

Navy Yard; Ordnance Building  
(Navy Yard; Building 36)  
Intersection of Paulding and Kennon Streets  
District of Columbia  
Washington  
District of Columbia

HABS NO. DC-442-C

HABS  
DC,  
WASH,  
74-F-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN BUILDINGS SURVEY  
MID-ATLANTIC REGION, NATIONAL PARK SERVICE  
DEPARTMENT OF THE INTERIOR  
PHILADELPHIA, PENNSYLVANIA 19106

HABS  
DC,  
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**HISTORIC AMERICAN BUILDINGS SURVEY**

**NAVY YARD: ORDNANCE BUILDING**

**(NAVY YARD: BUILDING 36)**

**HABS NO. DC-442-C**

**Location:** Intersection of Paulding St. and Kennon St., Washington, D.C.

**Date(s) of Construction:** 1853-1858; remodeled 1886

**Engineer:** unknown

**Present Owner:** U.S. Department of the Navy

**Present Occupant:** Vacant

**Present Use:** Vacant

**Significance:** Building 36 is located within the Washington Navy Yard Historic District. It was a primary component of the Navy Yard in the mid-nineteenth to twentieth century when the Yard served as the center for naval ordnance research and production.

**Project Information:** This documentation was undertaken in December 1988 in compliance with a Memorandum of Agreement among the U.S. Department of the Navy, the Advisory Council on Historic Preservation, and the District of Columbia State Historic Preservation Office.

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**Location:**

Building 36 at the Washington Navy Yard is located in the central area of the Yard, west of Paulding St. and north of Kennon St. The building is L-shaped in plan and forms two legs of a quadrangular group of structures. Building 33, to the west of Building 36, completes the quadrangle complex which encloses a central court area. The L-shape of Building 36 is oriented so that the long axis, or east wing, runs north/south. The shorter axis bisects the northern end of the east wing and runs west in an east/west direction.

**Architectural Description:**

The entire 45' tall structure is built of brick load-bearing walls that today support a metal truss hip and valley roof that is covered with slate tiles. The elevations of the building include the east (exterior) elevation of the east wing, the west (courtside) elevation of the east wing, the south end elevation of the east wing and the south (courtside) elevation of the north wing. Another building abuts the north elevation of the north wing of Building 36 enclosing this outside elevation.

The east elevation of the east wing extends the entire length of the building encompassing the end of the north wing. It is 26 bays long and measures approximately 426'. Each bay is pierced by 15/15 light double-hung wooden sash windows at the lower level and 9/12 light double-hung wooden sash windows at the second level, measuring 7'4" X 14' and 7'4" X 10'4" respectively. All the windows have flat arched brick lintels and solid stone sills. Metal grillwork screens cover the bottom 15 panes of glass at the lower level, adding ornamentation to an otherwise severe brick facade. At the 14th and 24th bays from the south of this facade, the windows have been completely infilled with brick. The window at the second level of bay 15 has also been infilled, while the lower level is pierced by a wooden door with transom lights above instead of the windows found on the remainder of the facade. Iron tie rod plates are scattered about the building between the windows of the lower and upper levels. Several different forms of plates can be found including a square plate with an ornamental star inscribed within it, a round plate with the rod at the center, and an oval plate with two rods at either end.

Brick corbelling in a dentil arrangement decorates the entire elevation at the cornice line. Directly above the cornice runs a metal gutter that feeds into several downspouts. The downspouts carry the water to a brick lined drainage trench running along the base of the exterior wall of the building. The trench, reinforced in places with concrete, is 5' wide and 18" deep. It extends from the north until the 14th bay where it is interrupted by the shed additions and is not resumed on the other side.

Three shed roof additions are located along the eastern side. A one story addition 10' tall and built of brick can be found at the 2nd and 3rd bay from the south end. It has a slightly sloped shed roof with a wooden frame that is covered with flat metal sheets. Two wooden frame windows open up on the east side of this addition. Two more separate additions are located at bays 12 and 13 and butt up

against one another. Both are brick constructions with wooden shed roofs covered with metal panels, and both are pierced with a single window along the east side. The northernmost addition is a half story taller and measures 24' in height. Brick corbelling, identical to the corbelling of the main structure, ornaments the cornice line of this addition.

The south end elevation of Building 36 is actually the eastern bays of the south elevation of the quadrangle. The complex is divided today so that the southern intersection of Building 33 and 36 occurs at the line drawn just east of an arched opening. This opening penetrates the building to allow vehicular access to the central courtyard area and is considered to be part of Building 33. This end elevation of Building 36 consists of an electrically operated roll-up door opening, flanked on either side by wooden frame windows identical to those of the east elevation at both the first and second levels. The central opening has been transformed and modified more than once. Newer brick infill surrounds the electrically operated roll-up door, while a metal lintel separates it from a bricked-in arched transom area above. A much larger roll-up door encasement is extant on the inside of the building indicating that it replaced an earlier door and, it too has since been replaced by the smaller roll-up door version. Railway tracks entering through this door are still visible.

The courtside elevation of the east wing of Building 36 faces west to the inside of the quadrangle complex. It is identical to the east elevation except that it is shorter since it is cut off by the other wings of the complex. At the southern end, the south wing of Building 33 butts up against the east wing of Building 36 at the point where the arched entranceway pierces the entire width of the wing from the outside of the complex to the inside court area. Similarly, the northern end of the east wing of Building 36 is intersected by the north wing of the same building.

The area under the deep entrance arch on the west elevation of the building is articulated with sliding wooden doors 25' wide, flanked on either side by windows. The window on the south side is broken by a steel lintel above wooden panels that are locked closed. Directly above the sliding wooden doors is an arched brick lintel off-center with two flat arched lintels above, suggesting that some modifications have occurred. The elevation facing the court has similarly been modified. Bricked-in windows are located randomly along the elevation. Two lean-to sheds, constructed of brick and rising to different heights, are found at the 13th and 14th bay from the south. The taller, two story addition has a sloped shed roof covered with metal sheets and windows on the north, south and west sides. Corbelling along the cornice line is identical to that found on the cornice of the main structure. A smaller shed butts up against the larger one to the south. It has a shed roof whose tall end measures 12' high. It is pierced with one western window opening.

A peculiarity of this facade is the existence of a series of holes lined with metal and ceramic pipes that protrude from the inside of the building to the outside at the second story level. The holes are not aligned symmetrically, nor are they arranged in any apparent order. They were most likely conduits used to convey telephone and or electric wires from one building to the next. These holes can also be seen in the wall above the arch leading from the courtyard to the exterior of the building. Here, the holes do not actually enter the building, but penetrate the wall of the entryway.

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While the north elevation of the northern wing is not visible as it is contiguous to another building, the south (courtside) elevation of the same wing can be viewed from the court area. It is nine bays long and is intersected at both the east and west ends by the east and west wings of the complex. Each bay of this elevation has a window on both the first and second levels and is articulated identically to the other wings of the building.

The interior of Building 36 is one large open space in the form of an L. It is one story and approximately 45' tall. The ceiling is open to the steel hip and valley truss roof which replaced the original wooden truss roof in the late nineteenth century. The floors are covered with a concrete slab and have railway tracks running a portion of the length of the axes. A vertical steel brace and steel horizontal truss system supports a 25 ton travelling electric crane. The support system lines both walls of the open spaces and maneuvers the crane up and down the length of the building. Horizontal braces connected to the vertical supports at 90 degree angles penetrate, as tie rods, the brick wall and are covered on the exterior by the cast iron wall plates. A wooden catwalk is located at the level of the crane on both sides of the wings, at an approximately 20' height, and is accessed by wooden stairs located at the far southern end on the west side of the building, at the intersection of the two wings of the building, and at the lean-to on the east wall of the east wing.

The east and west side elevations of the north/south axis are similar. Windows are located at each bay with brick relieving arches above and radiators below. At the southern half of the east wing, the bays are separated by brick chimneys. The chimneys extend from the floor of the structure to the top of the ceiling where they have been broken off to allow for the steel truss roof. The chimneys have hollow flues that are lined with brick and void of any resin or ashes. Some of the chimneys have been slightly dismantled and sealed to accommodate electrical boxes or other devices. Others have been completely dismantled and stuccoed so that only the shadow of a chimney remains. Some of the chimneys are corbelled to diminish in width in a symmetrical fashion as they rise, while others are corbelled irregularly and jog over in an asymmetrical fashion. No reason for this irregular treatment is apparent today, but may have been determined by equipment or other elements present in the building when it was functioning as a boiler shop. The chimneys most likely served as individual furnaces for the beating of rivets used in the production of boilers. None of the chimneys are functioning today.

At the northeast corner of the complex, the two wings of the L are open to one another. The gabled roof makes the intersection with a hip and valley truss system. The northwest intersection is treated similarly, but is partitioned off before the intersection to delineate the two separate buildings, 33 and 36. The partition is a brick wall at the lower level with corrugated metal panels above, resting on it. A roll-up door with an electric motor is used for access between the two buildings. The windows of the south elevation of the north wing look onto the court area, while the windows on the north elevation have been boarded and bricked in.

### Historical Background:

The Navy Yard in Washington D.C. is a large, 125-acre site located on the banks of the Anacostia River between First and 11th Streets, S.E. It was once considered the world's largest naval armament plant. Since its use as an ordnance manufacturing facility was phased out in 1961, the gun factory buildings have been adapted for re-use as museums, libraries, archives, office spaces, and storage and distribution rooms.

The early history of the Navy Yard dates back to 1799 when the US Congress appropriated \$1,000,000 to build six large ships of war in response to the anxiety produced by the warring European nations. President John Adams and the Congress, who determined that American sea commerce was at risk especially due to French aggression, set about to protect American ships at sea. While negotiations for the initial tracts of land were completed before the end of 1799 and the first house was erected on the center of the site in 1801, plans for the development of the whole site were not actually begun and approved until 1805. The plan, which included a main gate of freestone, wharves built of pile and solid masonry, shipbuilding shops, forges, stores and sail lofts, was designed by Benjamin Henry Latrobe, then architect of the United States Capitol.

Shipbuilding was the main activity of the Navy Yard, until it became apparent, after the War of 1812, that the Yard's location on shallow water made it less desirable than yards located on deep water and easily accessible to the sea. The Naval Arsenal in Washington had to be floated to deeper water before ships were loaded down with armament and ammunition--a great disadvantage in servicing a fleet. Because of this, yards located on deep water began to gain importance in the manufacture of ships. The Washington Navy Yard then shifted its production away from shipbuilding, but continued as an important industrial center. Many of the extant industrial buildings located in the Yard were constructed between 1855 and 1919.

Eventually the emphasis of Navy Yard production shifted from shipbuilding and a variety of other activities directly to the manufacture of ordnance. This development of the Navy Yard into a plant for the production of ordnance began as early as 1810 with the first ordnance laboratory building being constructed in the Yard in 1820. This first building was 80' X 24' and accommodated a cellar for the storage of salt provisions. Despite these very early efforts at ordnance production, the transition of the Navy Yard into a plant concentrating entirely on ordnance was not officially recognized until 1886 when a general order of the Secretary of the Navy demanded a reassignment of shops and buildings in the Yard to accommodate gun production. The establishment of what was eventually to be called the Gun Factory at the Navy Yard meant that many of the industrial structures built prior to 1886 were to be remodeled, while others were to be constructed specifically for their new function. In 1887 alterations to convert the Quadrangle complex from a "fitting-up" shop and forge to a gun carriage shop were begun, just as other buildings at the Gun Factory were similarly adapted. By 1892, the ordnance plant was in full operation, and some 12,000 cast iron common shells, ranging in size from 4" to 13", had been manufactured. Considered more important than the shell manufacture was the production of guns and gun mounts also ranging in size from 4" to 13".

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After 1890, the Navy developed a very successful forging technique that enabled production in America of forgings for tubes for 6", 8" and 10" guns, previously purchased from England. The first large guns made entirely from American steel were those manufactured in 1891 for the battleships, *Indiana*, *Massachusetts* and *Oregon*.

The next years were busy years for the Gun Factory as the Navy designed and built ammunition hoists for most of its ships. By 1895, almost all the authorized vessels had been equipped with guns produced at the Washington Gun Factory and by 1898, it could be called the most modern ordnance plant in the world. As guns for all the Navy's ships were nearly completed by this time, the Gun Factory devoted more of its time to research and development. Testing labs and a model basin were developed in an effort to continue the improvement of naval armament.

Eventually the Navy Yard's use as an ordnance manufacturing facility declined and all activities related to this use were abandoned by 1961. Today the Gun Factory, renamed the Naval Yard in 1964, serves as an administrative and supply center for the Navy. Many of the old industrial buildings are used for museum space, library and archive rooms and storage and supply warehouses, while others are being rehabilitated for use as administrative office space.

Building 36, which makes up the north and east wing of the Quadrangle complex, located west of Paulding Street and north of Kennon Street, was designed, along with the south and west wings, as a "fitting-up" shop in the early 1850s. It was originally intended in 1851 that an existing building on the exact site of the east wing of the complex, called the "old ordnance" building, be converted into a machine shop. The Navy Yard Report of 1852 proposed that this new "Fitting up Shop for the machine Department have a spacious room, provided with cranes and other appendages for...the purpose of fitting and putting machinery together previous to its being shipped away..." This proposal was never approved, but another proposal, made in 1853, revised and enlarged it. The scheme of 1853, plans and descriptions for which are found in the Navy Yard Report of 1854-55, includes not only a conversion, but an expansion of the old ordnance shop as well. The new plan consisted of converting the old ordnance shop into one wing of a quadrangular complex, while building the other three wings anew. The ordnance shop (east wing of quadrangle) was to be divided and converted into a boiler shop, where boilers were manufactured, towards the south half of the building, and a machine shop at the north end. The north wing would be a "fitting up shop" with cranes. The north half of the west wing would also be a machine shop, while the south half and entire south wing of the structure would house the smithery. The plan of the second story shows the fitting up shop to be open through both levels with a pattern shop on the second floor connected by a hanging gallery in the side wall. The Boiler Shop extended through both levels and had no gallery area. The quadrangle enclosed a court area that would be the site of the engine house, boiler house and large chimney stack. The plan also indicates the placement of stairs to the upper level and shows underground flues that carry smoke from the blacksmith shop to the large smoke stack in the center of the courtyard.

Elevation drawings were also supplied in the Report and show a series of identical bays with arched openings set on piers on the ground level spanning the width of two windows above. According to the Report, this elevation adhered to the

elevation of the existing boiler shop and was designed as such for that reason. No brick detailing, indicating either slight recessions or ornamental work, can be seen in these drawings.

The Report to the Bureau of Yards and Docks in 1855 states that construction of the complex commenced in 1854, while some modifications to the submitted plan had been made. Neither the form of the complex, nor the configuration or function of the spaces had been altered. However, whereas the earlier plan had proposed converting the ordnance building into the east wing of the complex, the modified plan stated: "One side of the proposed site is at present occupied by the Smithery, Boiler Shop and Ordnance Shop, and it is intended to construct the new building in such manner, as to provide the different work shops, so as not to interrupt any of the different operations," indicating that the existing buildings were to be demolished and a new wing constructed.

Construction according to this plan continued with minor delays through 1857. In the Report for the same year it is stated that: "all the walls of this extensive establishment are now up and the roof on except the two hips for the east front which are being framed." The Report states that the portion appropriated for the smithery is occupied for that purpose, while the machine shop has been fitted and furnished with machinery. Furthermore, "the old smith's shop, boiler shop and old ordnance shop have all been removed, and the east front of the new establishment 432' long and 65' wide, has been erected on their sites." It also stated that the new building would be ready for occupation in three or four months. Whether the building was completed exactly as it was designed and shown in the drawings cannot be confirmed, but pictures of the building as early as 1866 depict some major differences between the elevational drawings and the existing elevations. The windows of Building 36, which show no signs of modification, appear in the historic photos as they are today and not as they are shown on the drawings. This may be that when it was decided not to expand the existing building, but to construct anew, the elevations that adhered to the existing structure no longer needed to conform to it, and were therefore, changed.

The construction of the quadrangle complex as a machine shop is reported as having been completed in 1858. The material cost was \$79,767.34 and the labor cost was \$65,232.66. This sum equalled the original estimate of \$145,000.00.

The transition of the Navy Yard from a plant carrying on a variety of activities to one specializing in the production of ordnance demanded the conversion and construction of buildings to handle this particular function. By 1887, the forge and anchor shops just east of the quadrangle building were being converted for the production of 6" and 8" guns, while Building 36 was to be a carriage and projectile shop. In the meantime, electricity, the telephone system, and the railroad were being introduced in the Yard, and the buildings were being updated. The railroad tracks were laid in the Yard, forming a spur of the B&O railroad, over which heavy guns and materials could be transported.

During this period of change from 1887 to 1895, Building 36 received a number of new and remodeled features. Drawings dated to 1887 show the design of the steel supports for a 25 ton travelling crane in the east wing of Building 36, referred to at this time as the East Carriage Shop. These supports, which are still in

place today, are set out several feet from the wall, rise to a level of approximately 18' and are attached to the wall of the carriage shop by horizontal metal braces. Tie-rods extend from these horizontal supports to the exterior of the building wall and are capped with cast iron wall plates. This system extends the length of the building and was designed to support the travelling crane which overhangs the central area. In 1888, the taller lean-tos, on the east and west elevations of the east wing were erected with corbelling at the cornice line. Furthermore, a drawing from 1889 indicates that the lean-to on the west was designed for a Corliss engine. The upper windows on both elevations of the building were altered to accommodate the shed roofs of the lean-tos. In 1895, a report on the buildings of the Navy Yard stated that the roof of the quadrangle building, which then rested on wooden trusses, was gradually rotting away and was in need of replacement. Designs for the new roof are found on drawings dated to 1896. Although the old wooden fabric was replaced with a new steel truss, the same hip and valley system was used and was then covered with slate. Also in the same year, plans to remodel the north wing of Building 36 were begun. The upper floor of the north wing was to be removed, the lower floor relaid and the concrete foundation for a travelling crane put in place. In addition, new windows and doors were added to the entire building, and all were repainted.

After the transformation of Building 36 from a machine shop to a gun carriage shop and projectile shop, only minor changes were made to the building. In 1925, both the sliding wooden doors on the south facade and west facade were enlarged and modified, while the lean-to towards the south on the east elevation of the east wing was erected for a Boring Mill. In 1947 an addition to be used as a storage bin was made to the central lean-to on the east elevation of Building 36. The door on the south end of Building 36 was further modified in 1959. The arched transom area below the brick arch was bricked in and a new steel lintel was installed across the arch area. The existing sliding door track was removed and an electrically operated garage roll-up door was put in its place. In 1961 the Navy Yard's use as an ordnance manufacturing facility was phased out and Building 36 ceased to function as a gun carriage shop. Building 36 is now vacant and being remodeled as administrative office space.

**BIBLIOGRAPHY**

Allendorfer, Lieutenant Commander Harry C., "Round Shot to Rockets," U.S. Naval Institute Proceedings, October 1949, p. 1159-1174.

The Bureau of Yards and Docks, Estimates for 1855-1857, National Archives, Washington, D.C.

National Register of Historic Places, Nomination Form for the Washington Navy Yard Historic District, 1968.

Notter Finegold and Alexander Inc., "The Quadrangle Complex," Historic Structures Assessment Study, Buildings 33, 36, 37, 39 and 109, Washington Navy Yard, Washington, D.C.

Peck, Taylor, Round Shot to Rockets. The History of the U.S. Naval Yard, United States Naval Institute Press, Annapolis, Maryland, 1949.

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Site Plan

