PRATT & WHITNEY PLANT, WEST BOILER HOUSE
(Pratt & Whitney Plant, Building No. 5)
1500 & 2000 East Bannister Road
Kansas City
Jackson County
Missouri

HAER MO-118-B
HAER MO-118-B

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

FIELD RECORDS

HISTORIC AMERICAN ENGINEERING RECORD
MIDWEST REGIONAL OFFICE
National Park Service
U.S. Department of the Interior
601 Riverfront Drive
Omaha, NE 68102

HISTORIC AMERICAN ENGINEERING RECORD

PRATT & WHITNEY PLANT
West Boiler House
(Pratt &Whitney Plant, Building No. 5)

HAER No. MO-118-B

Location: 1500–2000 East Bannister Road, Kansas City, Jackson County, Missouri

Present Owner: U.S. Department of Energy and National Nuclear Security Administration

Present Use: Currently, the West Boiler House serves the entire Bannister Federal Complex.

Significance: The West Boiler House included the steam generating equipment, air compressors, refrigerating machinery and the necessary auxiliaries to run the Pratt & Whitney Aircraft Plant and associated buildings. From the initial years of Pratt & Whitney with its Double Wasp engines, through the years of Westinghouse, responsible for manufacturing the J34 Gas Turbine engine, to the development of thermonuclear weapon components during the Cold War, the Kansas City Plant housed a multi-disciplinary engineering and manufacturing facility tied to the nation's homeland security. Due to the diversified requirements of subsequent corporations, the original Pratt & Whitney Plant was modified and added to, meeting the needs of ongoing technological advances while retaining the structural elements that made this complex a landmark of American industrial design.

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Architectural & Historical Research, L.L.C., Kansas City, Missouri

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Date: April 9, 2012

PART I. HISTORICAL INFORMATION

A. Physical History:

1. Date of Construction: 1942-1943

2. Architect/Engineer: Albert Kahn Associated Architects and Engineers, Detroit, Michigan

3. Builder/Contractor/Supplier: Long-Turner Construction Company, Kansas City, Missouri

4. Original Plans Yes

5. Alterations and Additions: Overhead doors, placed at the southeast and northeast facades, and the central portion of the west facades were originally wood and glass panels which, and were replaced with metal overhead doors.

B. Historical Context:

Designed in 1942 and completed in 1943. Equipment included, but was not limited to: four boilers (Union Iron Works); Boiler Feed Pumps (Allis-Chalmers Manufacturing Company), Cooling Towers (J. F. Pritchard & Company); Motors Driving Fans (Westinghouse Electric Manufacturing Company); and Power Transformers (General Electric Company).[1] A concrete tunnel measuring 10' x 7' 8"x 232' long was originally designed to run from the Compressor Room to the Main Manufacturing Plant building.

The West Boiler House was a support structure that included the steam generating equipment, air compressors, refrigerating machinery and the necessary auxiliaries to run the Pratt & Whitney Aircraft Plant and associated buildings.

PART II. ARCHITECTURAL INFORMATION

A. General Statement

[1] "Fast Construction for Fast Production," *Architectural Record*, (February 1945), 73. By the time the plant was constructed, "new refrigeration machinery was no longer available and it became necessary to remove the required machines from non-defense sources such as department stores and office buildings in the nation's capital for installation here."

The West Boiler House is constructed of reinforced concrete frame with brick curtain walls and a cinder block interior. The building measures 133’ 7” x 146’ 11”. Total floor area is 60,800 square feet. The cooling towers were designed to provide the cooling water for the refrigerating condensers, steam condensers and air compressors within the West Boiler House.

1. Architectural Character: Modern Industrial

2. Condition of Fabric: Excellent

B. Description of Exterior

Original fenestration was vertical wood industrial sash with operable vents, 34’ in height at the compressor section and horizontal sash at the boiler section. Overhead doors, placed at the southeast and northeast facades, and the central portion of the west facades were originally wood and glass panels. They have been replaced with metal overhead doors. A cinder block wall separates the boiler room from the compressor room. There are four large coffered, reinforced gunite stacks at the boiler house section. Each measures 17’ high above the roof level, 5’6” in diameter at the base and 7‘6”at the top. Cooling towers are located approximately 100’ to the north of the West Boiler House.

C. Description of Interior

The West Boiler House serves as the boiler house facility for the Bannister Federal Complex. Steam is generated with four dual natural gas and fuel oil boilers with associated feed pump, deaerator, water treatment equipment and controls. Approximately 10,500 tons of water chilling capacity is installed in the West Boiler House and is used for temperature and humidity control for personnel comfort and production requirements, and for process cooling applications.

D. Site

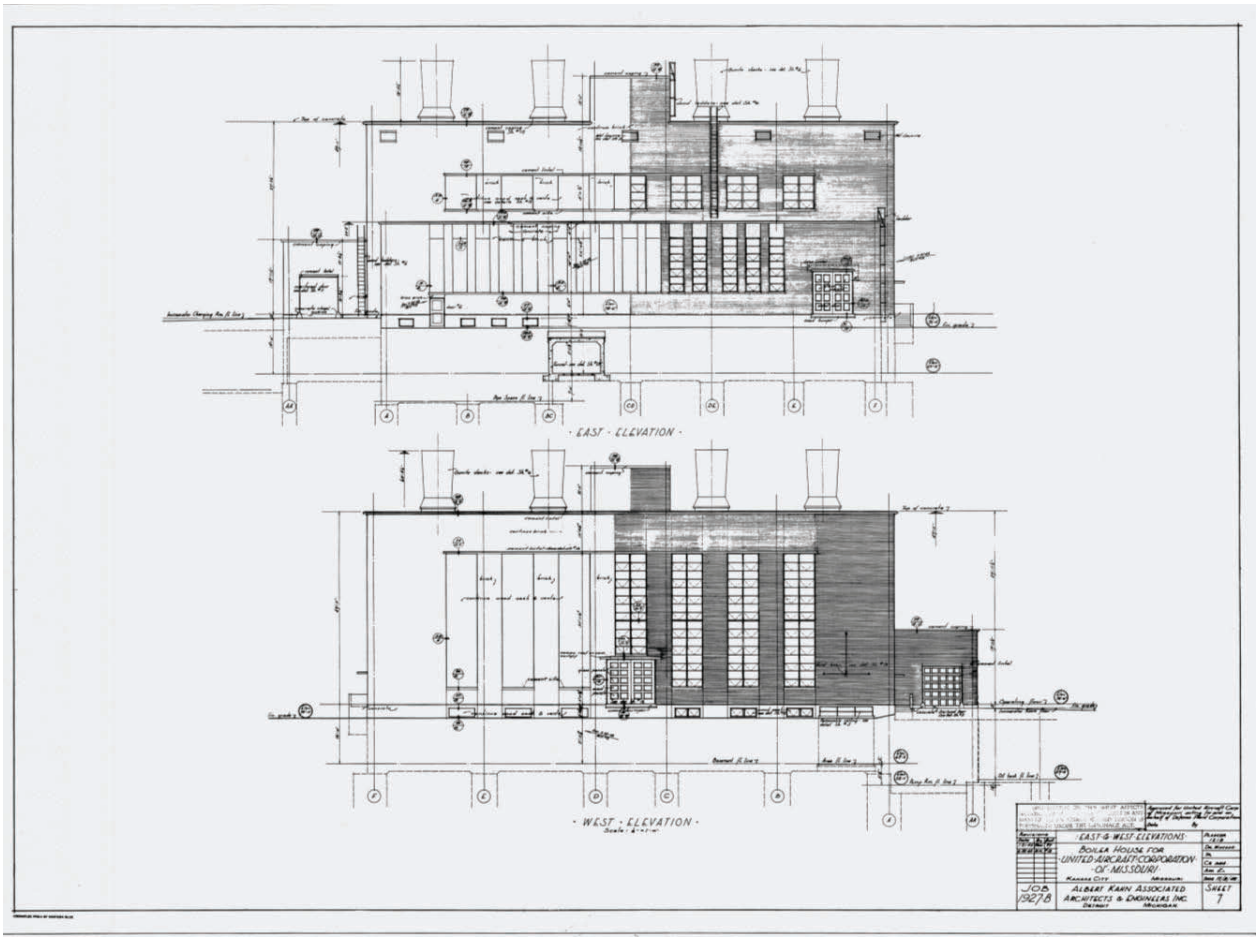
Located to the northwest of the Main Manufacturing Plant (Building No. 1), the West Boiler House is just south of Buildings No. 71 and 72, and north of a surface parking lot.

Construction of the Boiler House from the northwest corner
Date: April 23, 1943

Source: Albert Kahn Associates, Inc. Detroit, Michigan

Construction of the Boiler and Compressor House view facing south
Date: May 28, 1943

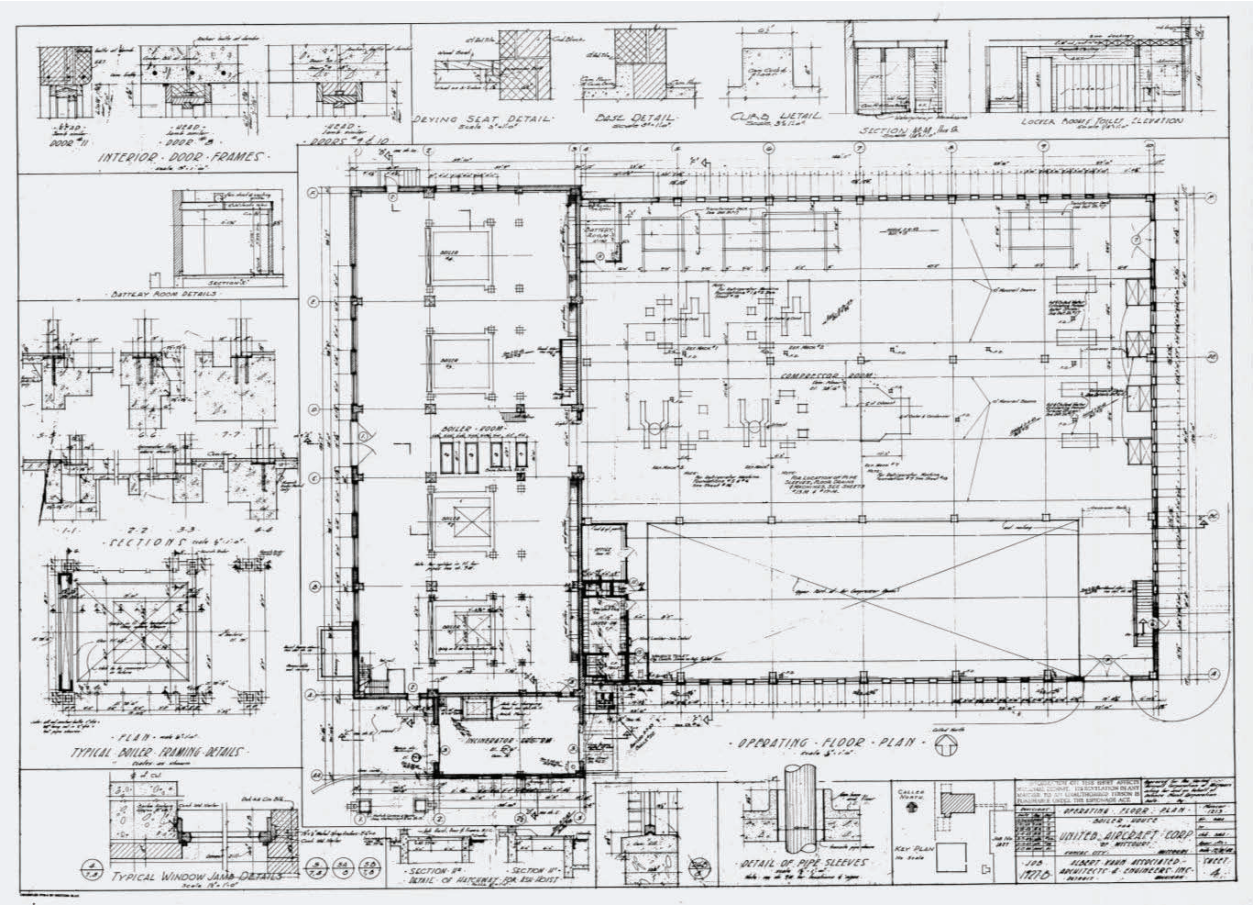
Source: Albert Kahn Associates, Inc. Detroit, Michigan



Boiler House
East West Elevations
United Aircraft Corporation of Missouri

Albert Kahn Associated Architects & Engineers, Inc.
Sheet 7
Job 1927-B
Date: December 8, 1942

Source: Archives, National Nuclear Security Administration, Kansas City, Missouri



Boiler House
Operating Floor Plan
United Aircraft Corporation of Missouri

Albert Kahn Associated Architects & Engineers, Inc.
Sheet 4
Job 1927-B
Date: December 8, 1942

Source: Archives, National Nuclear Security Administration, Kansas City, Missouri

PART III. BIBLIOGRAPHY

Primary Sources:

Aircraft Engine Plant for United Air Corporation of Missouri. Plans. Various dates. Job No. 1927. Kahn, Albert Associated Architects & Engineers, Inc. Archives of the Albert Kahn Associates, Detroit.

Choporis, P. N. "Steam, Compressed Air, and Refrigeration for a Large War Plant." *Power Plant Engineering* 49 (May 1945).

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