



- Gross Square Feet: 61,199
- Number of Floors Above Ground: 3
- Building Height: 42.8 feet
- Status: Occupied/NPS
- Current Use: Office, Storage, Maintenance

**Significance:** Building 107, Public Works Shop, is significant as one of the steel-framed brick industrial structures erected during the revitalization of the Navy Yard during the first decade of the 1900s. The quality of its exterior detailing is unusually high for industrial architecture of the period, especially as it incorporates entrance and interior passage by freight trains.

### Building Description

The original design for Building 107, completed in July 1901, showed a 200 ft. x 60 ft. hipped roof structure containing two stories over a partially raised basement, with a height of 34 ft. to the eaves. It was attached to Building 108 by a recessed 25.7 ft. connector, which was structurally a part of Building 107. Three months later, revised plans for Building 107 were issued.

The primary differences between the original and revised design involved the elimination of the basement. The next major change came as a result of the appropriation of \$50,000 in the FY 1904 Naval Appropriations Act, approved on March 3, 1903, for an extension of Building 107. This modification saw Building 107 lengthened from 200 ft. to 340 ft. The expanded structure rose quickly, being considered complete in September 1904.

Architecturally, Building 107 was steel framed with brick walls above a granite water table. The first and second floor were organized with rows of paired windows separated by brick pilasters two stories high and from floor to floor by decorative brick spandrel panels framed with projecting brick moldings. First floor window pairs have limestone lintels that match the sills on the second floor. The window bays rise to carefully crafted flat brick arches leading to a continuous brick entablature. An elaborately corbelled brick cornice runs at the eaves of the slate-covered hip roof and ogee copper gutter profile. The

roof rises to a height of 52.5 ft. at its ridge with a series of skylights near the peak, interspersed with revolving mushroom-style ventilators made of copper.

The main pedestrian entrance was located on the south side in the 3rd bay from the west end. This door was slightly recessed and accessed a stairwell serving the second floor.

On the opposite side of the building from this stairwell was a two-story brick vault (having four levels), with the window pairs in this area infilled with solid brick. Large double access doors were provided in the 4th, 11th, centerline of the building in the 19th bay from the west. In 1917, a mezzanine level was inserted above part of the second floor to increase useable space,

By 1928, except for the eastern six bays used by the Power Plant, the entire structure was used as a storehouse. The Yard's Printing Office moved into the west end of the second floor in the early 1930s. The Works Progress Administration (WPA) began a major reconstruction of Building 107 in the spring of 1936. By this time, the yard had decided to establish a Building Trades Shop within Public Works to deal with Yard maintenance and repair, and chose to place that function into the structure originally built for that purpose. Material stored in Building 107, largely ordnance items, was moved to Buildings 79 and 153, and the entire interior was remodeled. As part of this work, completed in 1937, the light wells in the third floor were removed.

The primary exterior changes as a result of the WPA work involved the addition of single doors in place of one of the windows in bays 6, 10, and 24 on the south side. The freight doors in the fourth bay were removed and replaced by windows; these utilized windows removed for the new pedestrian doors and the infill of the window openings at the eastern end of the north side.



In 1939 a new freight elevator was installed. This project saw the addition of a 13 ft. x 9 ft. penthouse over the elevator shaft. That same year, a 128.8 ft.x 15.62 ft. lean-to was added to the north side east of the central garage door. In the following year, a similar 84.7-ft.-long lean-to appeared to the west of that door. A final addition came in FY 1944, when a concrete block, flat-roof 24.96-ft. trapezoidal extension appeared on the north side of the west end. In addition to the Building Trades Shop, the WPA occupied a portion of the second floor as offices until it was disbanded in the early 1940s.

The Printing Office and a Battery Charging Station were also located on the second floor until the late 1940s. Thereafter, the building (beyond the portion which was used by the Power Plant) was occupied exclusively by the Building Trades Shop (later termed the Public Works Shop) until the closure of the Navy Yard.

Building 107 was transferred to the Boston Redevelopment Authority as part of the Historic Monument Area in 1978. During the following year, the BRA demolished the additions, as well as additions to Building 108 which touched the eastern end of Building 107. It also restored the limestone lintel over the windows where the west side addition had been.

In late 1979, in accordance with an agreement authorized under the National Parks and Recreation Act of 1978, the BRA turned the structure over to the National Park Service for use as maintenance shops and offices to replace buildings within the national park demolished for highway projects. The formal conveyance of the property back to the United States would take place in February 1985 but, due to a lack of understanding of the structure by both parties, failed to include the connector section between Buildings 107 and 108. Shortly after taking over the building, the NPS installed a gas-fired heating system. Although the initial plan was that the second floor would house all park offices, little work was done on that concept.

In the mid-1980s, the park decided to utilize portions of both the second and third floors for storage of its museum collection. The eastern end of the second floor became offices for the Maintenance Division in 1987.

In the early 1990s the NPS undertook replacement of the slate roof on the building. As part of this work, NPS removed the fence which delineated the portion of 107 occupied by the Power Plant. It has also replaced the overhead doors in bays 11 (both sides) and 21 with new steel doors, while closing off the door at the west end with security screens similar to those which the Navy had installed on the first-floor windows.

The NPS is moving forward with its efforts to undertake necessary rehabilitation of the building's exterior, including repointing of the walls and window repair/replacement. In 2018-2019, the City of Boston's Planning and Development Agency, Successor to the BRA, (BPDA) began to demolish the attached Power Plant, Building 108 with exposure of the previously interior walls and roof structure of Building 107 at its attachment via the link building.

## **Building Analysis**

### **Character-defining Elements**

#### *Exterior*

- Brick and stone façade continuity with architectural detail at pilasters, elaborate entablature including corbelled cornice, recessed window bays with brick arches and stone lintels, and granite water table with sills
- Slate hipped roof with profiled copper gutter edge and hip battens, skylights, and ventilators at ridge
- West elevation with faceted dormer and story-high rail entrance including original wooden overhead door
- Original personnel entrance to upper floors at fourth bay from west end of the south facade including diagonal glazing and classical moldings at door
- 6/6 double-hung sliding sash windows
- Safety and other building signage

#### *Interior*

- Ceiling heights at windows
- Window casework
- Steel stair from entrance to second floor

## **Integrity/Intactness**

The building incorporates successive periods of change with little significant change within. North elevation has about 30 windows infilled with brick. Introduction of freight elevators and secondary stairs and infill of light wells are less important maintain or restore that facades where alterations detract from public views of the historic architecture.

## **Building Envelope Condition**

Generally, the building's west and south masonry elevations are in good condition. Numerous locations on the north elevation require masonry repairs, cleaning, and repointing. The proposed state of the east elevation after demolition of Building 108 remains unknown, but construction of an architecturally compatible exterior wall must occur-potentially integrated into construction of a new building where Building 108 once stood. Window sashes and many wood sills are ruined beyond repair although many frames seem to be sound. The building is without insulation. Slate roof planes terminate at concealed copper gutters where visible oxidation indicates that replacement is overdue. Copper skylights and ventilators are also worn beyond retention.

## **Building Interior Condition**

The ground floor interior is painted brick walls, exposed steel, and concrete floors and ceiling. Upper floors are roughly habitable, but in very poor condition. Upper floors appear to have asbestos-containing tiles, possibly on original maple wearing surfaces.

## **Structural Assessment**

Approximately 20,000 sf of slab-on-grade is well beyond the end of its expected service life, as there are cracks throughout the entire facility. However, it is thought that the Asset is integral to the historic character of the building and that Historic Preservation concerns apply. Therefore, it should not be replaced, but rather be maintained/preserved in the historically accurate condition in a few areas. In the attic space, it was observed that at various locations of the roof construction, the Mesh Reinforced Concrete. The slab is spalling and in poor condition. This will require immediate action as falling debris presents dangerous conditions.

On the ground level, the walls exhibit cracking due to settlement, and unintended bearing loads in brick walls are causing vertical cracks. There are three areas along the south-facing wall that have these crack lines. One is observed on the southeast corner of the building, another adjacent to men's room, and one at an interior brick wall outside the entry to the boiler room. This will require immediate action.

## **Mechanical System:**

### ***Heating Systems***

- The building is served by 10 cast iron water boilers which have all outlived their useful life. These are observed to be 300 MBH/module-Hydrotherm #MR-1500B.
- Hot water fin-tube radiators are used to serve toilet rooms, offices and short- and long-term storage spaces.
- A combination of cabinet-type and horizontal propeller-type unit heaters are serving the attic spaces. Horizontal propeller unit heaters are used in maintenance spaces.
- There are suspended hydronic unit heaters on the third floor. Most data plates were inaccessible.

- There is a heat pump at the Archives area, "used for cooling only" (written on the unit). This presumably works in conjunction with the adjacent blower/coil unit. This Asset will reach the end of its rated service life within a 10-year time frame. A fan-coil unit is located at the second-floor Archives and is supplied with cooling medium by the adjacent heat pump (see other Assets) and equipped with electric heat.

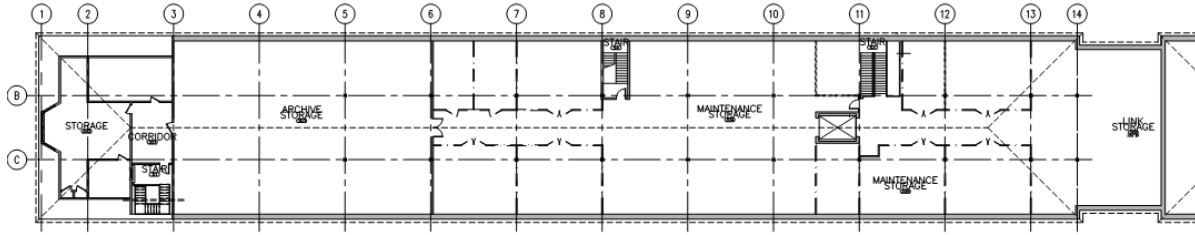
### ***Cooling systems***

- Window AC units are used to serve offices and short- and long-term storage spaces.
- HVAC pumps were observed to be base-mounted centrifugal pumps used to circulate heating hot water.
- Aside from some new controls associated with new equipment (such as at Curatorial Storage), the HVAC controls and automation are generally aged and outdated. Controls should be updated to include average DDC system, including PC and remote control, all associated devices and sensors, and dedicated electrical infrastructure.

### **Electrical Systems**

- The building is served by four 200 AMP Safety Switches, which are all in fair condition, and by three 100 AMP Safety Switches, which are all in fair condition.
- Area lighting at doorways, etc., standard wattage/ output fluorescent or incandescent lamps in wall or soffit mounted fixtures. This Asset is approaching the end of its rated or expected service life based on its estimated age and observed condition.
- There is no emergency generator for the building.
- At most of the third floor, interior lighting includes high wattage or high output lamps in aged fixtures. The appropriate or likely replacement would be HID lamps in ceiling-mounted/ceiling-hung fixtures. Lighting is inadequate in these areas. Replacement costs and quantities represent HID lamps and fixtures distributed at a higher density.
- There are five high output, and high wattage lamps (LED, metal halide, sodium, etc.) in exterior grade wall or structure-mounted fixtures for flood lighting.
- All of the egress door area lights are approaching the end of the rated or expected service life and will need to be replaced.
- Electrical distribution system comprised of primary transformer(s), metering, primary switch(es) and disconnect(s), main distribution panel(s), secondary transformers, secondary panel boards, and associated feeders/wiring. Minor and piecemeal upgrades to existing electrical distribution devices have been done, but generally, this asset is approaching or is beyond the end of its rated or expected service life based on its estimated average age and observed condition.
- At the second floor Archives area, interior lighting is provided in part by HID, halogen, or similar high wattage/output lamps in pendant fixtures.
- Interior lighting is primarily fluorescent lamps in suspended/ ceiling-mounted fixtures of varying types. This lighting is generally aged or aging. There are approximately 300 of these fixtures throughout the facility.





**BUILDING #107/ THIRD FLOOR**

