

PICATINNY ARSENAL, BUILDING 168
North of Kibler Road
Morris County
New Jersey

HAER No. NJ-0036-

PHOTOGRAPHS
WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Philadelphia, Pennsylvania

HISTORIC AMERICAN ENGINEERING RECORD

PICATINNY ARSENAL, BUILDING 168

HAER No. NJ-0036-XX

Location: North of Kibler Road in the Administrative and Research 100 Area,
Picatinny Arsenal, New Jersey

Universal Transverse Mercator (UTM) coordinates:
NAD 27 Zone 18.537233.4531749
USGS Dover, New Jersey, 7.5 minute quadrangle map

Present Owner: U.S. Department of the Army, U.S. Army Garrison Picatinny

Present Use: Vacant

Significance: Building 168 was constructed in 1930 as an Experimental Propellants Surveillance Magazine. The building was located in the area north of the row of chemical laboratories that front onto Kibler Road. This area contained small-scale magazines and test buildings that supported experimental research and development programs. The small-scale buildings were dispersed throughout the area to ensure safety in case of accidental explosion.

Building 168 was surveyed in 1982-1983 during a study of Picatinny Arsenal conducted by a summer team funded through the Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER). At that time, the building was assessed as a property of minor importance (Category 3) (Thurber and Norman 1985). Between 1993 and 1996, WCH Industries, Inc. (1996) completed a study to re-evaluate buildings and structures constructed at Picatinny Arsenal before 1946 and to re-assess the results of the earlier HABS/HAER study. The 1996 report identified 500 buildings, including Building 168, as contributing to a single historic district comprising the entire installation.

In 1999, Panamerican Consultants, Inc., reviewed the National Register evaluations of 500 previously-identified buildings located on the installation. As a result of this investigation, three historic districts and two individual buildings were identified as possessing the qualities of significance for listing in the National Register of Historic Places. One historic district identified in 1999 was the Administration and Research District (NJ HPO ID#2244) comprising 24 buildings in the 100 area. This district included officer housing, the post headquarters building, administration buildings, chemical laboratories, and additional support buildings and structures. Building 168 was identified as contributing to the district (Nolte et al. 1999:35-36). The New Jersey Historic Preservation Office concurred that the Administration and Research District (100

area) possessed the qualities of significance for listing in the National Register of Historic Places under Criteria A and C.

Description: Building 168 is a one-story building that occupies a rectangular footprint measuring 16'-0" x 27'-0". The building rests on an elevated poured-concrete foundation. The building has a reinforced-concrete framing. Each concrete corner of the building is nearly 20" wide. The walls between the concrete framing are infilled with 8" red structural clay tiles. The southeast and southwest walls are parged with concrete, while the structural clay tiles on the northeast and northwest walls remain exposed. Brick infills the upper gable end of the northeast wall. The gable roof is oriented northeast-southwest and is sheathed with corrugated asbestos protected metal roofing. The eave of the roofline is strengthened through the installation of iron railroad rails along the eaves on the side and gable end walls. The roof has a slight overhang along the sides. Five circular metal vents project from the roof line. Single entry doors are located in the northeast and southwest walls. The doors are located near the southeast exterior wall. Three exit-only doors are located in the northwest wall. Each metal door has four lights of reinforced wire glass. Exterior metal grilles are installed over the lights. The doors have exterior metal hinges. An elevated poured-concrete walkway surrounds the building on the northeast, northwest, and southwest walls. The walkway is accessed by a set of brick steps at the west corner of the building.

The interior of the building contains a separate structure built of structural clay tile. A narrow hallway separates the walls of the internal structure from the outer walls of the building. The interior structure contains five narrow cells. Each cell is accessed by outer and inner metal fire doors in the north wall of the interior structure. The metal doors are stamped "20 lb coating fire door standard." The outer walls of the internal structure and the inner walls of the outer building are unpainted structural clay tile. The walls in each of the cells are painted. Each cell has five levels of wood shelving along one wall. Each cell is ventilated through a circular metal vent on the roof.

In 1966, a tall wood barricade was constructed along the northeast and southwest walls of Building 168. The barricade is constructed of vertical wood telephone poles set on end on the ground. These poles support a solid wall of vertical wood timbers. The barricade measures 60'-0" long and is 20'-0" high. The barricade was completed at a cost of \$2,665.00 (USAG Picatinny real property card 1966).

History: Building 168 was constructed in 1930. The 1922-1941 real property records described Building 168 (Old Building #T-885) as an Experimental Propellants Surveillance Magazine. The building was recorded as measuring 16'-0" x 27'-0"

with a concrete foundation, hollow-tile walls, and an asbestos protected metal roof. The floor was concrete and mastic. The original cost of the building was \$3,941.23 (“Historical Record of Ordnance Buildings at Picatinny Arsenal” 1922-1941). The drawings were prepared by the U.S. Army Quartermaster; the drawing number was noted as QMC 6538-667. The building had electric lighting but no heat or water/sewer connections. No photograph was attached to the historical real property record. An original drawing located in the vertical drawings files of the Directorate of Public Works (DPW) identified the building as a Surveillance Magazine (USAG Picatinny drawing files).

The historical real property records indicated that Building 168 was one of two identical magazines. Building 169 (Old Building #T-886) was built from the same drawing as Building 168 and was used as an experimental high explosives surveillance magazine (“Historical Record of Ordnance Buildings at Picatinny Arsenal” 1922-1941). Building 169 previously was demolished.

In 1956, the value of the building was recorded as \$4,868.75 (USAG Picatinny real property card 1956). In 1977, security screens were installed on the exteriors of all the doors (USAG Picatinny, Building 168 file, drawing DP148485). In 1982, major work on the building was completed. The only 1982 drawing located during this investigation indicated that security cages were installed in all five rooms in the old dry house (USAG Picatinny, Building 168 file, drawing CP-SK-100845, 1982). The real property records confirm that alterations were completed to the building. The description referred only to general alterations and specifically referenced the installation of screens and hasps. The cost of the work completed in 1982-1983 totaled \$11,615.00, but no details were given about the capital improvements actually completed (USAG Picatinny real property voucher 82-27). The total value of the building rose in 1983 to \$17,891.

Building 168 was linked with other buildings in the service magazine area behind the chemical laboratories by concrete walkways. The small-scale buildings in this area were dispersed widely to safeguard against accidental explosions. Heat to Building 168 was supplied by above-ground steam pipes. No water or sewer service was available in the building (USAG Pictanny real property card 1956).

In 1969, the use of the building was recorded as a conditioning building. In 1971, the building was recorded with “magazine” as the original use and “surveillance test/conditioning chamber” as the current use (Picatinny Arsenal Facilities Directory 1969; Building Information Schedule 1971).

Building 168 was constructed as a support magazine north of the row of chemical laboratories along Kibler Road. Originally built as a surveillance magazine, the

building contained five separate cells outfitted with shelving used to allow observation and storage of experimental compounds developed during the research and development activities that occurred in the nearby chemistry laboratories.

Picatinny Arsenal initially was established in 1880 as a powder depot. The arsenal's primary function between 1880 and 1907 was to store powder in above-ground magazines. In 1907, the role of the powder depot changed dramatically when the Army constructed a powder manufacturing plant on the installation. By January 1908, the factory was operational and had the capacity to produce 3,000 pounds of cannon powder daily (Rogers 1931:55-56).

During the early twentieth century, Picatinny Arsenal also became a center for Army research and development pertaining to the chemistry and properties of explosives and propellants. In 1911, the Army established a school to instruct personnel in chemistry, explosives, and interior ballistics. Scientific research in the chemical properties of explosives greatly expanded during World War I. A large number of chemists were employed at Picatinny Arsenal to study propellant powders and high explosives that were used in grenades, artillery shells, bombs, and mortars (Hale 1926:14).

In 1926, a massive explosion devastated the adjoining Naval Ammunition Depot, Lake Denmark, and damaged many buildings at Picatinny Arsenal. Efforts to rebuild Picatinny Arsenal began almost immediately after the explosion. The Army appointed a board of Ordnance officers to review the damage and make recommendations for rebuilding the Arsenal. The board recommended changes in the overall layout of the arsenal by concentrating activities into areas that were geographically separated from each other. Under the new plan, administration, chemical laboratories, and engineering functions were concentrated south of the explosives manufacturing and ammunition storage areas. The main chemical laboratory was completed by 1930 and was occupied during 1931 (Rogers 1931:93-94). As described in Rogers (1931), the laboratory complex comprised:

...a main chemical laboratory with auxiliary buildings to remove operations embracing fire hazards to a safe distance. This group of buildings will afford our chemists proper facilities for carrying out the work so important to every group in the arsenal. The demands made upon the chemists and chemical engineers of the Nation by ordnance ammunition activities are many, and in time of war will be tremendous. Picatinny Arsenal is the chemical center for ammunition, and every effort is being made to properly equip the arsenal laboratory to fill its mission (Rogers 1931:94).

Chemical laboratories completed after the 1926 explosion included the Physics/Chemistry Lab (Building 162 constructed in 1930), High Explosives Research Lab (Building 163 constructed in 1930), Chemistry/Stability Lab (Building 164 constructed in 1930), Test Conditioning Chambers (Buildings 166 and 197 constructed in 1930), and High Explosives Preparation and Test Lab (Building 167 constructed in 1930). The laboratories were designed in the Colonial Revival Style, the same architectural style used in the post headquarters building (Nolte et al. 1999:31-78; "Plant Design" ca. 1942:16). "It was realized that when plans for the new Picatinny were underway that research work would gradually become the main activity of the Arsenal and that the Area should be as complete as available funds would permit" ("Plant Design" ca. 1942:16-17). The laboratories were designed for flexibility to accommodate general studies, as well as specialized ones ("Plant Design" ca. 1942:17). The main laboratories were supported by a group of several small-scale magazines and experimental laboratories that were dispersed throughout the area north of the main chemical laboratories. Building 168, constructed in 1930, is an example of one of these types of structures. It was linked with the chemical laboratories by concrete sidewalks, but was separated from the laboratories to minimize any damage that might occur from accidental explosions.

- Sources:** Building Information Schedule
1971 February. On file in Real Property Office at Directorate of Public Works,
USAG Picatinny, New Jersey.
- Hale, G.C.
1926 "Research Activities at Picatinny Arsenal." Published in *Army Ordnance*,
Vol. VII, No. 37, July-August.
- "Historical Record of Ordnance Buildings at Picatinny Arsenal"
1922-1941 In the collection of the Armament Research, Development and
Engineering Center (ARDEC) Historian, USAG Picatinny, New Jersey.
- Nolte, Kelly, Mark A. Steinback, Michael A. Cinquino
1999 *Definition of Historic Districts for Picatinny Arsenal, Morris County, New
Jersey*. Final report prepared by Panamerican Consultants, Inc. for New
York District, U.S. Army Corps of Engineers. September.
- Picatinny Arsenal Facilities Directory
1969 September. In the collection of ARDEC Historian, USAG Picatinny,
New Jersey.

“Plant Design”

ca. 1942 Typescript in the collection of ARDEC Historian, USAG Picatinny, New Jersey.

Rogers, J.A.

1931 *The History of Picatinny Arsenal 1880-1931*. War Plans Division, Plant Engineering Department, Picatinny Arsenal, New Jersey.

Thurber, Pamela, and Sandy Norman

1985 *Historic Properties Report: Picatinny Arsenal, Dover, New Jersey*. Final Report. Prepared by the Historic American Buildings Survey/Historic American Engineering Record, National Park Service, U.S. Department of the Interior. On file in the HABS/HAER collection at the Library of Congress.

U.S. Army Garrison, Picatinny

Var. Real property records on file at Directorate of Public Works.

Var. Drawing files maintained by Directorate of Public Works.

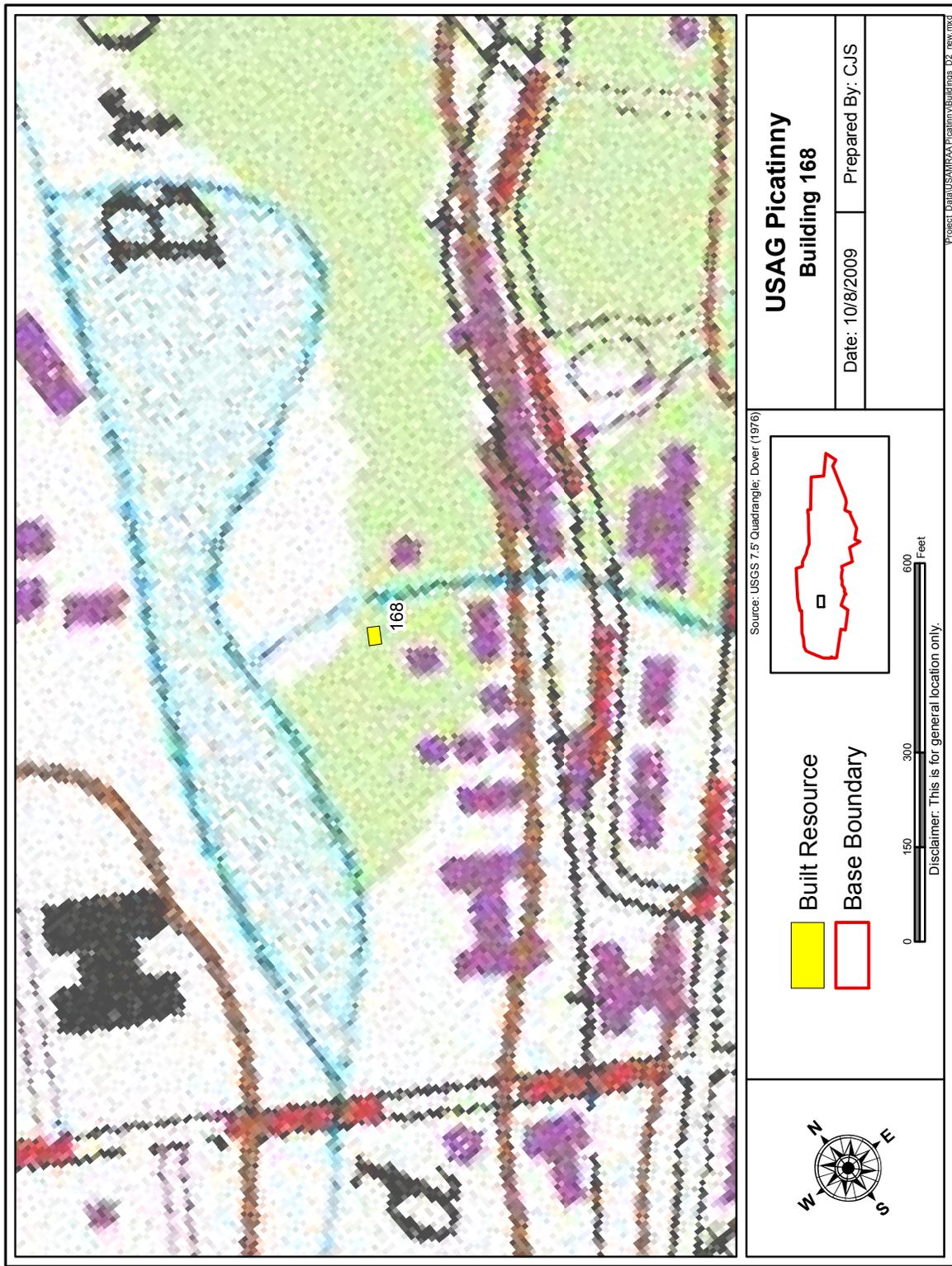
WCH Industries, Inc., in association with Boston Affiliates, Inc.

1996 *Evaluation of Structures Built Prior to 1946 at Picatinny Arsenal, New Jersey*. Final Report prepared for New York District, U.S. Army Corps of Engineers under contract number DACW51-92-D-0003 Work Order #8. On file in CRC office, USAG Picatinny, New Jersey.

Historian: Katherine Grandine, Senior Historian, and Benjamin Riggle, Historian
R. Christopher Goodwin & Associates, Inc., December 2009

Project

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Excerpt of USGS Dover 7.5-minute quadrangle map showing location of Building 168.

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