Backup Data for
A Case Study of the Adaptive Rehabilitation of Buildings 705 and 706

Norfolk Naval Shipyard




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Norfolk Naval Shipyard

Prepared For:

United States Navy
NAVFAC MIDLANT
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INTRODUCTION

In 2008, Naval Facilities Engineering Command, Mid-Atlantic (NAVFAC MIDLANT) awarded Defense Base Closure and Realignment Commission (BRAC) project P-214V which involved adaptive rehabilitation of two historic buildings at the Norfolk Naval Shipyard (NNSY) in Portsmouth, Virginia. The project consisted of renovating Quarters D&E and G&H (Building 705 and 706) to convert them from vacant residential buildings into usable office space. Renovations took place over a period of two years, and the buildings were completed and put into operation in July 2010.

Purpose and Scope

The purpose of this report is to summarize the rehabilitation, from the initial planning stages through completion, and to discuss the lessons learned from the project. It will briefly outline the background, processes, and events that led to the rehabilitation and highlight the successes and challenges encountered. The primary intent is to assess the project to determine whether rehabilitation of historic buildings is a viable option for the Navy in the future, and if so, how the process can be made more efficient.

This report was prepared in fulfillment of Stipulation 1.B. in the *Memorandum of Agreement (MOA) between the Department of the Navy, Commander, Navy Region, Mid-Atlantic (COMNAVREG MIDLANT), and the Commonwealth of Virginia, State Historic Preservation Office (SHPO), Regarding the proposed Demolition of Buildings 117, 118, 178, and 703, Naval Support Activity, Norfolk Naval Shipyard, Portsmouth, Virginia*.

According to Stipulation 1.B., the scope of this report should include the following:

1. Detailed description of the before and after conditions of Buildings 705 and 706.
2. Before, during, and after photographs of Buildings 705 and 706.
3. A discussion of any specific preservation challenges faced by COMNAVREG MIDLANT during the rehabilitation of Buildings 705 and 706 and how these challenges were addressed.
4. A discussion as to how COMNAVREG MIDLANT implemented “The Secretary of the Interior’s Standards for Rehabilitation” on the project.
5. A discussion on any instances where the Standards could not be fully incorporated into the design, to include an explanation as to why and what design solution(s) was/were implemented.
6. A description of what lessons COMNAVREG MIDLANT learned during the project and what, if anything, it would do differently and why.
7. A plan to disseminate the report to other Navy Commands that may find it useful.

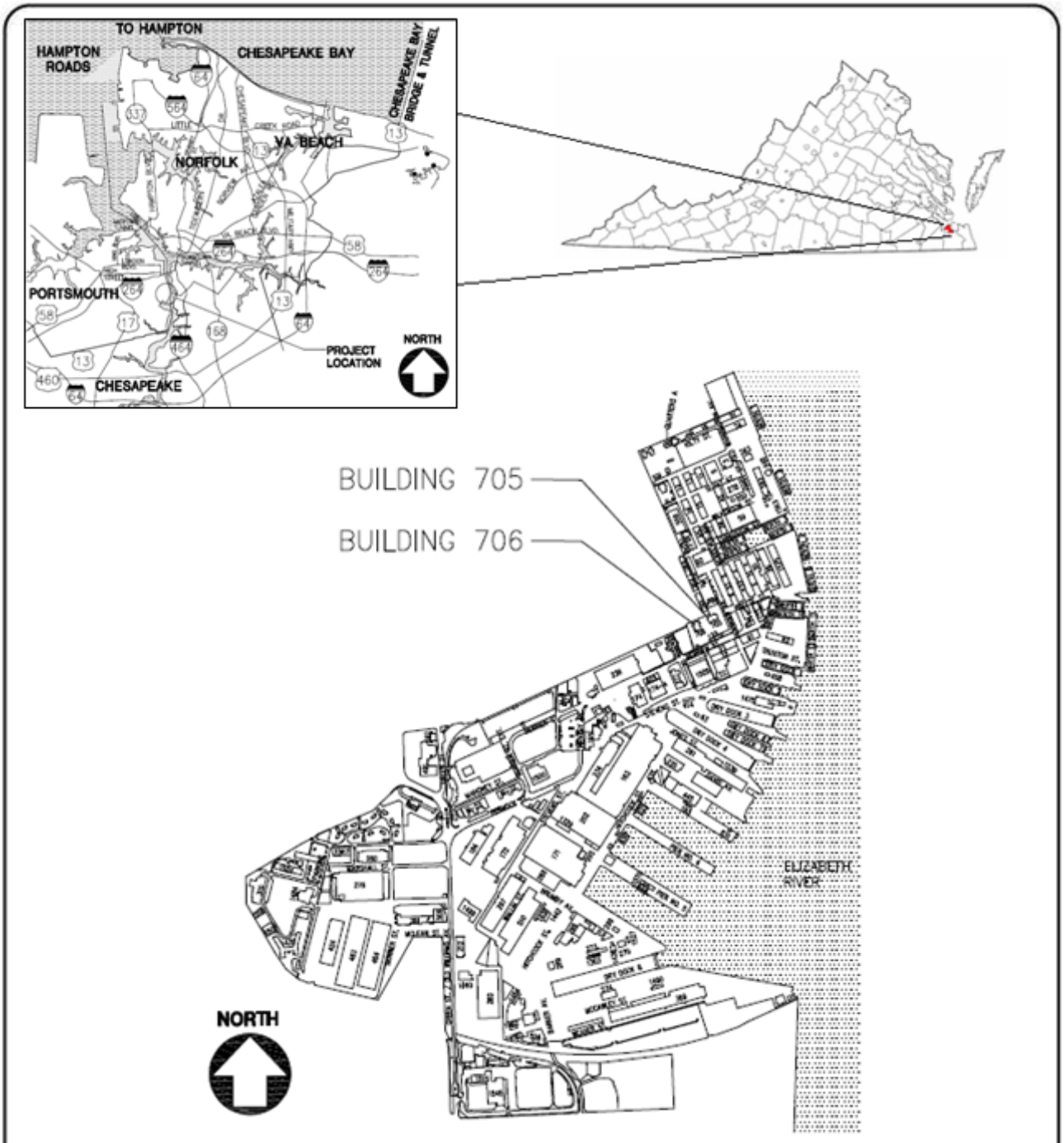


Figure 1: Location of Project Area

Project Location

Buildings 705 and 706 are located at NNSY, in the City of Portsmouth, Virginia (Figure 1). The NNSY is set on the west side of the Elizabeth River just south of downtown Portsmouth. The buildings are contributing resources to the Gosport Yard precinct of the NNSY Historic District. The Gosport yard precinct encompasses the original core of development at the shipyard and includes many of the installation's oldest buildings. This section of the shipyard follows the gridded layout pattern of the city of Portsmouth to the north. These two buildings are adjacent to one another on the north side of Berrien Street, west of its intersection with Renshaw Avenue, facing the Gosport Wall, which serves as the shipyard boundary at this location (Figure 2).

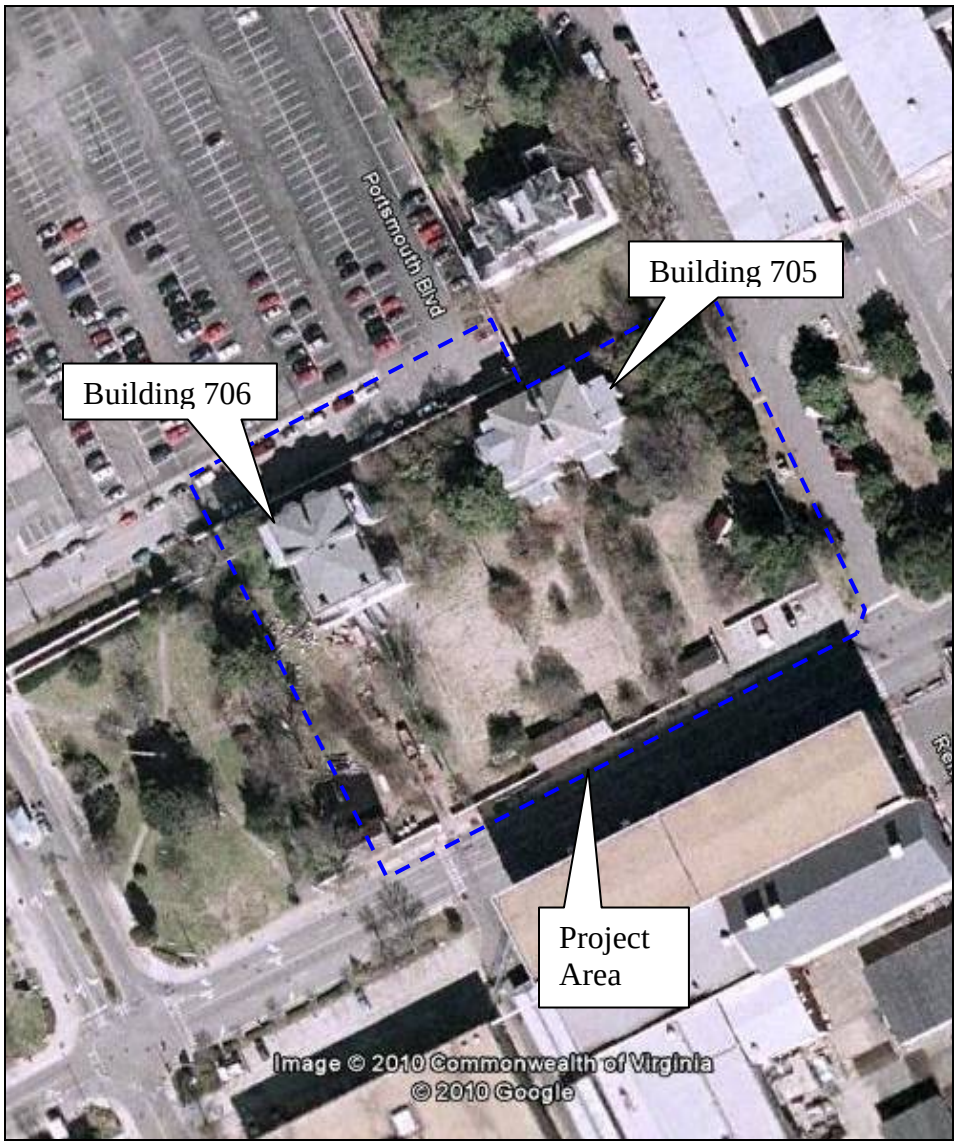


Figure 2: Aerial Photograph of Buildings 705 and 706, Taken 2007 Prior to Project Commencement

REHABILITATION SUMMARY

The completion of a historic rehabilitation project of this size and scale requires an extended period of time and many people working together. This project lasted nearly five years from the date the buildings were selected until they were move-in ready. Five firms employing dozens of people working on the project were required to allow the project to take place, in addition to the numerous Navy staff that assisted with the project, as well as SHPO personnel.

Development Schedule

BRAC Report Issued: May 2005
Navy notifies SHPO of potential use for BRAC relocated commands: July 2005
Funding approved: January 2007
Navy initiates consultation with SHPO: March 2007
Navy consults with SHPO on project design: July 2007 – May 2008
Design Completed: April 2008
Memorandum of Agreement between Navy and SHPO executed: Jun 2008
General Contractor Hired: Sep. 2008
Construction initiated: Nov. 2008
Construction completed: June 2010
Ribbon Cutting: July 2010

Key Stakeholders

Building Tenant
US Navy, Naval Sea Systems Command
1333 Isaac Hull Avenue, SE
Washington Navy Yard, DC 20376-1080

Building Owner
Commander Navy Region Mid-Atlantic
1510 Gilbert St.
Norfolk VA 23511

Design & Construction Agent
NAVFAC MIDLANT
9742 Maryland Ave.
Norfolk VA 23511

Architectural and Engineering
HBA Architecture & Interior Design, Inc.
One Columbus Center, Suite 1000
Virginia Beach, Virginia 23462

Structural Engineers
Stroud, Pence, and Associates, Ltd.
5032 Rouse Drive, Suite 200
Virginia Beach, VA 23462

Mechanical Engineers
Bowman, Foster & Associates, PC
6379 Center Drive
Norfolk, VA 23502

Civil Engineers
Hoggard-Eure Associates, PC
901 Port Centre Parkway, Suite 5
Portsmouth, VA 23704

General Contractor
John C. Grimberg Company, Inc.
3200 Tower Oaks Blvd., Suite 300
Rockville, Maryland 20852-4216

State Historic Preservation Office
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, Virginia 23221

PROJECT BACKGROUND

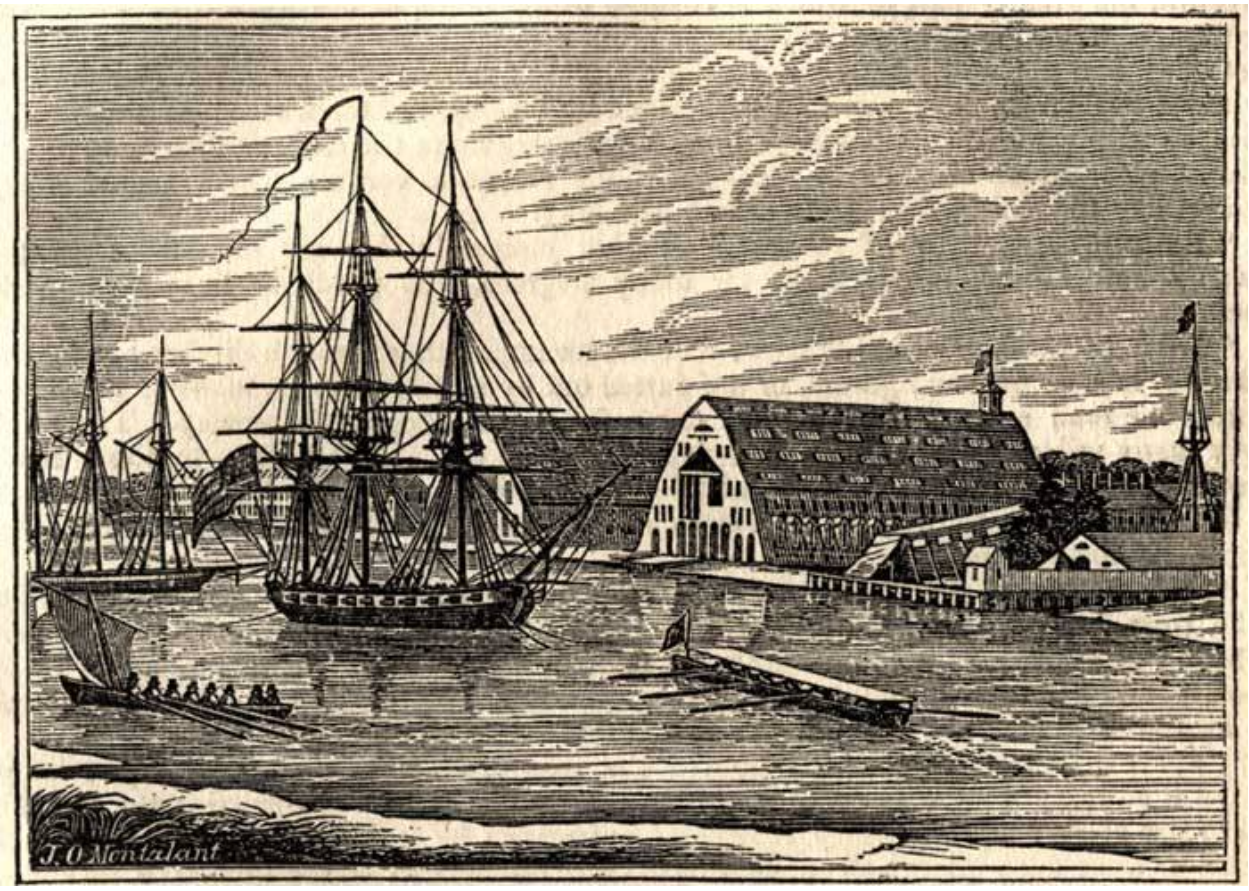
In 2000, NAVFAC MIDLANT, initiated consultation with the Virginia Department of Historic Resources, State Historic Preservation Office (SHPO) regarding the Navy's intention to demolish a group of historic quarters (Quarters P-Z) at the NNSY which were considered contributing resources to the National Register of Historic Places (NRHP)-eligible Norfolk Naval Shipyard Historic District. According to the nationwide Programmatic Agreement (PA) for historic family housing prepared by the Navy, these buildings had been assigned Category II ratings. The PA defines Category II buildings as "….those units that possess sufficient significance, continuing or adaptive reuse potential or other value to merit consideration for long-term preservation." The demolition of these buildings therefore created an Adverse Effect to the historic district, and SHPO recommended that the ensuing MOA include a firm commitment by the Navy to the retention and rehabilitation of the other historic residential quarters at the shipyard in addition to other mitigation measures.

In response, the Navy provided a summary of the status and likelihood for retention of other historic quarters at the shipyard. They noted that three resources, Quarters A, B, and C, were already listed in the NRHP and protected as such. Quarters I&K were occupied at the time with no foreseeable consideration for demolition. They stated that Quarters D&E, G&H, L&N, and M-1 were all (or soon would be) vacant, and were not considered candidates for reoccupation because of the lack of family housing needs at the shipyard. The Navy claimed they were not in the position to make a long-term preservation and rehabilitation commitment on any of the buildings at the time, but they would place these resources in caretaker (mothball) status for a period of five years. SHPO accepted the mitigation, however urged the Navy to continue to explore options to retain the historic quarters.

Building Selection

The 2005 Defense Base Closure and Realignment (BRAC) Commission recommended the relocation of two offices from Naval Station Annapolis and Navy Philadelphia Business Center to the NNSY. The shipyard would therefore need to provide office space for approximately 60 new employees, requiring 22,464 square feet. A review of potential facilities by shipyard staff determined that Building 703 would not work for this project however identified Buildings 705 and 706 as viable candidates for the needed space. The combined square footage within them was approximately the same as the space needed. Further, these were two of the vacant historic quarters that the shipyard had not found a use for up to that time, and the adaptive rehabilitation of them showed that the Navy was indeed making a good-faith effort to utilize and retain their historic residential buildings. The PWD Portsmouth planning staff developed a DD Form 1391 for the project which defined the project scope and provided an estimated cost.

SHIPYARD HISTORY



"Navy Yard, Gosport"
From an engraving by J. O. Montalant, published 1845 in
Howe's "Historical Collections of Virginia"

The Beginning (1767-1826)

The origins of the Norfolk Naval Shipyard date to 1767 when a small ship building and outfitting facility was established just south of the Town of Portsmouth on the Elizabeth River by a Scottish immigrant, Andrew Sprowle. Gosport Yard as the facility was known quickly gained a reputation as one of the finest shipyard in the colonies, and Sprowle was appointed as an Agent by the British Navy. There were plans to expand Gosport into a larger Naval Station; however the American Revolution began before the plans could be realized, and American forces quickly captured the shipyard, recognizing the importance of the facility.

For several years, Virginia used Gosport to build war vessels, however throughout the war, neither the Continental Congress, nor the individual colonies were able to maintain a standing Navy. The few ships the Colonial forces had proved no match for the British Navy, who in 1779 was able to land in Portsmouth with the objective of stopping the flow of supplies from Hampton Roads to the Continental Army, and also to reclaim the Gosport Yard. According to the British Commander in charge of the assault,

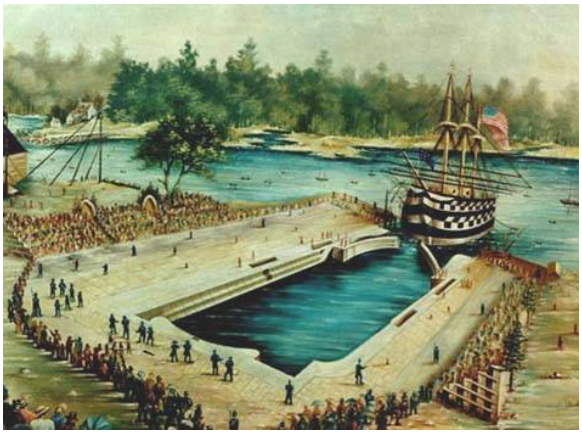
Admiral Sir George Collier, Gosport was "the most considerable [shipyard] in America….large and extremely convenient…and contained five thousand loads of fine seasoned oak-knees for shipbuilding, an infinite quantity of plank, masts, cordage, and numbers of beautiful ships of war on the stocks." Colonial forces were determined to not allow the facility to fall into the hands of the British Navy and be used against them, so prior to abandoning the yard, all of the buildings and supplies left behind were burned.

With the ratification of the United States Constitution in 1789, a new initiative was undertaken to establish and maintain a Navy capable of defending the new nation's maritime commerce. President Washington and Secretary of War Knox approved construction of six frigates, and decided that they should be built by government agents in leased shipyards along the Atlantic Coast. Gosport Yard was one of the facilities chosen, in addition to facilities in Portsmouth, New Hampshire, Boston, New York, Philadelphia, and Baltimore. In 1798, the Department of the Navy was created with Benjamin Stoddert acting as Secretary. Stoddert was influential in expanding and strengthening the young Navy in its formative years, and was insisted that the government not simply lease shipyard facilities for naval construction, but that they acquire them permanently. As such, Gosport Yard was purchased from the State of Virginia for $12,000 in 1801 and became one of the first US Naval installations.

Development through the first several decades of nineteenth century was slow as President Jefferson and the Republicans favored maintaining a smaller navy, capable only of passive defense of the coast rather than a full sea-going force. The War of 1812 showed that this approach was not sufficient and in 1816, an act was passed allowing for the gradual increase in naval force in which the existing shipyards would play an essential role. A large ship construction program was initiated that called for hundreds of ships to be built at the various yards. Despite Gosport's healthy share of ship construction during this time period, there was little development and construction to the yard itself. This changed however in 1827 when the Act for the Gradual Improvement of the Navy of the United States replaced the earlier act, and provided the Navy with $500,000 per year for six years to upgrade its facilities.

Growth and Development (1827-1860)

1827 essentially marks the beginning of the shipyard as it remains today. Over the next two years, Gosport Yard was greatly expanded by the purchase of numerous adjacent properties and town lots and building construction began in earnest. The new funding allowed for construction of the first dry dock in the country, Dry Dock No. 1, a vital component necessary for large-scale, effective ship building. By the 1833, other buildings had also been constructed, including residential Quarters A, B, C, D, and E, as well as several industrial and storage buildings and portions of the brick wall that surround the historic core of Gosport Yard.



Dry Dock No. 1

The advent of steam-powered ships fueled even more construction and development at the yard and in 1843, the Elizabeth River was dredged to deepen the river, and the fill was used to build up low land into usable space. The yard grew rapidly throughout the 1840s and 1850s with numerous buildings being constructed and by 1860, nearly 1,000 people were employed there.

The Civil War (1861-1865)

When the Civil War erupted in 1861, both sides recognized the importance of Gosport Yard, being the only shipyard located within the southern states. Numerous ships were stationed there although only one was ready for action. The shipyard contained all the resources though to maintain an active fleet; a dry dock for outfitting, a foundry, a boiler, large quantities of supplies, and guns and ammunition. Tricked into believing the Virginia Militia was more prepared to capture the base than they really were, the yard's commander, Commodore Charles S McCawley ordered the yard be destroyed so that it could not be used by Confederate military. During the demolition, several charges did not detonate, and when the Virginia Militia did assume control of the yard, they found it badly damaged, but usable. The most important component for ship construction and outfitting, Dry Dock No. 1, remained nearly undamaged.

One of the most famous, or would-become famous ships left at Gosport was the USS Merrimack. Slightly damaged from fire, the Confederate Navy devised a plan to refit the ship as a blockage breaker by covering the ship in three inches of armor. Renamed the CSS Virginia, it took part a year later in what became one of the most influential naval battles of all time, with the USS Monitor at the battle of Hampton Roads.

The Sinking of the "Cumberland" by the Ironclad "Merrimack" Off Newport News, Va, March 8th, 1862. Lithograph by Currier and Ives, 1862

The battle was ultimately indecisive though, and Union forces captured Portsmouth in May 1862. Being abandoning Gosport, Confederate forces once again attempted to destroy the facilities, this time with more success. Only Dry Dock No. 1, the Officers' Quarters (Quarters D and E), foundry, and boiler shop remained in usable condition. Under union control, Gosport was renamed US Navy Yard, Norfolk, Virginia, however remained largely in a ruinous condition the remainder of the war.

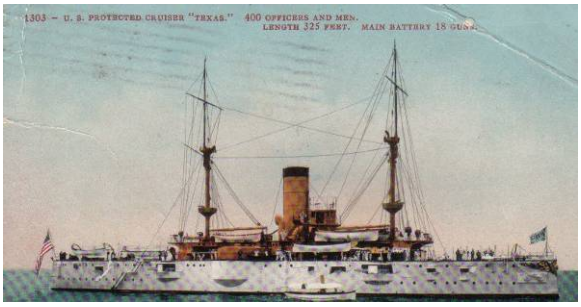
Post War Quiet (1865-1880)

The two decades following the Civil War were a relatively quiet time for the Norfolk

Yard and the Navy as a whole. Ship construction in particular, came almost to a halt. Between 1865 and 1873, Congress authorized the construction of only seven new vessels. The majority of work performed at the Norfolk Yard during this time period was building reconstruction to replace structures damaged and destroyed during the war. Some new buildings were also put up during the post Civil War decades including mostly industrial and workshop facilities, however a second residential quarters (Quarters G and H) were also constructed. Basically, Norfolk functioned solely as a small repair plant rather than a major ship-building facility throughout the reconstruction-era.

Formative Years (1881-1915)

The creation of a Statutory Board of officers in 1881 and a second in 1883 marked a change in direction for the Navy with more emphasis put on modernization and maintenance of a world-power fleet. Congress funded the construction of several steel cruisers, although this influx in development did not immediately affect the naval yards as construction was contracted out to private builders. Privatization proved slow and ineffective so the new Secretary of the Navy, William C. Whitney elected in 1885 to return construction of naval vessels to the government yards. Updating was required first however, so two new Dry Docks were built, one in New York and one in Norfolk. Under this program, the Norfolk Yard constructed two important ships in the development of the new Navy, the USS Raleigh, the first steel cruiser in 1892; and the USS Texas, the first Battleship, in 1892.



USS Texas
Postcard by Enrique Muller, 1907

Building construction and development continued to occur at Norfolk throughout the 1890s as well and its third Dry Dock was built in the first decade of the twentieth century under the Theodore Roosevelt administration. Advancing into the twentieth century, ship construction at the shipyard slowed again, as facilities became outdated with technological improvements. In 1904, the shipyard acquired the Schmoele Tract, a large parcel of adjacent land that marked the first increase in size to the facility since the 1820s, however it remained largely undeveloped until World War I.

Growth of the Modern Navy (1916-1940)

The outbreak of World War I did not immediately impact naval development or construction at the Norfolk Yard as the United States attempted to remain neutral throughout the early years of the conflict. Increased threats from German submarines and sinking of private vessels however eventually forced President Wilson to call for more naval preparedness. The Navy Board proposed the construction of 156 new ships including battleships, destroyers, cruisers, and submarines which was enacted by the Naval Act of 1916. The act also provided the nation's shipyards with the much-needed funds to overhaul and expand their shipbuilding capabilities. Nearly 100 new buildings and structures were constructed at Norfolk, which finally

expanded onto the large Schmoele Tract. Most of the development followed the earlier grid pattern of construction and used the "Type Plan" designed by the Board for the Development of Navy Yard Plans that promoted efficient wartime construction with a prescribed set of necessary facilities and components. This plan was an important step in military planning, and although utilized at all naval yards, was first put into practice at Norfolk.

The end of World War I once again brought a period of decline for the shipyard and the Navy in general. The atrocities of the war caused most Americans to favor returning to a passive stance with less emphasis on military funding. Several treaties signed throughout the 1920s limited the number of vessels that the three largest world navies could have, and therefore many American ships were decommissioned during this time. The role of the Norfolk Yard was limited to repair and overhaul and the number of employees dropped from 11,000 to just over 2,000 by 1923. The only major construction that took place at the yard during the 1920s was the conversion of the USS Jupiter into the first American aircraft carrier.

USS Langley Renamed from USS Jupiter,

Boom and Recession (1932-1950s)

The inactivity for the Navy did not last long though; a new period of development was initiated in the 1930s by President Roosevelt who had served as Assistant Secretary Navy prior to his election. One part of Roosevelt's New Deal program included increased funding for ship construction and shore facility improvements. Expansion continued to increase in the mid-1930s when Japan announced they were ending their adherence to Naval limitations and military tensions in Europe began to rise. The Emergency Mobilization Period of 1939-1941 followed by the United States' official entry into World War II marked the largest period of growth and development for the Navy as a whole and for the Norfolk Naval Shipyard.

During the World War II period at the Norfolk Yard, 101 new ships were built, over 6,000 were repaired, and employment peaked at 43,000. The size of the shipyard nearly doubled during this period with the acquisition of adjacent property, and one of the most important facilities present, the Hammerhead Crane, was built during this time. By 1945, there were 685 buildings and structures at the shipyard which controlled almost five miles of waterfront.

The post-war years leading into the Cold War were yet another period of downsizing and inactivity at the shipyard, officially

renamed the Norfolk Naval Shipyard in 1945. Once again, ship repair and maintenance became its principle responsibility with only a few new-ship construction orders as part of the Korean War in the early 1950s. These in fact were the final ships actually built at the Norfolk Naval Shipyard which ceased construction permanently later in the 1950s.

Nuclear Age (1960s-Present)

The 1960s however brought drastic changes to the facility and its operation by means of nuclear technology. The US Navy was the first to embrace nuclear power for its vessels and the Norfolk Naval Shipyard became an important facility for the repair and overhaul of the Atlantic Fleet.

Throughout the 1970s and 1980s, the base continued to evolve to keep up with the most technologically advanced ships in the Navy.

By 1992, Norfolk was capable of working on every type of vessel in the fleet and could house and feed the entire crew of those ships docked at the facility for repair. It is currently the largest ship storage, repair, and distribution center on the East Coast and performs roughly $650 million worth of work on the Atlantic Fleet annually.

Aircraft Carrier in Dry Dock at Norfolk Naval Shipyard

BUILDING HISTORY

Buildings 705 and 706 are significant components of the NNSY and Historic District. Building 705 (Quarters D&E), was one of the four original residential buildings constructed at the yard in its earliest period of development and Building 706 (Quarters G&H) was one of only several buildings, and the only residence, constructed at the yard during the post-Civil War Reconstruction-era. Both buildings are located in the Gosport Yard precinct of the shipyard and represent two of only three remaining historic duplexes in this section. Gosport Yard comprises the initial core of the shipyard and as such, represents an important aspect of the growth and development of the installation. Both buildings were constructed as officers housing, giving them important associations to the command and operation at the shipyard, and both are excellent examples of their particular architectural styles as well. For these reasons, both Building 705 and 706 are considered contributing resources to the National Register of Historic Places-eligible Norfolk Naval Shipyard Historic District, and are considered worthy of continued preservation.

Building 705

Building 705, also known as Quarters D&E, was constructed in 1842 to serve as Junior Officer's quarters. Following military etiquette, Quarters A, B, C were built as single-family residences to house the Commander of the Shipyard and his two Senior Staff Officers. Junior Officers were to be housed in Quarters D&E, "a double-house of above-average quality." The home was constructed in a transitional Federal to Greek Revival style with influences from Asher Benjamin's The American Builder's Companion, published in 1827.

The main building is rectangular in plan, six bays wide by three bays deep. The brick structural system is laid in a Flemish Bond and is two-stories tall set on a raised basement. The building is covered by a low-pitched hipped roof interrupted by two central chimney stacks and a pair of louvered gable dormers. A granite boxed cornice embellishes the roofline. The main entrances are located in the outermost bays on the front façade and are sheltered by single-bay porticos. The portico on Quarters D has a cantilevered hipped roof supported by decorative brackets while the portico on Quarters E has a gabled roof supported by Tuscan columns. Fenestration consists of double-hung sash windows with six-over-six light configurations and feature granite lintels and sills.

A one bay by one bay addition with a projecting bay window was attached to the east side of Quarters D circa 1880 and a two-bay by two-bay addition was attached to the west side of Quarters E in 1895. Both additions are constructed of brick laid in an American Bond, feature front porches with wrought iron railings and supports, and have double-hung sash windows with two-over-two light configurations. They are similar in design; however each varies slightly in detail. The east addition is covered by a flat roof with a wood boxed cornice, while the west addition has a hipped roof with a corbelled brick cornice. The east addition has a projecting clipped bay, while the entire mass of the west addition has clipped corners.

A series of wood-frame porches were also appended to the rear and sides of the

building throughout the nineteenth and twentieth centuries. All the porches were all supported by iron columns cast in the form of upright cannons. Over time, many of these porches were enlarged or enclosed with various windows.

The interior of each unit has a double-pile plan with a side passage, and an additional room to the side created by the additions. Stylistically, the interior is reflective of the building's construction date with various Federal and Greek Revival embellishments. The grandest interior elements are the matching cantilevered circular stairways in both units with molded handrails, turned balusters, and brackets with a carved Greek Key pattern. All door and window architraves have Greek Revival style moldings with corner blocks adorned by oak leaf and acorns. The doors and windows have paneled jambs as well with paneled wainscoting below. All fireplaces feature black marble mantels.

Building 706

Building 706, also known as Quarters G&H, was constructed in 1881 to serve as Junior Officer's quarters. G&H was the only residential building constructed at the shipyard in the post-Civil War Reconstruction period and follows the earlier pattern of being constructed as a double-house. It is constructed with a combination of Italianate and Renaissance Revival stylistic influences.

The main building is rectangular in plan, four bays wide by six bays deep, with hexagonal projecting bays on the front façade. The brick structural system is laid in a combination of Common Bond and American Bond and is two-stories tall set on a raised basement. The building is covered by a low-pitched hipped roof interrupted by five central chimney stacks and a pair of louvered gable dormers. A paneled frieze and compound cornice with paired brackets embellish the roofline. The main entrances are located in the outermost bays of the front façade and are set back under two-story integral-roof porches supported at the ground level by iron columns cast in the form of upright cannons. Fenestration consists of double-hung sash windows with two-over-two light configurations and feature granite lintels and sills.

At some point in time, the two front porches were extended to each side and enclosed with continuous bands of windows. A continuous one-story porch with a wide band of windows was also appended to the rear of the building and partially wraps around each side. This porch is supported by cast iron cannon columns as well. A second story addition was appended over the rear porch on Quarters H.

The interior of each unit is organized around L-shaped hallway with two rooms inside the angle and one above. Stylistically, the interior is reflective of its construction date with various Victorian embellishments. A curved stairway is located in the corner of each hallway with a heavy newel post and turned balustrade. A second stairway is located at the rear of each hallway. The most ornate spaces in the building are the two front parlors which feature black marble mantels, plaster crown molding, and ceiling medallions. Other interior embellishments include heavy molded door and window surrounds, molded picture rails, transoms above first floor doorways, and built-in cabinetry.

PRE-PROJECT CONDITIONS

Buildings 705 and 706 ceased to function as residential quarters in 1999, and became vacant at that time. Over the next decade, the buildings were allowed to succumb to deterioration and fall into a severe state of disrepair.

An inspection of the buildings by the project team prior to the design process revealed extensive moisture damage to both the exterior and interior of the buildings. Gutters and drains had become clogged creating standing pools of water against the foundation at ground level, and on flat portions of the roof. Water from the roof had leaked in causing damage to interior features such as the plaster ceilings and walls, wood trim, doors, windows, and sections of floor. The numerous wood frame porches and additions that were not constructed as sturdily in the first place were especially deteriorated. Conditions were worsened by animal infestation and damage. Fortunately, even in their deteriorated state, the "bones" of both buildings were still intact, and most of the significant historic details were salvageable. Following the site inspection and assessment, it was possible to begin planning for the level of effort needed to rehabilitate the buildings, and requests for proposals could be released.

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Representative photographs of the building interiors at the time of inspection

Representative photographs of the building exteriors at the time of inspection

PLANNING AND CONSULTATION

Design-Bid-Build

The Navy utilized a conventional Design-Bid-Build process for this project. Design-Bid-Build is a project delivery method in which the agency or owner contracts with separate firms for the design and construction portions of a project. For this project, the Architectural/Engineering Firm (AE) was hired and worked closely with the Navy to produce a conceptual or schematic design that incorporated the necessary space requirements for the prospective tenants, while respecting and preserving as much historic character as possible. The AE summoned other specialty firms such as Mechanical, Structural, and Civil Engineers, to assist with those aspects of the buildings design. Once completed, the design was released to General Contractors (GC) for bidding. The Navy then reviewed each GC and ranked them, evaluating cost, qualifications, relevant experience, and workload. In this case, qualifications and familiarity to Historic Preservation were top priorities, and the prospective GC that met these standards with the lowest bid was awarded the project. All work was to be executed under a single, fixed-price contract-to-budget.

Funding Information

Securing funding is typically one of the most challenging parts of development projects, especially within the Navy, where funding requests for renovations and improvements to administrative space typically receive less priority than for piers, security, and other operational measures.

Funding for this project was provided by the Defense Base Closure and Realignment Commission (BRAC). BRAC funds are separate from regular operations and maintenance (O&M) or military construction (MCON) funds. In its 2005 report, BRAC recommended that two departments be relocated from Naval Station Annapolis and Navy Philadelphia Business Center, to the NNSY and therefore provided the necessary funding. The commission provided funding for the acquisition and preparation of the appropriate amount of office space at the shipyard, in this case, the complete rehabilitation of both buildings.

PROJECT IMPLEMENTATION

Secretary of the Interior's Standards

In order to avoid adverse effects on the Buildings 705 and 706 which are contributing to the NRHP-eligible Norfolk Naval Shipyard Historic District, all project work had to conform to the Secretary of the Interior Standards, Guidelines for the Rehabilitation of Historic Properties.

Rehabilitation is defined as "*the process of returning a property to a state of utility, through repair or alteration, which makes possible an efficient contemporary use while preserving those portions and features of the property which are significant to its historic, architectural, and cultural values.*" As stated in the definition, the treatment "rehabilitation" assumes that at least some repair or alteration of the historic building will be needed in order to provide for an efficient contemporary use; however, these repairs and alterations must not damage or destroy materials, features or finishes that are important in defining the building's historic character. The Standards are to be applied to specific rehabilitation projects in a reasonable manner, taking into consideration economic and technical feasibility. Their application in this project is discussed below.

- Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.
- Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
- A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.
- The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
- Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.
- Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.
- Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.
- Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.
- New additions, exterior alterations, or related new construction shall not destroy historic materials that

characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

- New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

Design Process

The overall project goals entailed the following:

- Convert existing historic family housing (Buildings 705 & 706) to engineering office space and perform renovations and alterations throughout as necessary for the adaptive reuse of the buildings
- Add elevators to Buildings 705 & 706 to meet ADAAG
- Implement life safety improvements
- Implement needed structural repairs and strengthening to existing buildings
- Abate asbestos, lead paint and other hazardous materials
- Provide new utilities at site as required by new use
- Demolish the existing garages (Buildings 133, 136 & 460)
- Provide parking for privately owned vehicles (POVs) in proximity to offices
- Secure the perimeter of adjacent Port center Parking lot and provide access through existing perimeter brick wall

Critical Design Elements

In order to facilitate the treatment and management of historic resources within the NNSY, the proposed Amendment #1 to the regional PA divides the shipyard into three planning precincts; the Gosport Yard, the Industrial Area, and the Support and Supply Area. These precincts correspond to distinct areas that vary in significance, architectural value, and integrity. Each of the three precincts has been assigned an overall Preservation Priority Rating, and each building within has been given a Treatment Category. Buildings 705 and 706 are located in the Gosport Yard Precinct which is the only precinct at the shipyard to be rated Category I and have outstanding significance.

The PA goes onto list the Critical Design Elements encountered in the Gosport Yard Precinct that characterize and identify the area and the buildings within. These elements include:

- **Scale:** Medium-scale buildings predominate with smaller service buildings increasing site density.
- **Massing:** Quarters have pitched roofs and most are two-and-a-half stories on raised basements.
- **Setback:** Residences all have at least one face tight to the street grid.
- **Edges:** The ante bellum wall along the northern and western boundaries of the north yard as far south as Portsmouth Boulevard presents an unmistakable edge to the district. Quarters constructed along this edge create a functional continuity as well.
- **Spacing:** At the precinct's core nineteenth century buildings are sited in a consistent grid pattern, creating a

discernable rhythm of buildings, streets, and sidewalks

- **Materials:** The pervasive use of brick and stone, couple with repetitive massing provides the historic precinct with its unmistakable character.
- **Unique Features:** (*Specific to Quarters*) All interiors with the exception of kitchens and bathrooms. Interior trimwork at A, B, C, D, and E, including oak-leaf rosettes and plaster ceiling medallions. Exterior iron work at D & E, including cast-iron balconies. Wrought iron railings and marble stairs at A, B, C, D, and E. Exterior gun-barrel columns at all quarters except L & N. Quarters D & E and G & H assigned Treatment Category 1 in PA.

It was therefore crucial that the rehabilitation respect these characteristics in addition to following the Secretary of the Interior's Standards during the rehabilitation. To accomplish this, the design team had to perform an assessment of significant and character defining features of the buildings from site visits, previous historic research and documentation efforts, and consultation with SHPO.

SHPO Coordination

Prior to the design charrette, NAVFAC met with the AE team and SHPO to establish pertinent preservation issues and identify a list of preferred treatment options to be incorporated into the design plan. Because the project included demolition of the quarters' garages which constituted an adverse effect, an MOA was prepared by the Navy and accepted by SHPO that provided various requirements for the project such as design and construction guidelines, the qualifications of contractors, and other pertinent issues.

During the initial design, the Navy and SHPO identified the following as key items:

1. Repair vs. Replace
    - Windows shall be repaired wherever possible. In cases where the glazing and/or glass are beyond repair, a new window will be fabricated to match the existing conditions. Glazing on many exterior windows, particularly on the enclosed porches, has tested positive for asbestos. If this glazing is not intact, it must either be abated or the entire window replaced.
    - Storm windows shall be mounted on the interior side to preserve the character of the building exterior.
    - Doors shall be treated similarly. To the greatest extent possible, all doors will be replaced in the original doorways and tagged back so as to not interfere with the floor layout.
    - Rod iron work on Building 705 shall remain, however structure above shall be removed.
    - Where ever possible, all hardwood floors are to remain. Floors damaged beyond repair shall be replaced in kind.
    - The existing slate roof on Building 705 does not need to be replaced. However, it is recommended that the asphalt shingle roof on Building 706 be replaced in kind.

2. Lead-Based Paint Abatement
    - All paint samples have tested positive for lead, cadmium, and chromium. Surfaces which are cracking or pealing will need to be scraped to the substrate. This is done either by hand (if the paint is pealing always) or by using chemical gel. Walls with fully intact paint may be left along and painted over.

- Much of the pipe insulation tested positive for asbestos. Since the piping will not be re-used, it may be cut away and bagged as hazardous material.
- Floor tile in several areas that tested positive for asbestos may remain in place if they are not to be disturbed; however it is recommended that it be removed.

3. Structural Repairs and Modifications Necessitated by Conditions, Criteria, and Change of Occupancy.

- Structural analysis may reveal that it is more economically feasible to replace portions of the buildings versus upgrading the structure components to current standards. In this case, a cost analysis is an important criterion for making such a decision. However, it should be recognized that there may be acceptable cost trade-offs for retaining original elements. Demolition and replacement is least preferred.
- Any repair of brick mortar is to match the existing in color and tooling.

4. Removal of Interior Walls, Doors, and Other Elements to Accommodate the New Office Tenants and their Program.

- Breach of interior walls, as discussed for circulation (such as between the duplex units) is acceptable. Doors are to remain (or be put back) on their hinges and tagged back.
- Where egress requires a widening of doorways, all other "passive" means of accommodating the required width shall be exhausted before physically altering the building.

5. Provision of New HVAC, Fire Sprinkler, Lighting, Power, and Telecom Systems to Suite the Use as Offices.

- Power and telecom systems shall be let into the wall and patched. In some cases the systems may be best suited to go into the floor.
- Existing lighting elements, such as chandeliers, shall be retained. New lighting shall be pendants of period style but discernibly new.
- HVAC shall be supplied to the working space from the attic and basement using floor and ceiling diffusers. Closets or chimney flues may be used as duct chases.
- Fire suppression piping shall be concealed above the ceiling wherever possible.
- In general, plaster moldings in the ceilings and walls are to be avoided.

6. Enclosure of Existing Stairs and/or Provision of New Stairs for Fire Egress and Life Safety.

- If an additional egress stair is necessary and an exception to the building code is not possible, the most preferred method is to co-locate the stairs with the elevator shaft. The least preferred method is to enclose the existing stairs as a fire-rated space.

7. Additions and Partial Reconstruction of Areas to Accommodate New Elevators for Handicapped Accessibility.

- Changes in floor elevations shall be accommodated by building up to meet the floor heights in the original buildings. This usually occurs in spaces converted from porches to interior rooms such as kitchens.

- Transitions will be required at thresholds with hardwood flooring to meet accessibility requirements.

8. Demolition of Portions of Later Additions to the Main Buildings, Particularly Those that were Poorly Designed or Constructed.

- Discernable additions may be removed if the space is unusable and it restores the character of the buildings.
- The enclosed porches, particularly on the first floors of both buildings, are of more significant architectural value and require more careful consideration.

As the design work progressed, and building and site conditions were better documented, some changes to the initial plans became necessary. Some original materials had to be replaced in-kind because of their deteriorated condition or structural concerns. The SHPO was kept informed of these changes throughout the process.

PHYSICAL RENOVATION

The following descriptions of renovation work are included to provide a summary of the types of and level of effort required during the construction process to stabilize, repair, and upgrade the buildings to their new use. It is not intended to be a comprehensive list of every construction detail, but rather to give examples of various renovation components to provide an overall representation of the construction process.

SITE AND LANDSCAPING

ATFP issues

Because Buildings 705 and 706 were converted into office space with multiple employees, they had to conform to Anti-Terrorist and Force Protection (ATFP) requirements in all aspects of the design.

The biggest ATFP issue related to site and landscaping is the 33 feet "clear zone" required around the perimeter of each building. The required clear zone affects the planning and layout of the entire project site from parking, to landscaping, and building components.

One aspect of ATFP compliance for this project site was the redistribution of parking in the vicinity. According to ATFP code, unrestricted parking must be at least 82 feet from the building. Because Portsmouth Boulevard and an existing parking lot were located immediately across the Gosport Wall from the buildings, the road and several rows of parking had to be eliminated and a hardened fence installed in the parking lot at this distance. New parking to the rear of the buildings is within the shipyard boundaries and restricted, and therefore had to be 33 feet from the buildings.

Abandoned portion of parking lot and Portsmouth Avenue

A second aspect of site work related to ATFP issues was the removal of existing vegetation which had become overgrown. ATFP code requires that no plantings greater than six inches in diameter be within the 33 feet clear zone. Because of the overgrown

condition and the amount of other work needed, the entire site was cleared, and new landscaping that meets ATFP guidelines was applied to the site following construction.

Overgrown vegetation around project site

A final aspect of the project site planning related to ATFP requirements was the location of HVAC equipment and buildings systems. These systems had to be installed in open areas adjacent to the buildings with no enclosures.

New HVAC equipment

Grading issues

Geotechnical testing revealed that the project site has already been built up with subsequent layers of fill to raise the historically low and wet ground to above the water level. While the site is now dry, the land was not graded properly to allow adequate draining away from the buildings, and during periods of heavy rain, runoff would drain directly towards the building foundations, especially to their rear. This was corrected by bringing in additional fill to slope ground away from the structures. Because fill could not be placed immediately up to the buildings' foundations because of doors and windows at ground level, a retaining wall had to be built around the perimeter of the rear of the buildings to place fill against. The area between the knee walls and the buildings was then paved with drain systems installed.

Retaining wall around the perimeter of Building 705

Parking

NNSY code requires new parking spots for 70% of the total staff of 66 plus two handicapped and 10 visitor parking spaces. This meant the two buildings required an additional 60 parking spaces, although this was compounded by the loss of 55 existing spaces in the large parking lot outside the brick wall because of ATFP requirements. Therefore the new parking constructed as part of this project had to hold at least 115 parking spots. Fortunately there was plenty of room to the rear to permit a lot of this

size, however could be an issue for other projects where site space is limited.

New Parking lot to the rear of the buildings

Landscaping

All of the existing landscaping was removed at the outset of the project. The majority of vegetation was overgrown and causing problems to the buildings themselves and would not meet ATFP requirements. Most of the brick walkways and trench drains had settled unevenly and were trip-hazards in addition to preventing access to existing and proposed underground utilities. Following grading, utility installation, and other site work, new walkways were installed using salvaged bricks and appropriate vegetation was planted. The trench drains were not reinstalled because they were no longer necessary with proper grading.

Appropriate landscaping at the project site

Archaeology

A Phase I Reconnaissance and subsequent Phase II Evaluation identified potentially NRHP-eligible archaeological features to the rear of the buildings. Avoidance of this area was not possible so data recovery ensued to fully excavate, record, and document the archaeological features. Before any soil disturbance could occur in this area, the Archaeological Data Recovery had to take place and end of fieldwork report had to be approved by the SHPO. Excavations revealed the remains of a brick planter and associated construction trench, a brick and mortar foundation, a shell and sand drainage field, a brick drain, and various 19th century artifacts. These features provided information on landscaping and water control alterations that occurred over the years.

ABATEMENT ISSUES/CLEAN-UP STRATEGY

As with most historic buildings, hazardous material clean-up was an important aspect of the project. A complete abatement of all toxic materials was not necessary and not performed. Instead, the intent was to remove those hazardous materials that were exposed or could become exposed in the future.

Asbestos

One material that was completely abated from both buildings was asbestos. Asbestos was found in pipe insulation, floor tile, window glazing, and roof tar. Fortunately, many of these elements were being removed from the buildings anyways so the abatement did not cause significant increases in time or money.

Numerous lead and asbestos pipes beneath porches

Lead

Testing showed that paint throughout both buildings on interior and exterior surfaces contained lead, cadmium and above established action levels. The existing paint conditions varied substantially throughout the buildings, so abatement techniques varied as well. Loose and chipping paint were scraped down to solid surfaces, while abrasives and blasting were used to mechanically remove lead paint from areas where continual wear such as inside door and window jambs could loosen paint dust. All surfaces were then covered and sealed with a protective layer of new paint.

Spores

Excessive mold and mildew growth caused by moisture infiltration was present and had to be abated from both buildings. Correction involved sealing the roofs and ventilating the basements to decrease future moisture levels.

Moisture infiltration with mold and mildew

Animal

Animal and pest infestation was also a problem that required abatement. Animal remains were present at the project site and in the buildings and had to be safely removed.

ARCHITECTURAL

Structural Systems

Various repairs were required to address deteriorated building elements and upgrade the structural systems to allow for the increased loads required for the proposed new use. The existing structural system first had to be stabilized and then additional strengthening and reinforcement could be applied to meet current codes.

Foundation

The first step in structural repairs was the grading of the sites away from the buildings to prevent further moisture damage to the building foundations. During excavations it was discovered that Building 705 had not been constructed with foundation footings at the rear corners. Although the building did not show any severe structural damage caused by this; underpinning was installed to ensure long-term stability.

Walls

Repairs were also made to the above-ground brick structural system to correct shifting and cracking bricks and repoint sections of soft and crumbly mortar. Many of the wooden door and window lintels were deteriorated and required repair to ensure that no additional brick movement could occur.

Section of repaired and repointed brick

Framing

The interior structure of the building required repair as many of wooden joists, beams, girders, and studs showed signs of termite and moisture damage. Additionally, many of these elements had to be reinforced and strengthened to meet current code requirements. The floor framing had to be strengthened and upgraded from 40 pounds per square foot (psf) to 50 psf live load to support the added weight of modern office equipment.

New "Sister" bracing against party wall in attic

Exterior

The exteriors of both buildings were severely deteriorated, and required cleaning, repair, and restoration to bring them back to a usable and aesthetically pleasing condition. All elements that could be repaired and retained were and materials that were too far deteriorated were replaced in kind. In cases where replacement had to be made, portions that could be salvaged were separated, and will be curated by the shipyard and utilized in future projects where historic materials are needed.

Porches/Additions

The porches and later additions to the buildings showed the greatest signs of structural compromise. In most cases, these portions of the buildings were not constructed well to begin with, and were prone to moisture damage and deterioration. Nearly all of the additions to the buildings were to be removed as part of the project anyway, so structural repairs to these elements were not required.

The front porches on both buildings did require reinforcement however. The historic cast iron columns supporting these porches were determined to be too deteriorated to support the increased load from the project and were not designed for lateral forces. These columns therefore were removed and replaced with masonry columns that were properly bolted to both the foundation and porch above. The wrought iron railings and posts supporting the roof over the porches on Building 705 were also determined to be unstable and had to be replaced. It was determined that the intricate ironwork posts and railings alone were not capable of supporting the roof system so the replacement posts were reinforced by the addition of hidden solid steel posts.

New masonry piers under porches

Walls

Portions of the exterior brick walls, particularly those on the raised basement level and those that had been encapsulated within rear additions had been painted and required cleaning to restore the original exposed brick. Various methods including scraping, chemical, and blasting were used depending on the tenacity of the paint. Sections of wall that had not been painted were only cleaned. Tuck pointing was only done on damaged sections of mortar and was done using similar color and tooling as the original sections.

Several of the exterior brick chimneys showed signs of damage and needed to be repaired as well. Rather than adding bracing that would be visible or a complete demolition and reconstruction the chimneys were plugged and retrofitted with concrete from the inside so that the visual character of the chimneys would not be compromised.

Section of cleaned brick where previous addition was removed

Porches

Most of the porches attached to both buildings were non-original and in poor condition, and therefore removed as part of the renovations. Porches that were retained include the small one-story porches with ironwork on the front of Building 705 and the enclosed two-story porches near the front of Building 706. New structural supports had to be provided for all of the retained porches, and new similar iron railings replaced those on Building 705.

Replaced wrought iron porch railings and supports

Fenestration

Nearly all of the historic windows on both buildings were in need of repair, but not too far deteriorated to warrant replacement. Only two windows per building had to be replaced due to condition. In these cases, replacements that match the originals in size, style, and light configuration were used. The original plan was to install interior storm windows; however, exterior storm windows with protective laminate film were installed on of all windows to meet ATFP requirements and done so in a manner consistent with the Secretary of the Interior's Standards. All windows were made operable to allow ventilation.

Replaced window (bottom left)

The original front doors on both buildings were repaired and retained in place. This includes paneled doors on Building 705 and intricately carved solid Mahogany doors on Building 706. Non-historic storm doors were removed from Building 705. Several window openings on the rear and sides of the building had previously been enlarged and made into doorways to provide access to the numerous porches and additions on the buildings. Several of these openings were restored to window openings following the demolition of the porches and additions.

Embellishments

Most exterior detailing on the buildings was in repairable condition and was retained. A portion of cornice and several brackets on Building 706 were determined to be too far deteriorated to preserve and were thus replaced with reproductions that blend seamlessly with the original materials.

Section of replaced cornice and bracket

Roof

The poor condition of the roofs was largely responsible for the majority of moisture damage to both buildings and was a priority in the renovation. The asphalt shingle roof on Building 706 was severely deteriorated and in need of replacement. Additionally, it was determined during the design process that the slate tile roof on Building 705 was deteriorated and required replacement. Synthetic slate tile roofs were applied to both buildings, while all additions and porches were covered with standing-seam metal roofs to help differentiate them from the original building masses. Several dormers were also added to the roofs to allow for increased ventilation of the HVAC systems in the attics.

Additions

Similar additions were appended to the rear of both buildings to increase usable space, and accommodate modern amenities that could not be placed within the historic buildings. These additions are wood frame covered with hardiboard siding and topped by raised-seam metal roofing to blend with the character of the buildings, but be differentiable and conspicuously new.

New addition to the rear of Building 705

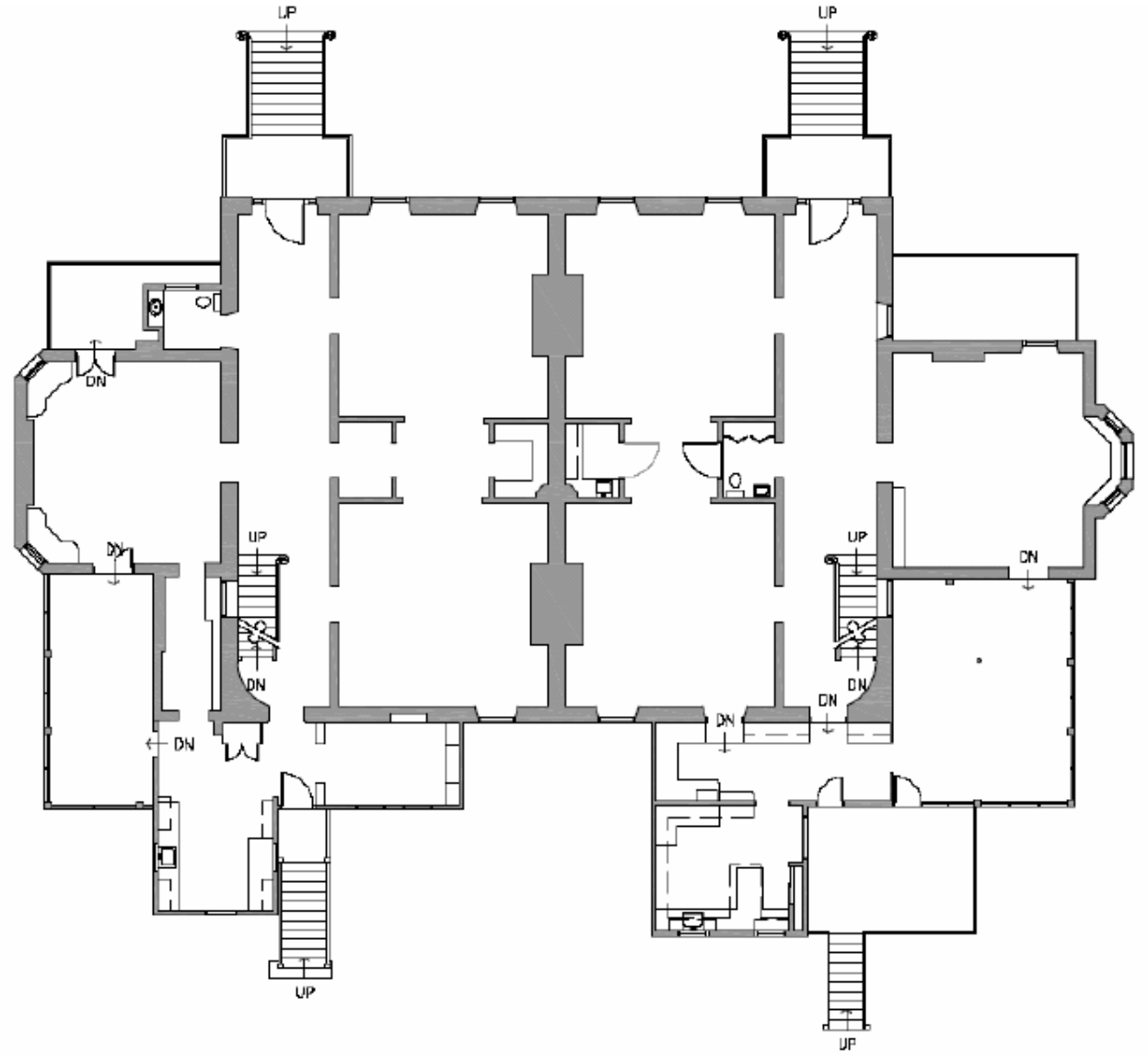
These additions allowed for kitchens and bathrooms to be installed while not intruding into the historic core of the buildings, as well as allowed for fire escape stairwells and ADA access as well.

Fire code requires there to be two means of egress from a building separated from occupied space by a one-hour rated firewall. Additionally, these means have to be located in such a way that either is accessible without having to pass by the other. To accommodate this requirement, two exterior stairwells were attached to the rear additions of each building.

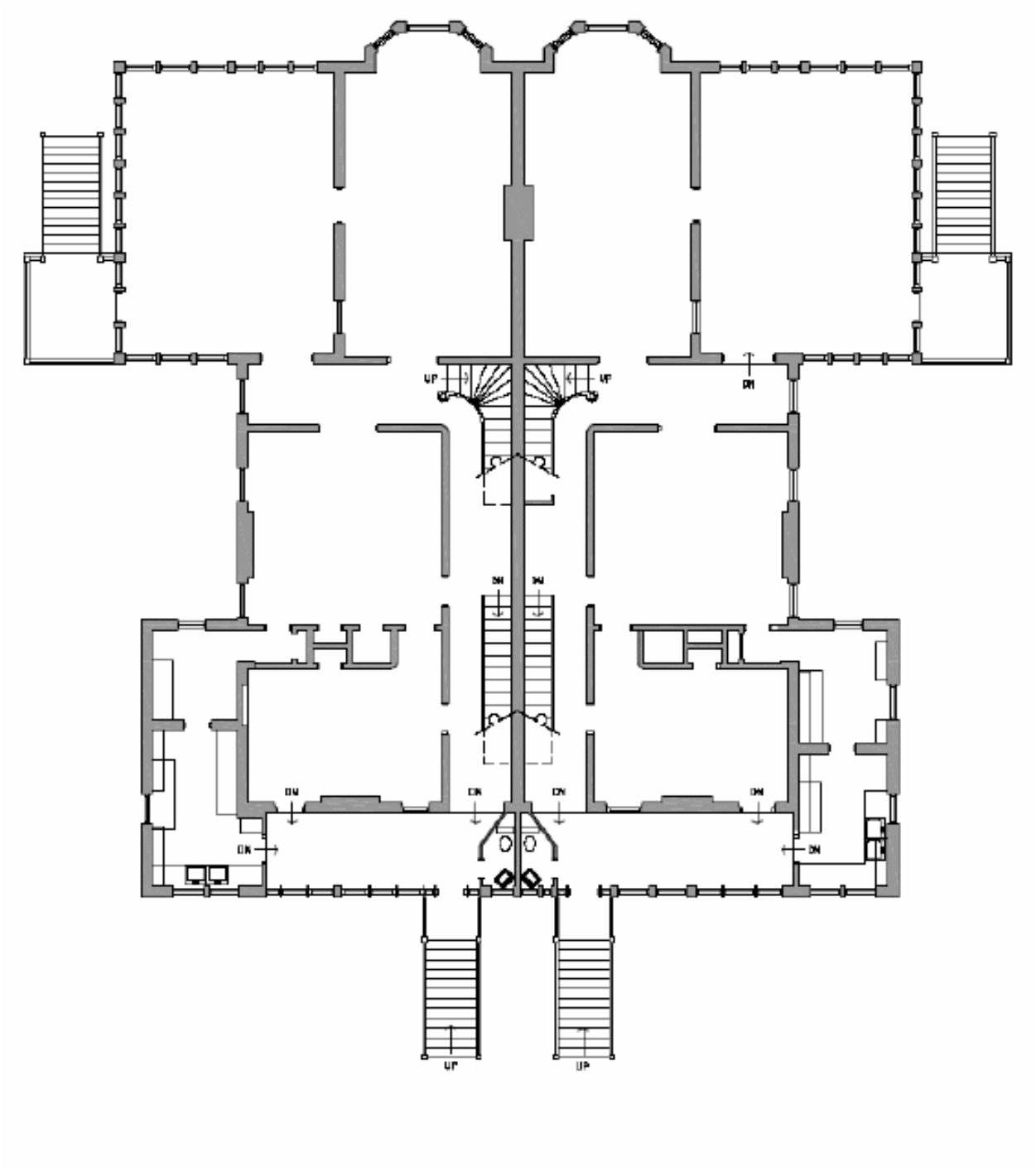
New exterior fire egress stairway

Wheelchair lift on rear deck

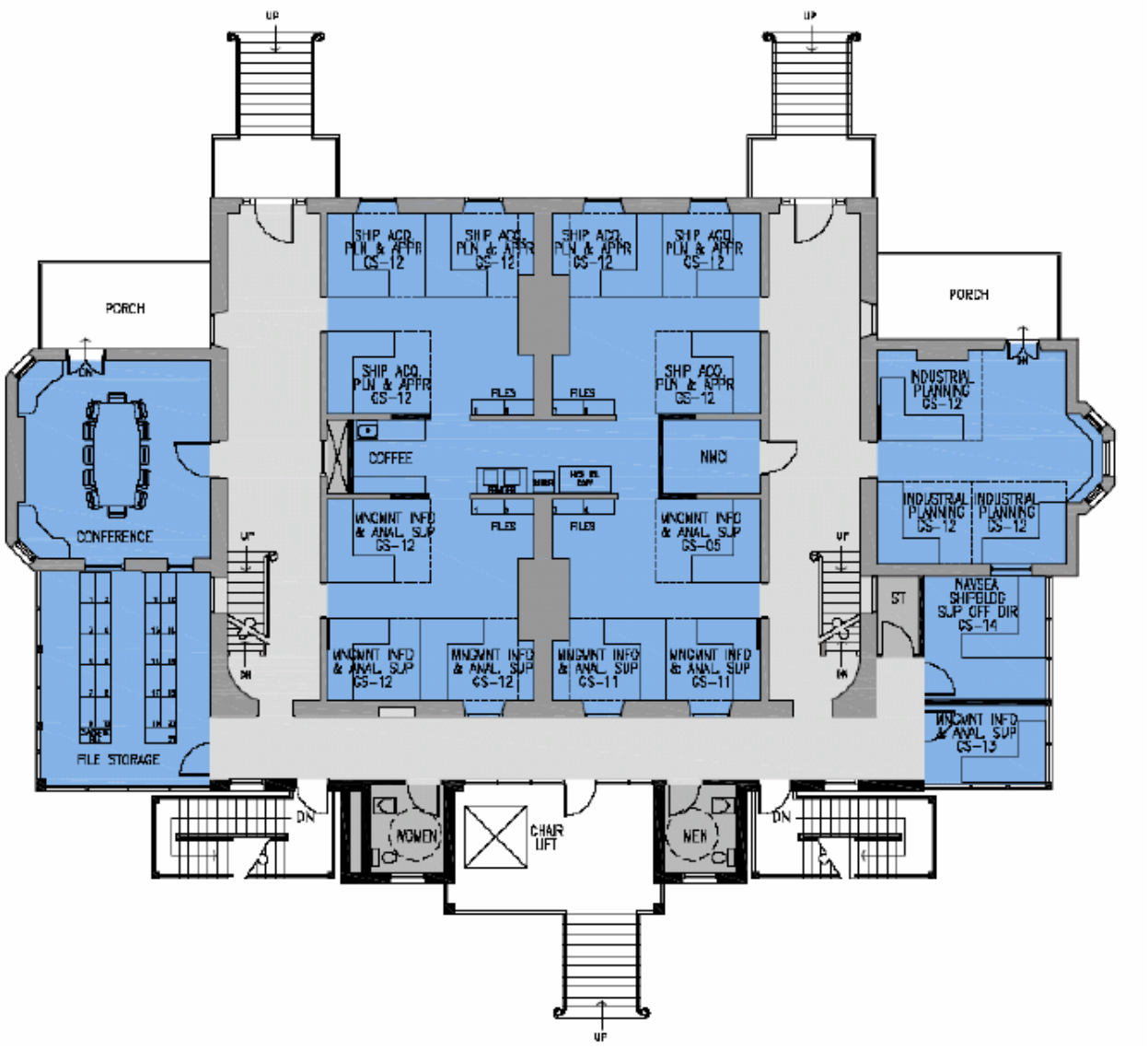
To meet ADA requirements, handicapped accesses had to be incorporated and were integrated into the rear additions. Because of the historic nature of the building and the interior layout, it was determined that providing access only to the primary floor was required which meant exterior lifts as opposed to full elevators could be used.



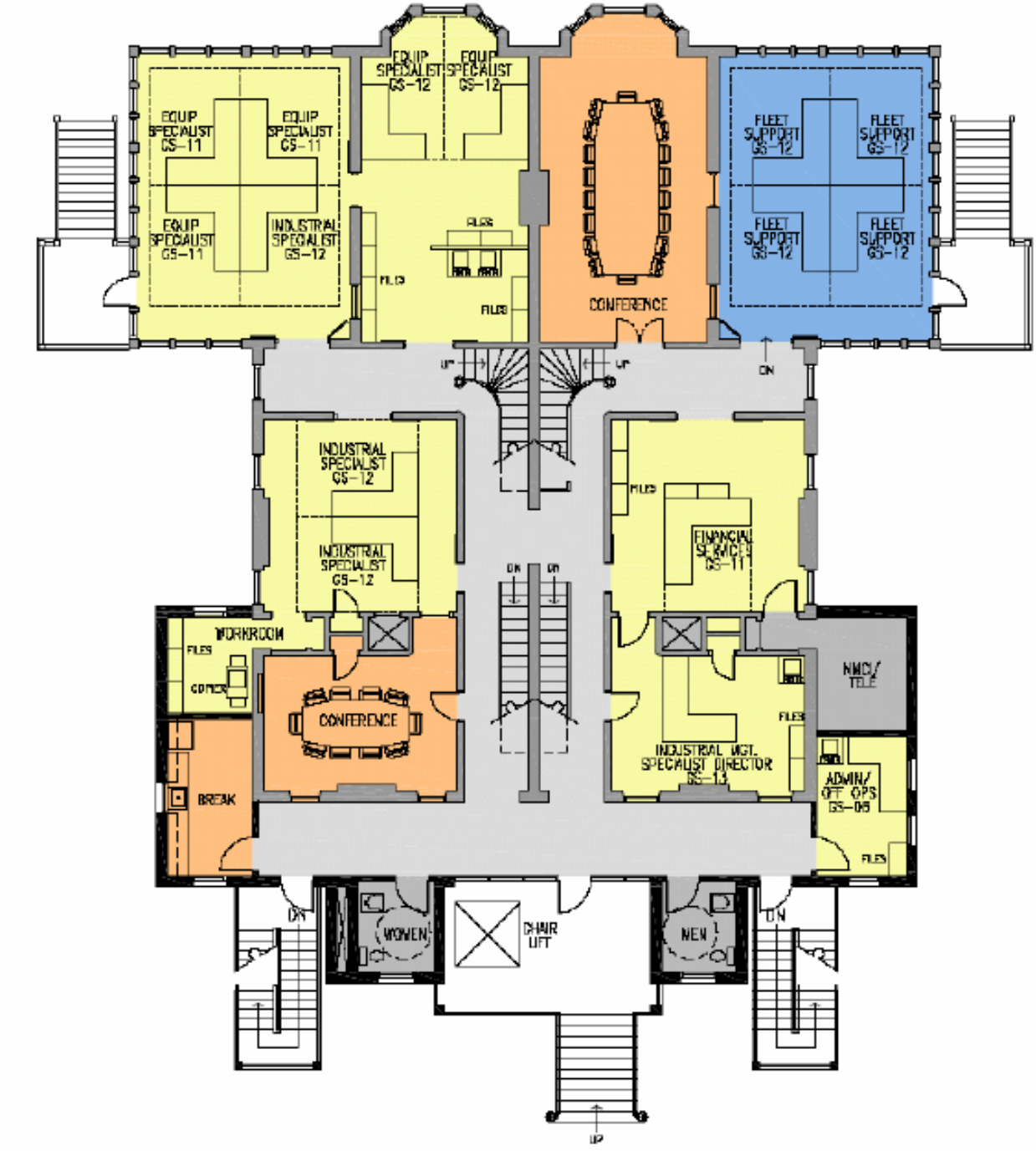
Building 705:
Pre-Rehabilitation First Floor Layout



Building 706:
Pre-Rehabilitation First Floor Layout



Building 705:
Post-Rehabilitation First Floor Layout



Building 706:
Post-Rehabilitation First Floor Layout

Interior

As the interiors of both buildings were considered significant by the PA, preserving their historic character was a priority for the rehabilitation. Maintaining their original configurations, keeping historic materials, fixtures, and finishes, and blending new elements in with the old were all important considerations in the design and construction.

Layout

Very few changes were made to the floor plans of the original buildings. The largest modification to the layouts was the breaching of the central walls in one place on each floor of both buildings to convert the former duplexes into single spaces. In Building 705, the wall breaches were placed within closets that were also opened to create a central break room area on each floor, while in Building 706, the breaches are simply openings cut between the hallways in each side of the building.

Breach between two sides of Building 706

The majority of rooms in both buildings became general office space, while a formal parlor in each was made into a conference room. Kitchens and bathrooms were all placed in the rear additions to minimize the plumbing and electrical work done inside the original buildings. The basements in both buildings were converted into systems space.

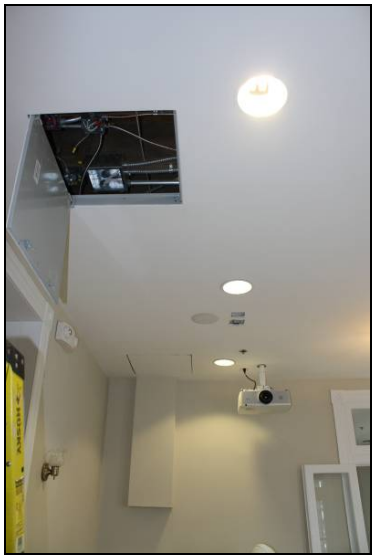
Floors

The wood floors were in varying conditions throughout both buildings, although most were in good enough condition to save. Damaged planks were removed and replaced with matching boards and the entire floor was sanded and refinished. In several rooms, especially former bathrooms and closets, as well as in additions, the entire floor had to be replaced. In these cases, wood flooring that matches the original in wood species, plank-width, and finish were used and blended at the seams with historic portions.

Ceilings

The original plaster ceilings were one historic element that had to be sacrificed in both buildings. In order to make repairs to and increase structural components, as well as run new utilities without damaging walls or floors, the original ceilings had to be removed and replaced with lowered drywall ceilings.

The lowered ceilings permitted the installation of electrical wiring and HVAC ductwork, as well as audio-visual equipment. Small hatches had to be provided in the ceiling of each room to permit access to the systems and utilities above; however these doors were designed to be flush with the ceiling and blend in. The decorative plaster medallions in formal rooms of Building 706 were safely removed from the original ceilings and reinstalled on the new drywall ceilings.



Access hatch in lowered ceiling

Doors and Windows

While most doors were off their hinges in both buildings at the time of initial inspection, many were able to be reinstalled. Missing and damaged doors were replaced with reproductions that match the originals in construction and appearance. Every historic door and doorway was accounted for and retained in the final design because of good design. Most are still operable; only a few had to be tied-back to allow for furniture. Most large openings were also retained, less one on the first floor of Building 705 which had to be partially infilled.

Partially infilled opening in Building 705

The majority of original windows were also retained and all were made operable to ensure better ventilation and pleasant conditions. In some cases, pockets had to be used on the dropped ceilings to allow for the windows and their surrounds to remain intact and full-height.

Window pocket to allow original lintel to show

Built-ins

All built-ins throughout the building were retained and repaired. Many of these were non-original but historic, and determined to be a significant part of the evolution of the buildings. Some examples were built-in wardrobes and drawers in formers bedrooms, pantries in closets and hallways, and shelving in the parlors.

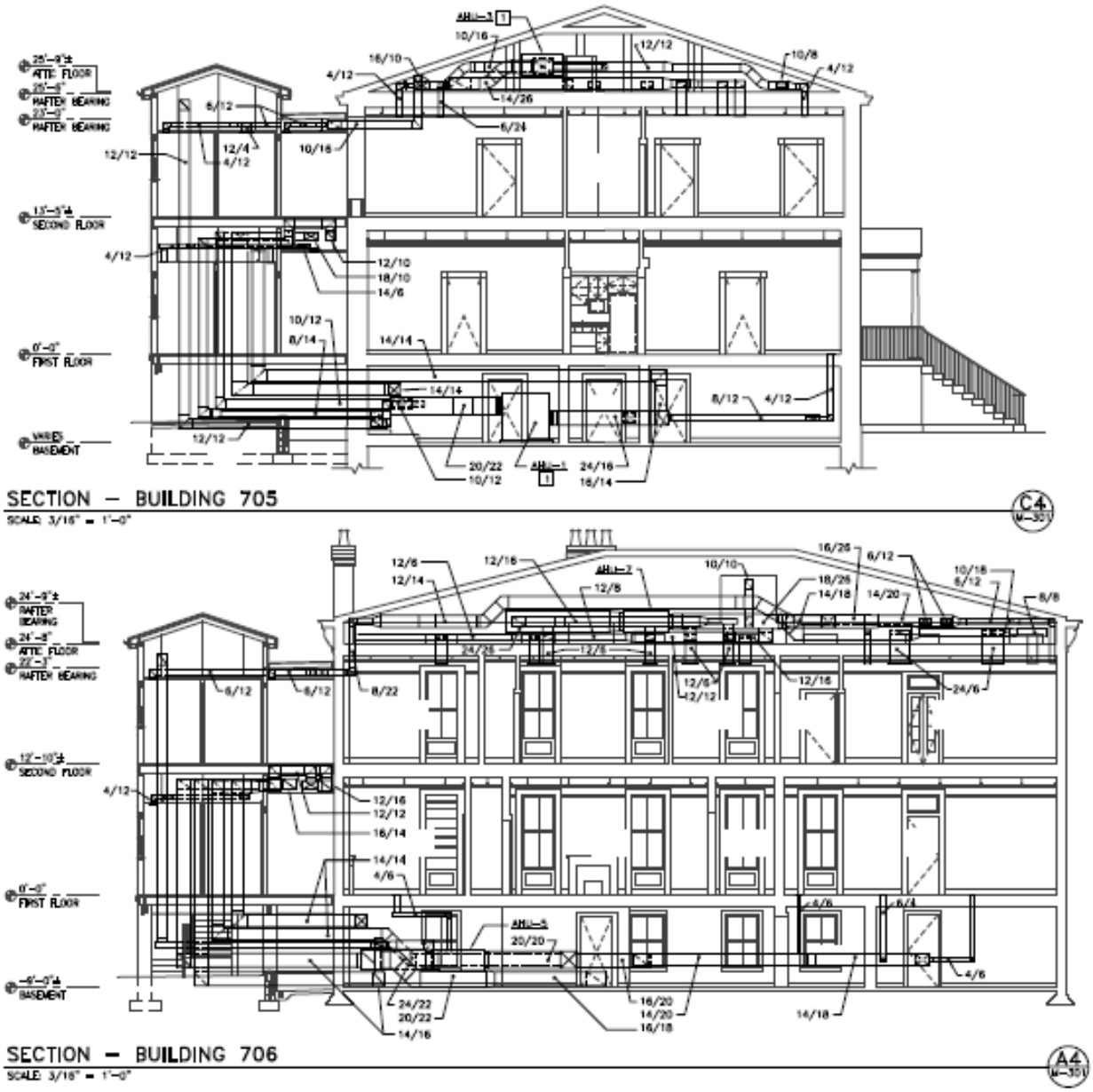
Embellishments

The majority of historic moldings throughout both buildings, including baseboards, chair rails, wainscoting, picture molding, and surrounds were retained.

Crown moldings which were present only in Building 706 were lost due to the lowering of ceilings. Despite the historic plaster ceilings being lost, plaster medallions were removed and repaired, and then reinstalled on the drywall replacement ceilings. All fireplaces and mantels were also retained and preserved, although none are operable.

Original fireplace and mantel retained

Original medallions reinstalled on drywall ceiling


SECTION – BUILDING 705
SCALE: 3/16" = 1'-0"
C4
SECTION – BUILDING 706
SCALE: 3/16" = 1'-0"
A4

SYSTEMS

Fire suppression

A new fire alarm and fire suppression system was installed throughout both buildings. Sprinkler heads were placed in every room and all piping was concealed in ceiling cavities and within closets. A new pump had to be installed for the system due to tests at the nearby hydrant revealing insufficient pressure.

Sprinkler pump hidden in closet

Portable fire extinguishers also had to be located throughout the buildings according to NFPA 10.

HVAC

Both buildings required complete HVAC systems to replace the radiant heat and window-unit air conditioning previously utilized.

Ducts were run through closets, ceilings, and other concealed areas to screen them from visibility. Major system components were placed in the basements and attics. Four HVAC zones were created in each building to allow regulation and even temperature throughout.

Ductwork and piping installed in basement

Plumbing

The majority of plumbing installation was limited to the new additions on each building. All kitchens and bathrooms were placed in these additions so as to not interrupt the historic character of the original buildings. Some new piping did need to be installed within the original buildings to feed the sprinklers and fire suppression equipment, and this piping was placed in the cavities between the floors and ceilings.

It was also discovered that that ground level in the basements of both building was below the 100-year flood plain level, so sump pumps had to be installed in the basements to prevent potential flooding.

Electrical

The buildings had a mixture of old and new wiring, much of which would not meet current code or the increased power needs. Therefore, all new electrical systems and wiring harnesses were installed in both

buildings. Exterior lighting and lighting for the parking lot to the rear were also needed.

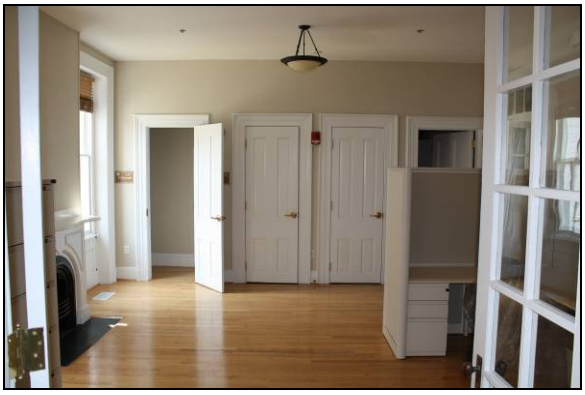
The building feeds were tied into the existing shipyard power supply through their basements. New wiring was then strung throughout the wall and ceiling cavities, causing as little damage as possible to the historic walls. A flexible approach was used for outlets allowing both floor- and wall-mounted boxes to decrease the need for cutting the historic plaster or brick. Brick channeling was avoided wherever possible, instead relocating switch boxes to adjacent wood frame walls.

Floor-mounted register and outlet box

FFE

A variety of furniture, fixtures, and equipment had to be incorporated into the buildings to convert them from their original residential use to modern and functional office space.

Standard cubicle style office furniture was set up throughout the buildings and organized in a way that the historic character and flow of the buildings were respected. Historic embellishments such as woodwork, built-ins, fireplace mantels, and doors were not blocked whenever possible. The tall ceilings ensure the rooms still have an open feel despite the large amount of furniture.



Open floor plan with cubicle furniture to side

New light fixtures were installed throughout the buildings to provide adequate illumination for the tenants. Most of the historic lighting could not be reused due to code, so appropriate style replacements were found. Chandeliers were hung from the ceilings in larger rooms while wall-mounted pendant lights were installed throughout smaller spaces and hallways. Historic sconces found throughout the buildings prior to the renovations were replaced with similar, non-functional units.

New pendant style light fixture

Other assorted equipment had to be incorporated throughout the buildings to provide modern technology, communications, and security as well. Conference rooms were fitted with state of the art audiovisual equipment including ceiling-mounted projectors and drop-down screens.

Drop-down projection screen incorporated into ceiling

Network plugs and power outlets were installed beneath the conference tables for easy computer connections and a secure NMCI (Navy/Marine Corps Intranet) server room was placed in each building.

A mass notification system to provide emergency alerts to the building occupants was required by ATFP code and installed throughout. These LCD "smart signs" are located at each point of exit in addition to the traditional illuminated exit signs, and are connected to the shipyard wide notification system.

LCD Smart Sign with traditional exit sign at doorway

COST ANALYSIS

While it would be nice to assume that historic rehabilitation is a viable option for any future development; in the real world, money is the determining factor. There are many who believe that renovating an existing structure, particularly when historic preservation is involved, costs more than new construction. This is augmented for the Navy and other Federal agencies by the fact there is little financial incentive to do rehabilitation, because unlike in the private sector, there are no tax credits or cost reducers available. It is important therefore to assess all associated costs and consider all factors to determine whether rehabilitation is a good option.

It is true, that when the numbers are added up, this project did end up costing slightly more than new construction might have for the same amount of space, however there are additional costs associated with new construction that should be taken into consideration as well. Had these buildings continued to sit vacant, eventually they would have had to be demolished, requiring additional abatement and removal fees. Demolition of just the historic garages and building additions cost nearly $1 million. Hazardous Material abatement on these elements cost roughly $1.2 million. Should the entire buildings been demolished and abated, the additional cost would have approached nearly another $1 million

Because the buildings contribute to the historic district, mitigation and associated costs would have been required as well. While not a huge expense relative to other project costs, these expenditures can add up. New construction would also require additional site work and planning, infrastructure and utility expansion, and possibly additional property acquisition. Most of these types of extra expenses are often not considered in cost comparisons, but can reduce the differential between new construction and rehabilitation. Not counting these additional costs, current estimates for constructing new space of this size at a secure facility can run any where from $5.5 to $6.5 million.

Cost Breakdown

One of the most significant aspects of determining the feasibility of a rehabilitation project is estimating the potential cost and then staying within budget once the project commences. This can be difficult because of the many unforeseen issues that can arise when working with a historic building.

The initial estimate by shipyard staff to complete this project was over $12 million, which was almost to a level that would make the project cost-prohibitive. However, once a formal project estimate and funding request was completed, the total estimated cost was reduced to $9.5 million, and the final authorized amount was closer to $8.4 million. A breakdown of approximate project costs is provided below.

		Rehab	**New Construction**
Design Production		$400,000	$375,000
Construction Costs*			
Site Work			
Site Preparations:		*$131,000*	*$131,000*
Paving and Site Improvements:		*$144,000*	*$144,000*
Demolition**			
Garages and Building Additions		*$891,000*	*$891,000*
BLDGS 705 &706		*$0*	*$1,000,000*
(including Hazardous Material Disposal			
ATFP (Site and Architecture)		$84,000	$84,000
Land Acquisition (ATFP Requirement)		$122,000	$122,000
Building Construction Costs			
Hazardous Materials Abatement			
of BLDGS 705 & 706	*$1,268,000*		
Systems			
Mechanical:	*$326,000*		
Electrical:	*$1,306,000*		
Built-in Equipment (Lifts, Etc):	*$214,000*		
Information Technology:	*$296,000*		
Construction	$3,168,000		
(General Cost Excluding Systems)			
Total Building Costs		**$6,578,000**	**$6,000,000*****
		$293/SF	$267/SF
TOTAL CONSTRUCTION COST		**$7,950,000**	**$8,372,000**

* *Furniture and equipment specific to the tenants' needs was funded for by separate sources.*

** *Demolition costs can range considerably depending on the individual property and unique requirements. These figures represent the upper end of that range.*

*** *Based on estimates to construct equivalent new square footage.*

SUCCESSES AND CHALLENGES

As with any renovation, the rehabilitation of Buildings 705 and 706 had both successes and challenges along the way. Some project components went exactly according to plan while others posed difficulties and setbacks. This section addresses various project components and which aspects went well and which could have gone better. A comparison of the initial design plan with the actual outcomes is provided, as well as how preservation goals were met. The majority of the information stems from interviews with individuals and firms that took part in the project. This includes Navy representatives, design team members and consultants, contractors, and SHPO.

Building Selection

The process in which Buildings 705 and 706 were selected for the project was somewhat atypical, however worked well in this case. Buildings 705 and 706 had both been vacant for several years with no foreseeable future use when the BRAC report recommended the relocation of two outside Naval offices to the shipyard. Coincidently, the amount of space needed by the two offices was approximately the amount of space within the two buildings. Space for new construction is limited at the shipyard, increasing the push for utilizing existing facilities, and the fact that the Navy had made a commitment to SHPO to make an effort to preserve the remaining historic residential quarters at the shipyard provided the final justification.

Successes:

- Using these buildings for the project ensured that they would be preserved. Until they were selected for this use, the buildings were sitting vacant and falling into disrepair. Had they continued to sit vacant, they could have become too far deteriorated and had to be demolished, which would have required additional mitigation

Challenges:

- A hurdle in the selection process was convincing many stake holders that rehabilitating historic buildings was worthwhile. Concerns were expressed that there are too many contingencies associated with historic rehabilitation, and that the project would cost more and take longer than new construction.

Budget

Securing financing usually is one of the most challenging parts of any development project. Typically, the shipyard would have to compete region-wide for Military Construction (MILCON) money, which is especially difficult to obtain for renovation projects involving administrative space. A BRAC realignment action generated the need for additional administrative space at NNSY, and therefore, BRAC dollars were used to fund the project.

Successes:

- This project was fortunate in that BRAC funding was available since funding for renovations associated with administrative use is extremely limited. The MILCON scoring system gives preference to directly military-related projects such as piers and runways over administrative projects.

Challenges:

- It is common belief that rehabilitation costs more than new construction and is thus difficult to justify for obtaining funding.
- MILCON money is difficult to obtain for any renovation work, especially for historic rehabilitation.
- While BRAC money is easier to obtain for renovation work, it is very specific on what the money may be used for, so there are limitations to project components that are not seen as necessary to make the building usable.

Bid Process

A Design-Bid-Build method was chosen for this project to ensure a good design that incorporated the new tenants needs while respecting the historic character of the buildings was provided while not cutting corners for budget. Because of the preservation priority in this project, an AE firm and GC that had experience with, and a general interest in historic buildings were selected. They were then better able to select sub-consultants and contractors which they knew had experience with historic properties to ensure that both project and preservation goals were met. The SHPO was provided an opportunity to comment on the proposed design at both the 35% and 90% design submittals.

For renovation of historic buildings, the Design-Bid-Build process is preferable to Design Build contracts since design issues can be resolved with the SHPO before the actual award of the construction contract.

Successes:

- Preservation criteria were included in the bid evaluation process to aid in the selection of an architect and general contractor with experience-in and interest-in historic buildings.
- By using the Design-Bid-Build method, all work was able to be done under a single, fixed-price contract-to-budget which came in under the authorized amount without sacrificing quality.
- The General Contractor physically moved many of its employees to the area ensuring a more efficient work schedule with experienced workers.

Challenges:

- While preservation criteria were included in the bid evaluation process, it would have been beneficial to have had coordination with the SHPO or another preservation specialist before a request for proposals was released to ensure that all critical issues were incorporated into the selection and award process.

Site Planning

Planning and civil engineering can be a challenge anytime a developed property is used. The existing conditions can provide limitations, especially in the case of a historic rehabilitation where the goal is to preserve as much of the existing conditions as possible. Providing utilities, infrastructure, and other site work can be made more difficult by the high probability of unforeseen issues that arise once site work is initiated. ATFP issues, which are relatively new in the planning process, provide a whole other set of considerations.

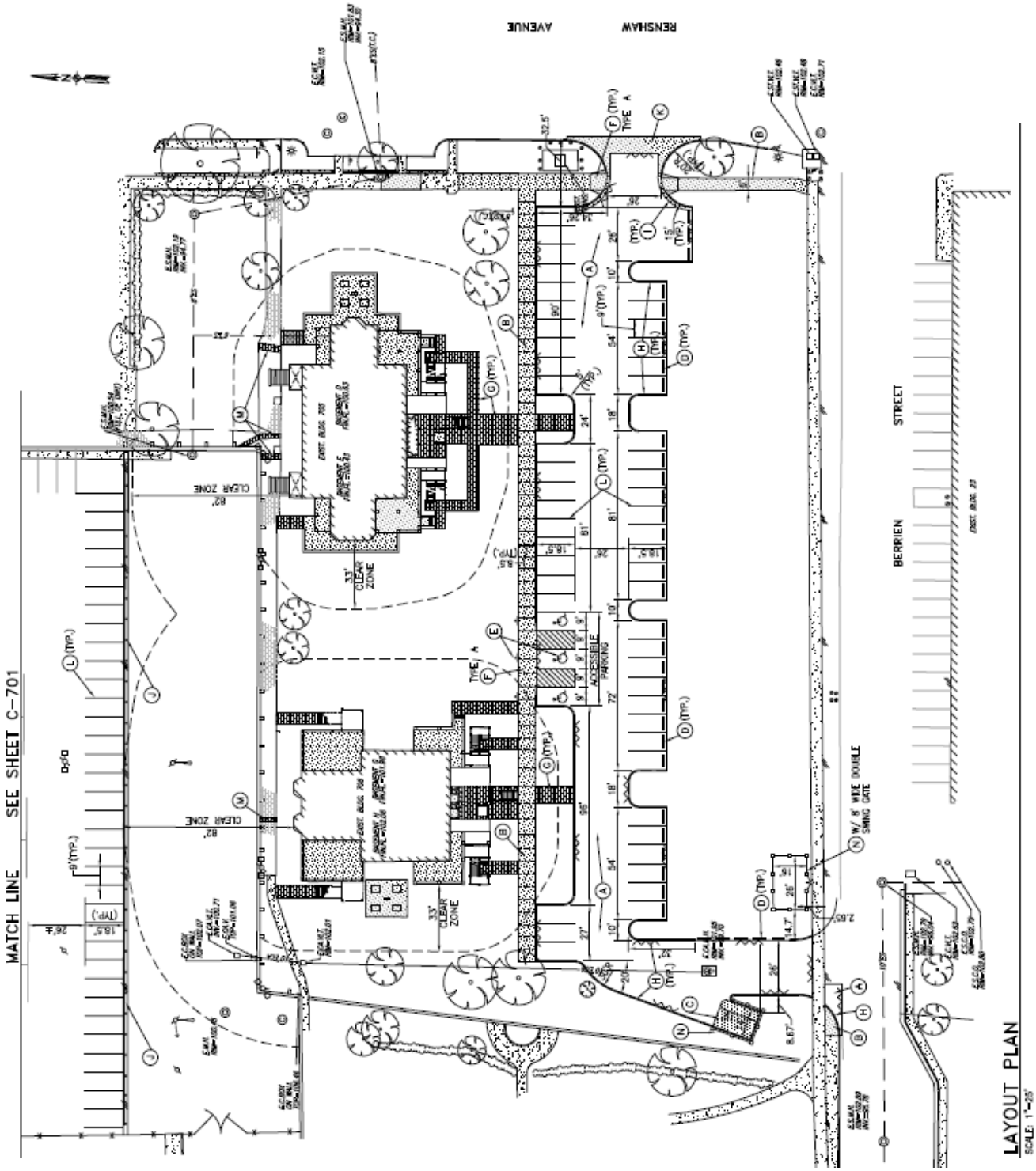
Successes:

- Utilizing an already developed property can have benefits such as existing infrastructure and utilities to tie into. In this case, roads, sewers, telephone, electric, and plumbing were all already in the vicinity and easier to hook into than having to bring these systems to a new development site.
- As the buildings were already located in and owned by the shipyard, no property acquisition was required. Open space is rare at the shipyard and had existing space not been available, acquisition of nearby property may have been required which would have increased time, cost, and need for planning

Challenges:

- Because the NNSY has been occupied and developed for over two centuries, the ground is laden with buried issues. In this case a Phase I Archaeological survey identified domestic and architectural features and recommended further evaluation. Phase II survey revealed features that were NRHP-eligible and would require mitigation if disturbed. This area at first was marked for avoidance, but to make room for parking, the Navy chose to undertake a Phase III data recovery. This cleared the area for development, however the whole process took extra time and money that was not originally planned for.
- In addition to archaeological features, old utility lines crisscrossed the site and had to be dealt with. The Civil Engineer was charged with locating utilities so that the contractor did not hit any, however existing maps did not show many of the pipes, wires, and trenches that were found, so additional work had to be conducted to determine whether any of these utilities were still in use or not.
- ATFP requires a clear zone around non-residential buildings which posed a challenge for this project, as the two buildings are located adjacent to the shipyard boundaries. Therefore the road on the other side of the shipyard wall had to be purchased by the Navy and closed.
- The largest issue regarding ATFP as it related to site and landscape planning was the proximity of

unsecured parking outside of the brick wall (shipyard boundary). This issue was caused by the density of the shipyard's layout and the fact these buildings are located immediately adjacent to the base perimeter. Many of the parking spaces had to be abandoned and blocked off, which meant additional secured parking had to be constructed as part of the project.


MATCH LINE SEE SHEET C-701
RENSHAW AVENUE
BERRIEN STREET
CLEAR ZONE
33' CLEAR ZONE
ACCESSIBLE PARKING
W/ 8' WIDE DOUBLE SWING GATE
LAYOUT PLAN
SCALE: 1"=25'

Buried utilities discovered at the site

Proximity of Portsmouth Avenue and Parking lot to the project site

Architectural Design

The biggest issue with the overall design of this project was to create a modern space that respects the historic character of the buildings. This was made more difficult by the fact the buildings had to be converted from a residential use and layout, to functional office space. It was also necessary to meet current code requirements for structural loads, fire egress, ATFP, and ADA issues, as well as provide adequate plumbing, electrical, HVAC, and telecommunications equipment; all within the existing structures. To facilitate meeting these objectives, additions were appended to the rear of both buildings that incorporated many of the necessary elements. The attics and basements were also utilized for many of the systems to minimize intrusion into the historic interiors to the greatest degree possible.

Successes:

- The additions to both buildings were designed in such a way that they are conspicuously new, so as to not confuse with the historic buildings. They blend with the scale and massing of the buildings well, and reminisce of the former porches that were removed.
- The additions include the mandatory fire egress stairs, ADA access, kitchens, and bathrooms so that none of these potentially historic-character compromising elements needed to be within the historic massing.
- While BRAC projects and renovations are typically tailored to a specific tenant, in this case the space ended up being designed in such a way that is flexible and could easily be used for other needs as they arise.
- Providing breaches between the center walls on each floor of both buildings converted them from duplexes into single units. This worked well in that the spaces could be shared by multiple tenants or used by a single tenant in the future. It also assisted with meeting fire egress because of the availability to utilize the additional staircases on each side of the building.

Challenges:

- The original intent was to design the renovations in a way in which the buildings would be LEED-certified,

however it became apparent that this was not possible without severely compromising the historic character by altering the building envelopes.

- Designers and particularly engineers like specificity when working on a project, which is tough to obtain when renovating an existing building, because of the likelihood for unknown issues arising.
- Meeting ATFP code is a big challenge for renovation. It can be difficult to address all of the necessary requirements on any project, whether new construction or renovation, although is particularly challenging with historic rehabilitation because of the limitations on what can and cant be done without compromising the historic character.
    - *Example: At first the buildings were going to be considered three-story which would have upgraded the progressive collapse requirements for the building. Extensive bracing would have been needed to meet the requirements which could not have been installed without seriously compromising the historic character of the buildings and jeopardizing the economic feasibility of the project. Fortunately, they were ultimately determined to only be two-stories.*
- Having two tenants share the space in one of the buildings made it difficult to provide for separate bathrooms, kitchens, workrooms, conference rooms, etc. Fortunately in this case, the tenants were able to work together and agree on sharing various spaces.
- It was difficult to design a mechanical systems layout due to having to keep the habitable space as unchanged as possible. This meant the majority of systems needed to be placed in the attic or basement, and that piping, wiring, and ductwork needed to run through these spaces as well or within the narrow space between the existing floor and lowered ceilings. All vertical runs had to be in closets or flues so as to not be seen from the primary habitable spaces.
    - *Example: High velocity ducts with smaller piping which would have facilitated the installation could not be used because they are not very efficient and have poor performance for a space this size.*
    - *Example: The systems in the basement had to be raised off the floor by more than a foot due to the 100 year flood plain being at that level. This decreased available space and made it more challenging to install.*

Preservation Design

In addition to designing the buildings to meet necessary code requirements and the needs of the prospective tenants in terms of space and layout, the design had to preserve as much of the historic character as possible. This meant respecting the original layout and configuration, preserving historic and original materials, and hiding new updates and equipment.

Successes:

- Representatives from the Navy and the Design Team were able to meet with SHPO to develop a list of pertinent preservation-related issues and goals before the design charrette which allowed potential problems to be worked out early.
- This allowed the additions to both buildings to be designed in such a way that they are conspicuously new so as to not confuse with the historic buildings, but blend with the scale and massing of the buildings.
- The additions include the mandatory fire egress stairs, ADA access, kitchens, and bathrooms so that none of these potentially historic-character compromising elements needed to be within the historic massing.

Challenges:

- The historic preservation coordination and review process can provide challenges to timelines and budget because of the 30-day review period.
- Designers and engineers like specificity in their plans which can be difficult to incorporate while trying to take into account recommendations from SHPO.
- In some cases, the design could not incorporate SHPO's preservation recommendations because of code requirements or budget restraints.
    - *Examples: Replacing the historic wrought iron porch railings and supports, replacing the cast-iron porch columns, removing plaster ceilings and replacing them with lowered drywall, using a synthetic slate roof in place of repairing the original, and placing storm windows on the exterior of the building.*

Construction/Site Work

On-site renovation and construction activities began with clean-up and abatement to prep the site and buildings for renovation work. Work then proceeded to demolition, grading and site improvements, and then building construction and repair. Lastly, landscaping and final clean-up was done to get the buildings ready for ribbon-cutting and tenant move-ins.

Successes:

- The buildings are located next to each other which facilitated work and allowed construction to progress on both buildings simultaneously.
- Site access and pass office issues were dealt with by a representative from the general contractor being at the pass office every morning to expedite the process. This is a standard part of the routine when working for the military.
- Site clean-up and abatement went according to plan without a problem. The greatest amount of abatement issues were located in the non-

original rear porches, which were being demolished anyway. In other cases, such as with lead paint, sound surfaces were painted over instead of requiring a complete abatement. This saved time and minimized the cost and generation of hazardous waste disposal.

- All requests for information (RFIs) from the construction team went to the Navy's construction manager where either a field decision could be made, or were forwarded to the architect. In almost all cases, response times from both team members were prompt which allowed construction to stay on schedule.
- Many unforeseen issues that arose during construction were able to be resolved through creative responses by team members without causing loss of time or increased costs.

Challenges:

- Some materials and building features were beyond a condition they would normally be repaired, but the historic preservation goals of this project mandated that special attention be given to preserving them.
    - *Example: Several chimneys on the buildings were collapsing and typically would have been demolished and rebuilt. This was not an option for this project, and standard reinforcement would have caused a visual impact.*
- Still some materials and elements were beyond repair and could not be retained despite the best efforts to save them.
- Sometimes field decisions and change orders had to be made quickly, and did not always allow time for input or comment from the Navy's historic resource team or the SHPO.

Preservation Specific

The historic nature of the project and the need to preserve as many of the character-defining elements and materials in the buildings as possible to meet the Secretary of the Interior's Standards required special consideration be given to construction practices and techniques. The project was fortunate in that the general contractor, and specifically the construction superintendant, had a keen sense historic preservation and was able to ensure project goals were met.

Successes:

- The project was able to use synthetic materials in place of their historically-available counterparts. This provided significant cost savings and can easily be installed, while still meeting preservation standards and respecting the historic character.
    - *Example: Hardiboard siding which has a longer lifespan and is easier to maintain, but still gives the appearance of true clapboard was utilized on the building additions.*
    - *Example: Synthetic slate shingles were installed on the roofs of both buildings, providing a significant cost savings while still giving the appearance of true slate.*
- Local craftsman and mills were able to replicate many of the damaged building components.

- *Example: Portions of the Exterior cornice and carved brackets were produced and blended seamlessly with original sections.*
- *Example: Curved pieces of base shoe had to be crafted to fit on rounded corners inside Building 706.*

Challenges:

- Working with and preserving many of the historic materials and elements posed difficulties for the construction team not typically encountered on renovation jobs.
  - *Example: It was important to safely remove the plaster ceiling medallions so they could be reattached to the lowered drywall ceilings.*
- During construction, there were several cases where actual conditions did not match predictions, and design changes had to be made to accommodate preservation goals.
  - *Example: Ceiling pockets were needed in rear hallways to maintain full-height windows because raising roof would interfere with the historic exterior cornice.*
  - *Example: It was realized that the addition of a NMCI room in Building 705 would require that a portion of a large double-opening between two rooms would need to be infilled. One option was to reduce the entire opening and construct a new and similar architrave to go around it, the second choice, which was ultimately selected, was to partially close the opening, but retain the original architrave within the plaster. This option best matches preservation standards in that it allows the original configuration to be seen.*
- Once construction commenced, it became apparent that some of the historic materials and features originally planned to be retained were in worse condition than expected and alternate plans had to be made.
  - *Example: It was originally thought the slate roof on Building 705 could be repaired, however once construction started, it was determined the tiles were too brittle, additionally, the lighter weight of the synthetic slate eliminated the need for additional structural bracing of the roof. The addition of several dormers necessary for HVAC ventilation on the roof would require many tiles to be removed and reapplied, likely causing too much stress on the slate. Further, the tiles that would not need to be removed were only held down by gravity and not sealed, which could permit future moisture infiltration. It was therefore decided to replace the roof with a synthetic slate material. This also allowed the buildings to match, as the same synthetic roof was used to replace the asphalt roof on Building 706.*

LESSONS LEARNED AND CONCLUSIONS

While there were challenges along the way, the rehabilitation of Building 705 and 706 at the Norfolk Naval Shipyard is heralded a successful project. Two vacant historic buildings threatened with demolition were preserved, the tenants' needs were accounted for, and preservation goals were met; all completed under budget. Everyone involved with the project from the initial planning, implementation, to completion, is happy with the results and came away from the project with a positive experience. The general contractor plans to use the project as a model of historic rehabilitation for future clients. The prospective tenants are thrilled with the space and could not wait to move in. The SHPO warrants that the historic character of the buildings was well respected and commends the Navy on the project. Many shipyard personnel say that they would like to have an office in one of the buildings.

Even with all the successes of the project, there were challenges and difficulties along the way. Therefore, it is important to recognize what lessons were learned so that future historic rehabilitations can be performed by the Navy and other Federal agencies quicker, cheaper, and more efficiently.

Lessons Learned

The first step to undertaking a successful historic rehabilitation is selecting a good candidate building(s). Choosing the right building to renovate can make huge differences in the amount of time, money, and effort needed to carry out the project. It is important to know what the intended use of the building will be following the rehabilitation and determine whether the building's location, size, and layout lend themselves well to that use. It is also vital to understand what makes that particular building historically significant and what preservation issues are likely to arise. This will allow the design and construction processes to proceed quicker. Discussion and coordination should take place with the agency's Historic Preservation Officer, a Cultural Resource Management Firm, or SHPO early to assist with this. Another important aspect to not overlook in the planning stage is whether or not there is a presence of archaeological features at the project site. Late discoveries of this nature can create significant delays and increase the project cost substantially.

Over the last decade, the emergence of ATFP has also made it important to understand what issues these requirements may generate during a rehabilitation and whether the selected building will have any inherent hardships with meeting them. Buildings located near installation boundaries provide extra challenges because of the clear zone required to be around them. Buildings three or more stories tall have to meet progressive collapse requirements for ATFP which can be difficult for historic buildings. Buildings that will hold more than 49 employees have even stricter sets of ATFP requirements. While these issues should not forbid the selection of buildings that fit any of these criteria; ways to resolve the issues should be taken into consideration at an early stage. It should be noted that buildings to be used for residential purposes following rehabilitation do not need to meet ATFP requirements.

Once a building has been selected for reuse, an architect must be summoned to prepare the rehabilitation design. Some architecture firms have their own staff engineers to prepare the electrical, plumbing, systems, civil and other similar design, and sometimes they outsource to specialized consultants. It is important to find an architect with experience in historic preservation and rehabilitation so that a sensitive design can be produced that meets both project goals and the Secretary of the Interior's Standards. It is also important to ensure that if the architect does outsource the engineering work, that the selected consultants have experience with and an understanding of historic rehabilitation as well. A design-bid-build method of delivery is preferred for rehabilitation.

At this point in the project, open and active communication between the owner, consultants, and the SHPO is critical. A lot of time and money can be lost if the project gets too far into the design process without SHPO consultation, only to later find out that it does not meet with approval. It is extremely beneficial to hold a meeting with the architect and SHPO as soon as an initial design has been developed to discuss and work out potential issues before final plans are established. It would also be advantageous to establish an agreement with SHPO during this initial preservation guidance and consultation to develop a review process with less than the standard 30-day turnaround.

Once the design is complete, assembling a good construction team is the next vital step in the rehabilitation process. In preparing the request for bids, it is necessary to formulate specific factors that the potential contractors will be evaluated on. Particular emphasis should be given to previous experience with historic preservation. Time should be taken to check references and the reputation of the contractors. It is also important to find out whom the Project Superintendent will be and what their qualifications and experience with historic rehabilitation are. A selection process that ranks potential contractors on their experience and knowledge of preservation first, and on bid price second, is advisable.

Once construction commences, open and active communication between team members becomes pivotal once again. Because of the guarantee for unforeseen issues arising when working on historic buildings, it is important that workers bring these issues to the attention of the superintendent or construction manager so that informed decisions can be made in the field, or passed on to the architect or SHPO if needed. To know when issues warrant discussion or consultation is a challenge, especially to those workers or subcontractors who are not familiar with historic preservation or the Secretary of the Interior's Standards. Therefore it may be worthwhile to provide a quick briefing on basic preservation principles at the outset of the project to anyone involved at the project site. An intensive lesson on Historic Preservation Theory is not necessary and would cause undue loss of time and money. Rather a quick presentation followed by a Q&A session would likely suffice. This could be given by the agency's Historic Preservation Officer, a representative from SHPO, or even the construction manager if they have already been briefed on the topic.

Key Points:

One of the biggest overall issues to remember when conducting a historic rehabilitation is to expect unforeseen issues. It is vital to be prepared for them to arise and have budgeted time and money for them.

- One of the most important ways a rehabilitation project can be facilitated is by maintaining open and active communication from the beginning to completion.
- It is crucial to have a thorough understanding of ATFP requirements and how they will relate to the subject building.
- It can be extremely advantageous to work with SHPO early so that issues they see as important can be incorporated into the design before the process advances too far.
- Quick decisions are critical to keep projects on time and on budget. Therefore it is important that those parties who are responsible for making field decisions have an understanding of preservation goals and the Secretary of the Interior's Standards.
- Establishing a decision-making framework/tree with the necessary stakeholders that includes agreed upon response timeframes is critical to keeping projects on schedule and budget.
- Assembling a qualified and experienced Development Team is an important way to ensure that everyone is working together with similar goals.
- Making sure everyone involved, particularly at the project site, knows what limitations may be imposed because of the preservation goals, and are therefore encouraged to ask questions before making uninformed decisions.

Conclusion

This project worked well for a number of reasons. The Navy had made an informal agreement to try and preserve the two buildings used if possible, however had not found a use for them. When the 2005 BRAC report recommended the relocation of two outside departments to the shipyard, additional office space was needed to house them, and the combined square footage in the two buildings was almost exactly the amount necessary. The funding for the project was somewhat unusual as it came from BRAC. Had BRAC not provided the funding for the project, the rehabilitation of these two buildings would likely have not been possible since MILCON money is so limited and generally focused on mission driven projects. The buildings likely would have been destined for demolition.

With the buildings selected and funding in place, the Navy was able to summon the services of an AE firm with previous experience in historic rehabilitation who were able to prepare a sensitive design for the building. A poor design could have resulted in wasted time and money spent and disapproval from SHPO; instead upfront coordination with SHPO taking place at a face-to-face meeting allowed issues to be discussed and worked out early. Having good plans established upfront permitted potential General Contractors to submit more accurate proposals to the Navy who was then able to select the best possible candidate. The selected contractor had a great deal of past experience in historic

rehabilitation which allowed them to complete the project in a timely and cost effective manor while successfully adhering to the preservation guidelines established by the SHPO at the project outset. In summary, this project was successful for a number of reasons; some chance such as building availability and funding, some through careful planning and hard work, but most importantly, as a result of open communication between a project team dedicated to historic preservation.