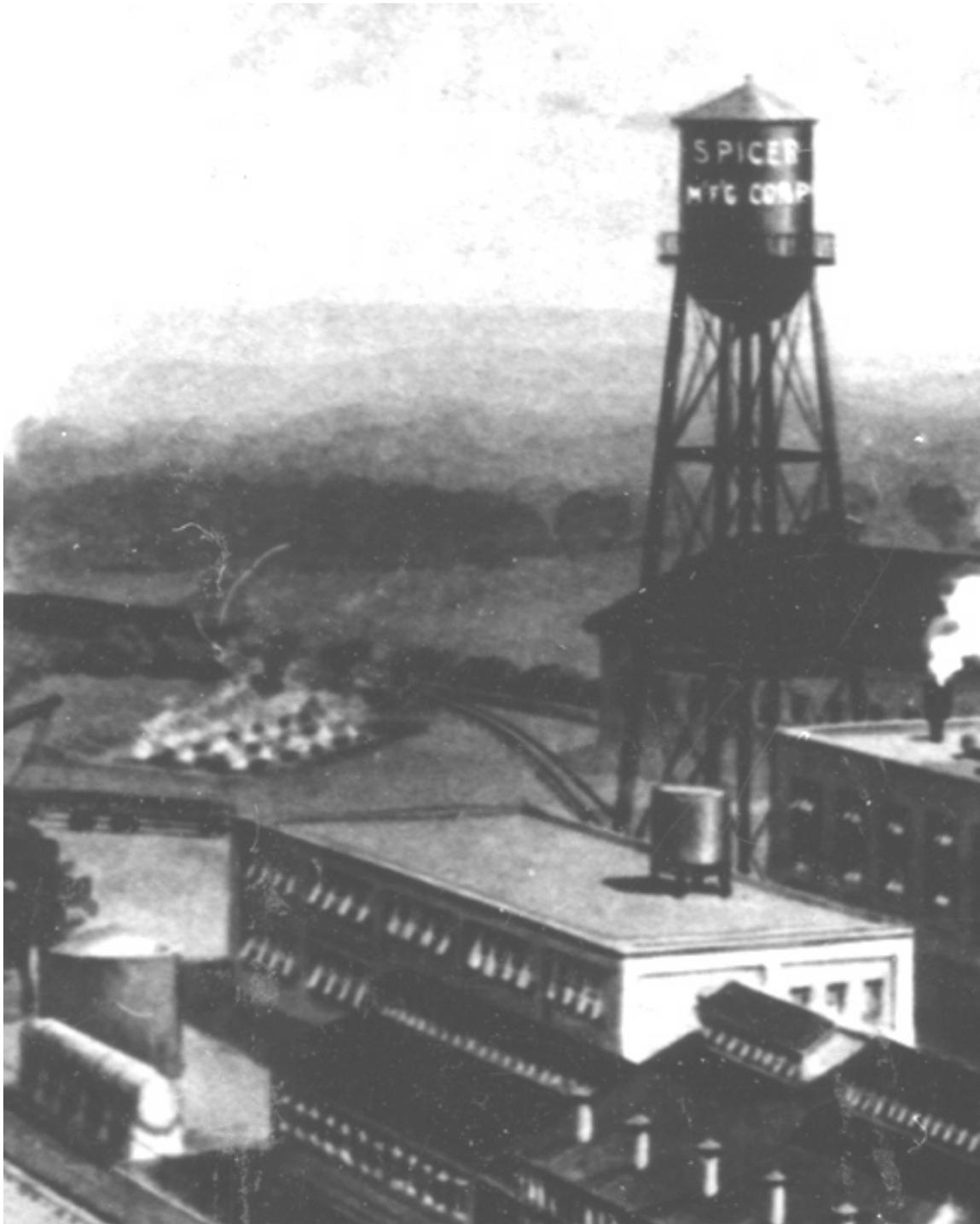


**SPICER MANUFACTURING COMPANY, SOUTH PLAINFIELD WORKS, BUILDING 8**

(Spicer Manufacturing Company, South Plainfield Works, Die Sinking Shop)

HAER No. NJ-144-H

(Page 9)



**Figure 5. DETAIL TO SOUTH OF BUILDING 8 c1923**

Source: Spicer Manufacturing Corporation 1923

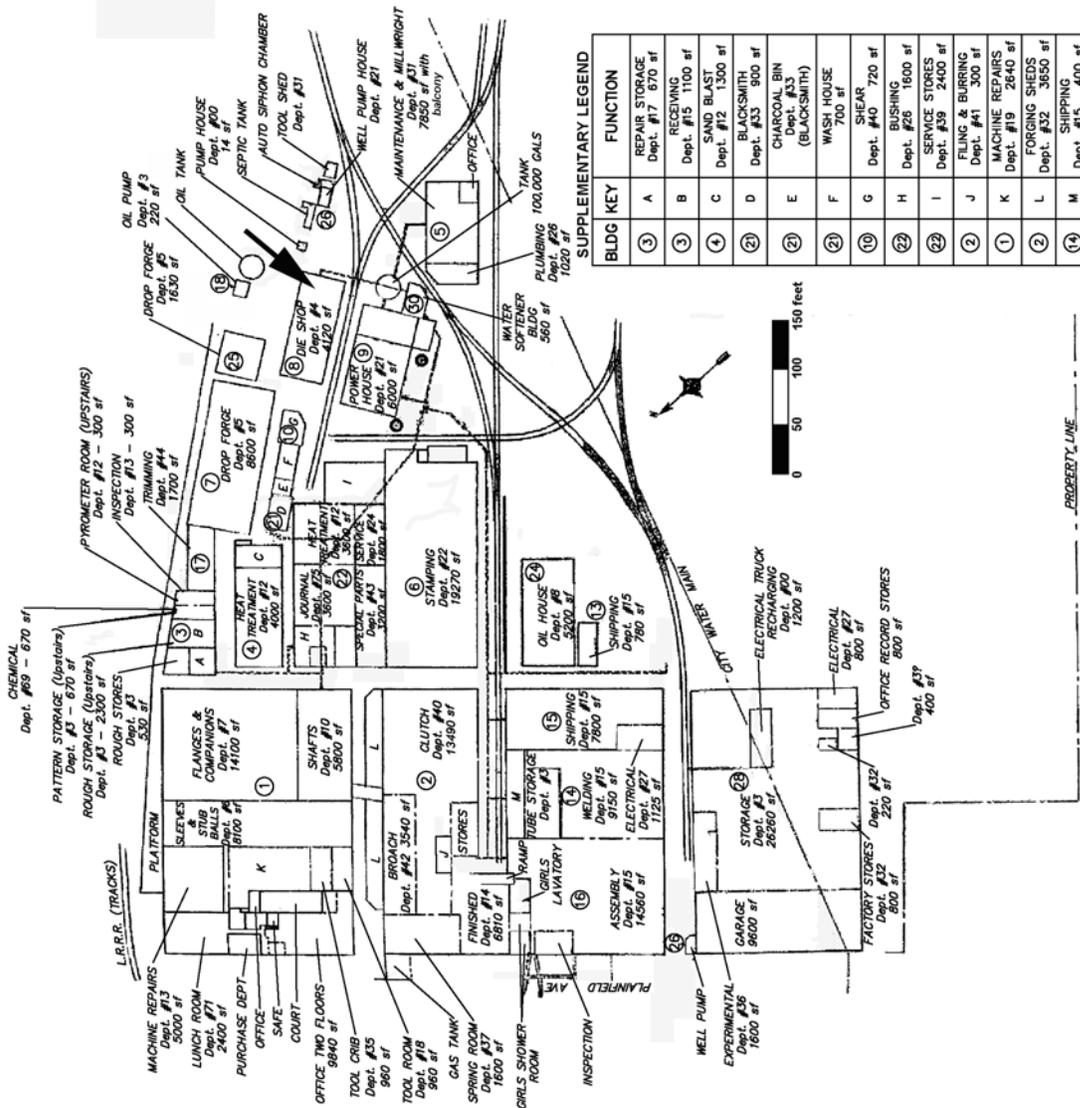
SPICER MANUFACTURING COMPANY, SOUTH PLAINFIELD WORKS, BUILDING 8

(Spicer Manufacturing Company, South Plainfield Works, Die Sinking Shop)

HAER No. NJ-144-H

(Page 10)

DEPARTMENT			BUILDING		
No.	NAME	AREA	No.	NAME	AREA
1	Office	11840	1	Administration	48800
2	Eng. & Drafting	37780	2	Machine Shop	25922
3	Stores	37780	3	Receiving & Misc.	7340
4	Dies	4120	4	Heat Treat & Sand	5300
5	Forge	10280	5	Maintenance and	8870
6	Stamps & Bolts	8100	6	Milling	18988
7	Flanges	14100	7	Forge	8850
8	Shafts	5800	8	Die Shop	4120
9	Shafts	5800	9	Power House	6000
10	Shafts	5800	10	Shear Shed and Wash House	1425
11	Heat Treat	9600	11	Shipping	9025
12	Heat Treat	700	12	Shipping	780
13	Inspection	6810	13	Shipping and Storage	13180
14	Finished & Semi-Finished Stores	35072	14	Shipping	9025
15	Receiving, Welding, & Shipping	35072	15	Shipping	9025
16	Assembly & Prod	16920	16	Assembly & Prod	16920
17	Tool Room	960	17	Forge Shop	1700
18	Machine Repair	8310	18	Pump House	220
19	Machine Repair	8310	19	Pump House	220
20	Machine Repair	8310	20	Pump House	220
21	Power House	6850	21	Blacksmith Shop	1000
22	Stamping	19270	22	Machine Shop & Heat Treat	18800
23	Service	1800	23	Oil House	5200
24	Service	1800	24	Oil House	5200
25	Plumbing	1600	25	Forge	1620
26	Plumbing	1020	26	Well Pump House	170
27	Electrical	1925	27	Electrical	1925
28	Guards	22	28	Storage & Garage	41600
29	Well Pump & Guard House	182	29	Well Pump & Guard House	182
30	Water Softener	560	30	Water Softener	560
31	Milwrights	8150	31	Milwrights	8150
32	Factory Stores	3228	32	Factory Stores	3228
33	Blacksmith	1000	33	Blacksmith	1000
34	Tool Crib	1360	34	Tool Crib	1360
35	Experimental	1600	35	Experimental	1600
36	Experimental	1600	36	Experimental	1600
37	Spring	1600	37	Spring	1600
38	Service Stores	2400	38	Service Stores	2400
39	Clutch	13480	39	Clutch	13480
40	Filing and Burring	300	40	Filing and Burring	300
41	Filing and Burring	300	41	Filing and Burring	300
42	Broach	3540	42	Broach	3540
43	Special Parts	3200	43	Special Parts	3200
44	Shear & Firm	2425	44	Shear & Firm	2425
69	Chemical	670	69	Chemical	670
70	Hospital	550	70	Hospital	550
71	Restaurant	2400	71	Restaurant	2400
75	Journal	3600	75	Journal	3600
Latatories-General	1800	Latatories-General	1800	Latatories-General	1800
Garage Truck Charging	9600	Garage Truck Charging	9600	Garage Truck Charging	9600
1200	1200	1200	1200	1200	1200
Total	250002	Total	250002	Total	250002



BLDG KEY	FUNCTION
(3)	REPAIR STORAGE Dept. #17 670 sf
(3)	RECEIVING Dept. #15 1100 sf
(4)	SAND BLAST Dept. #12 1300 sf
(2)	BLACKSMITH Dept. #33 900 sf
(2)	CHARCOAL BIN Dept. #33 (BLACKSMITH)
(2)	WASH HOUSE 700 sf
(10)	SHEAR Dept. #40 720 sf
(22)	BUSHING Dept. #28 1600 sf
(22)	SERVICE STORES Dept. #39 2400 sf
(2)	FILING & BURRING Dept. #11 300 sf
(1)	MACHINE REPAIRS Dept. #19 2640 sf
(2)	FORGING SHEDS Dept. #32 3650 sf
(14)	SHIPPING Dept. #15 400 sf

Figure 6. BUILDING 8 AND 1926 SOUTH PLAINFIELD WORKS  
Source: Spicer Manufacturing Corporation 1926, with re-lettering

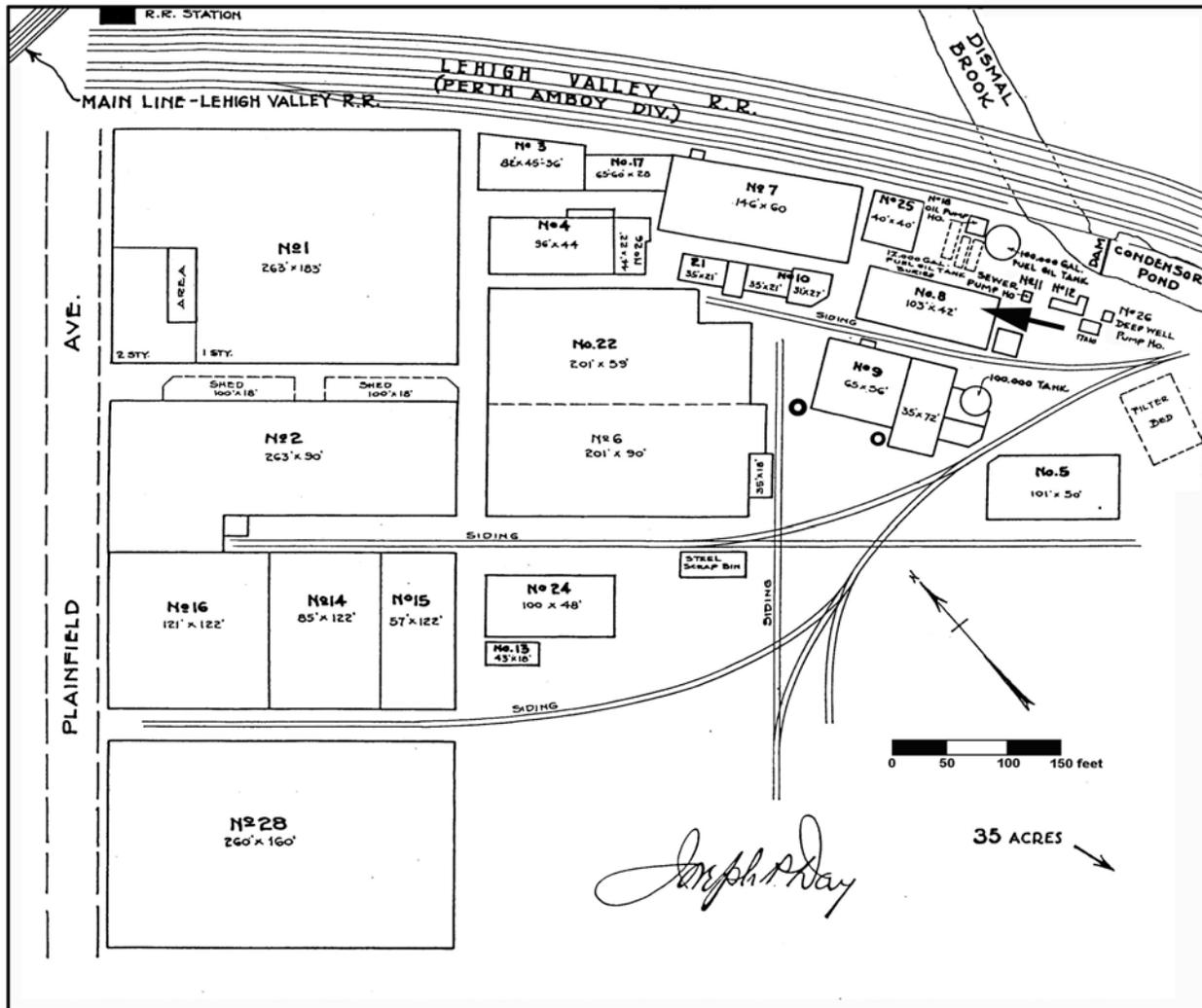


Figure 7. BUILDING 8 AND 1929 SOUTH PLAINFIELD WORKS  
 Source: Day 1929

