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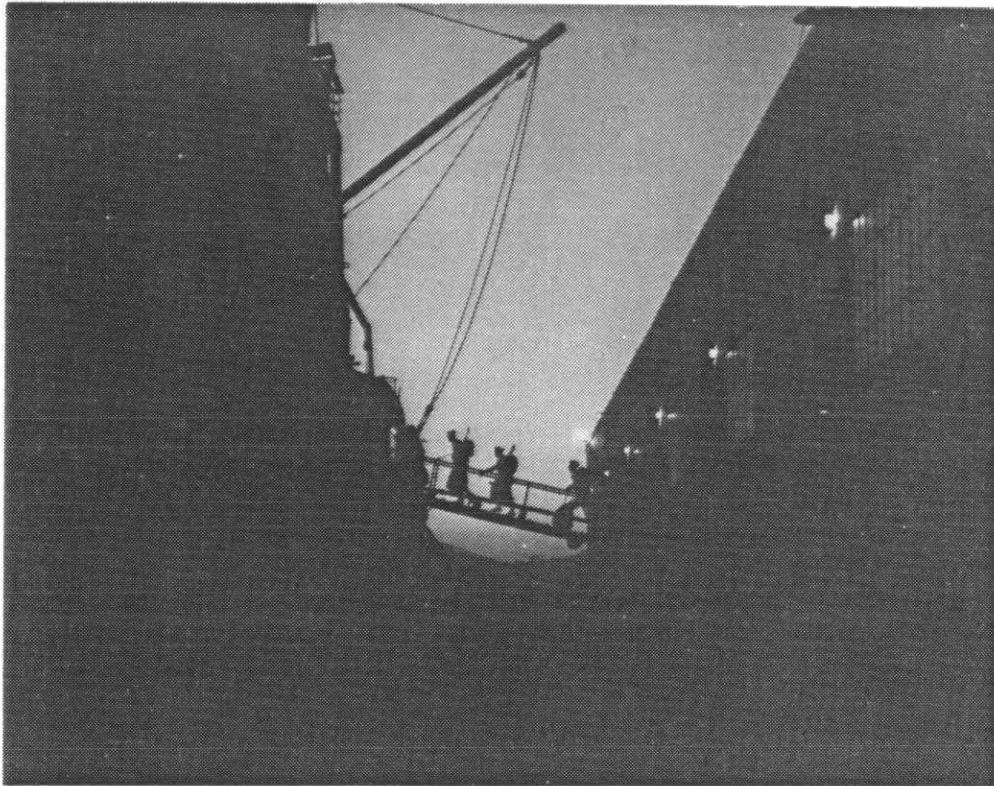
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*Golden Gate NRA*

SAN FRANCISCO  
PORT OF EMBARKATION  
HISTORIC STRUCTURE REPORT

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# SAN FRANCISCO PORT OF EMBARKATION HISTORIC STRUCTURE REPORT

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Golden Gate National Recreation Area  
National Park Service

Prepared By

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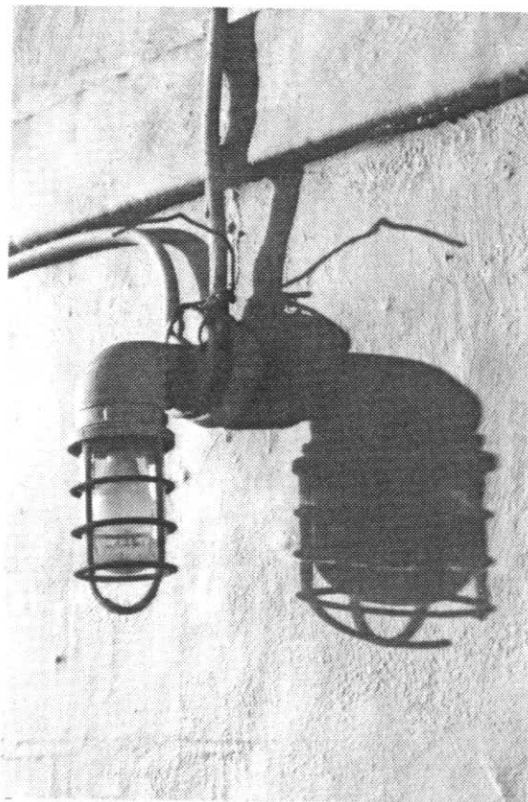
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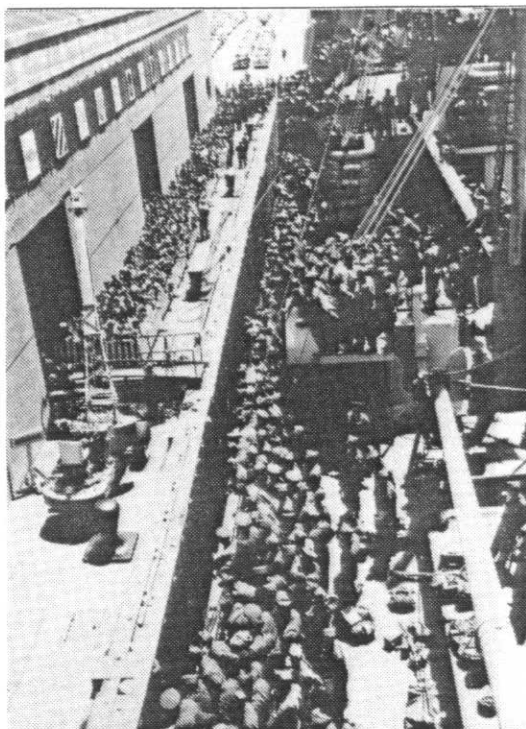
## INTRODUCTION

### STATEMENT OF SIGNIFICANCE

The Fort Mason military reservation is significant as a historic district. Commencing in 1797 and lasting through the Spanish and Mexican administrations of Alta California, Fort Mason was one of two sites in San Francisco Bay that was armed with artillery for defense of the harbor. For more than forty years under the American administration, it played a role in the coastal defenses of the Bay from the Civil War to post-Spanish-American War. It also served as an important element in the first submarine mining of San Francisco Bay, in the Spanish-American War. From the Spanish-American War to the Korean Conflict, Fort Mason's role as the headquarters of the San Francisco Port of Embarkation was of national significance. Through it moved millions of men and millions of tons of supplies, providing evidence of the United States' expansion and growing interests in the Pacific.

The most important function assigned to Fort Mason was the San Francisco Port of Embarkation. Following the Spanish-American War, the various branches of supply (Quartermaster, Signal, Medical, and Engineer) found their activities at San Francisco greatly increased as they now served garrisons of America's new possessions in the Pacific—Hawaii, Philippines, and Guam, as well as Alaska. Later, Fort Mason supplied North China and the Siberian Expedition. In 1925, Panama was added to the list. For a time these activities were scattered over San Francisco in leased warehouses and piers. In 1908, the decision was made to concentrate them, along with personnel "pipelines" at Fort Mason. The first structures of the Port of Embar-

*This Statement of Significance is compiled from the Significance section of the National Register Nomination Form, pages 1, 6 - 7, and 8.*



*Embarkation from Pier  
#2, c. WWII*

kation were completed in 1912. Operations commenced promptly with the docking of army transports arriving on their regular schedule. By 1915, all depot activities in the Bay Area had been transferred to Fort Mason.

America's involvement in World War I resulted in the construction of several temporary warehouses in 1917, now all removed.

Until 1925, the operation was called the San

Francisco Intermediate Depot, when it was renamed the San Francisco General Depot. The term San Francisco Port of Embarkation (SFPE) was adopted in 1932.

In 1939, on the eve of World War II, the military and civilian personnel assigned to the port numbered 831. The tons of cargo that passed through the port that year amounted to 48,000. World War II witnessed a tremendous increase of activity. Fort Mason remained port headquarters and directed supply operations at the Oakland Army Base and manpower requirements at Camp Stoneman, California. Fourteen other harbors on the Pacific Coast became subposts. Although the Attu expedition (Aleutian Islands, Alaska) was mounted at San Francisco, Seattle became an independent port in 1942, and assumed responsibility for Alaska from then on. Fort Mason remained the primary port for the Central, South, and Southwest Pacific Areas. By 1945, 1,644,242 military personnel had embarked and 1,120,766 debarked to and from the Pacific war zones at the San Francisco Port of Embarkation. A total of 25,589,466 ship tons of cargo were handled by the port. There were no fewer than 40,000 personnel on the roles.

All the original permanent structures of the port of embarkation are in relatively good condition and together they possess a national level of historical significance. They are (within the scope of this report):

| <u>Current Name</u> | <u>Old Name</u> | <u>Number</u> | <u>Construction Date</u> |
|---------------------|-----------------|---------------|--------------------------|
| Building B          | Storehouse "D"  | FM310         | 1912                     |
| Building C          | Storehouse "C"  | FM312         | 1912                     |
| Building D          | Storehouse "B"  | FM314         | 1912                     |
| Building E          | Storehouse "A"  | FM315         | 1912                     |
| Pier 1              | Pier 1          | FM316         | 1912                     |
| Pier 1              | Pier Shed 1     | FM317         | 1917, reconstructed 1934 |
| Pier 2              | Pier 2          | FM318         | 1912                     |
| Pier 2              | Pier Shed 2     | FM319         | 1912, addition 1933      |
| Pier 3              | Pier 3          | FM320         | 1912, enlarged 1934      |
| Pier 3              | Pier Shed 3     | FM321         | 1934                     |

| <u>Current Name</u>    | <u>Old Name</u>          | <u>Number</u> | <u>Construction Date</u>  |
|------------------------|--------------------------|---------------|---------------------------|
| Firehouse              | Battery Charging Station | FM322         | 1935                      |
| Entrance Wall and Gate | Same                     | FM301         | 1934                      |
| Gatehouse              | Provost Marshal's Office | FM302         | Post 1930, remodeled 1948 |
| Guard Station          | Same                     | FM303         | unknown                   |
| Building A             | Marine Repair Shops      | FM308         | 1934                      |

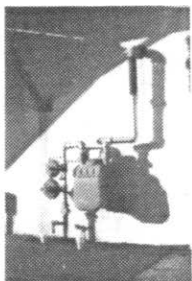
#### PERIOD OF SIGNIFICANCE FOR LOWER FORT MASON

The period of national significance extends from the date of the earliest construction in this portion of Fort Mason to the end of World War II, a period covering the years 1909-1945. All of the structures above have been identified as having national significance. Three additional structures: the Fire Station of 1935 (FM309) is of national significance, and the Transformer

Housing of 1913 (FM248), and Retaining Wall (1912 and 1938) are within the period of significance, but of local significance. These structures should be treated as an integral part of the building complex at Lower Fort Mason and should be subject to the same conservation treatments and design guidelines proposed for these other structures.



*Interior of Pier Shed 2,  
c. WWII*



## METHODOLOGY

### PREPARATION

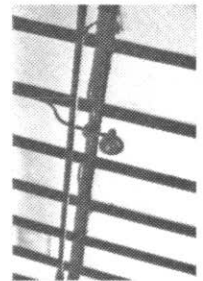
The purpose of this Historic Structures Report is to provide guidelines which will direct any modifications or maintenance of the Lower Fort Mason structures to be in accordance with the laws, regulations, policies, and standards that govern the treatment and use of historic structures in the National Park system.

### SURVEY METHODOLOGY

A visual on-site inspection of the interior and exterior of the Lower Fort Mason structures was conducted in the months of December 1989 and January 1990 by staff members of Architectural Resources Group. Site surveys were conducted from the ground using binoculars. Typical conditions were recorded and the locations of isolated deterioration problems noted. The findings of the conditions survey together with historical research were used in generating the conservation recommendations and design guidelines.

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## ADMINISTRATIVE DATA



The San Francisco Port of Embarkation, Fort Mason, Golden Gate National Recreation Area became a National Historic Landmark on February 4, 1985. All actions proposed on the structures of this Landmark district, therefore, will receive the highest level of review under the procedures of the Advisory Council on Historic Preservation. The Landmark district consists of the Headquarters Building (FM201) and the Port Area, Lower Fort Mason, including:

- Railroad Tracks.
- Four Store Houses, FM310, 312, 314 and 315.
- Three Piers, FM316, 318 and 320.
- Three Pier Sheds, FM317, 319 and 321.
- Marine Repair Shops, FM308.
- Fire Station, FM309.
- Battery Charging Station, FM322.
- Provost Marshal Office, FM302.
- Entrance Gate to Port Area and Guard Post, FM301 and 303.

From 1910 to 1963, the Lower Fort Mason area served as the point of Embarkation for American military personnel to the Pacific during both wartime and peacetime. The area contains excellent examples of military architecture including warehouses, piers, and administrative buildings. The predominant building material is concrete.

The proposed treatment for these structures listed in the "1980 General Management Plan for the Golden Gate National Recreation Area" (GGNRA), is preservation and adaptive use. In the latest revisions of

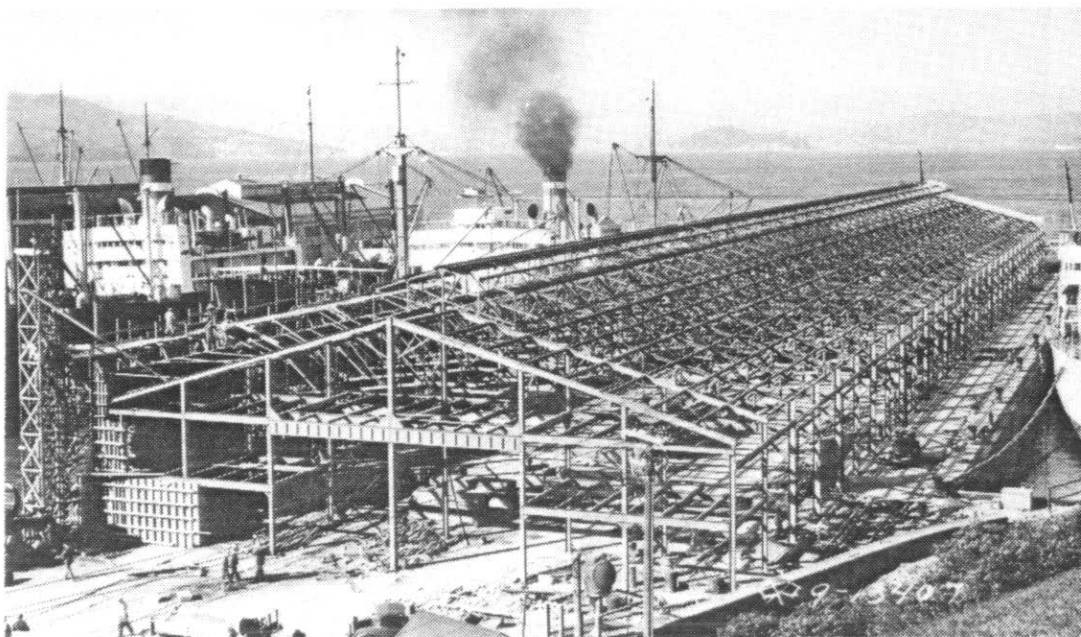


the National Park Service Cultural Resource Management Guidelines, NPS-28 (1985) and the National Park Service Management Policies (1988), "Adaptive Use" has been dropped from the approved treatments list for the more clearly defined treatment of rehabilitation. Rehabilitation of historic structures is regulated by the Secretary of the Interior's Standards for Rehabilitation (36 CFR 67). The Secretary Standards were included as the minimum performance standards in the Programmatic Memorandum of Agreement on the General Management Plan signed, in 1980, among the California State Historic Preservation Officer, the Advisory Council on Historic Preservation, and the National Park Service (NPS). All actions taken on the buildings of Fort Mason must meet, as a minimum, the requirements of these standards.

In describing the planned use of Lower Fort

Mason, the "General Management Plan" states that, "because of the obvious appeal of the bay shore, the imposing stature of the buildings, and the attractive programs they will contain, the pier and warehouse area will remain the center of attention at Fort Mason. Here the cultural color and diversity of the people of the San Francisco Bay Area will be revealed in theaters, studios, workshops, galleries, and classrooms imaginatively created within one pier building and two or more warehouses. To the Bay Area resident this center will represent one more important source of entertainment and enrichment. To the out-of-towner spilling in from Fisherman's Wharf it could become a convenient place to learn more about one of the Bay Area's prime attractions, its people."

Fort Mason now serves as headquarters for the administration of the GGNRA as well as home for the Fort Mason Center, a center of enter-



*The second Pier Shed  
3, under construction,  
c. 1934*

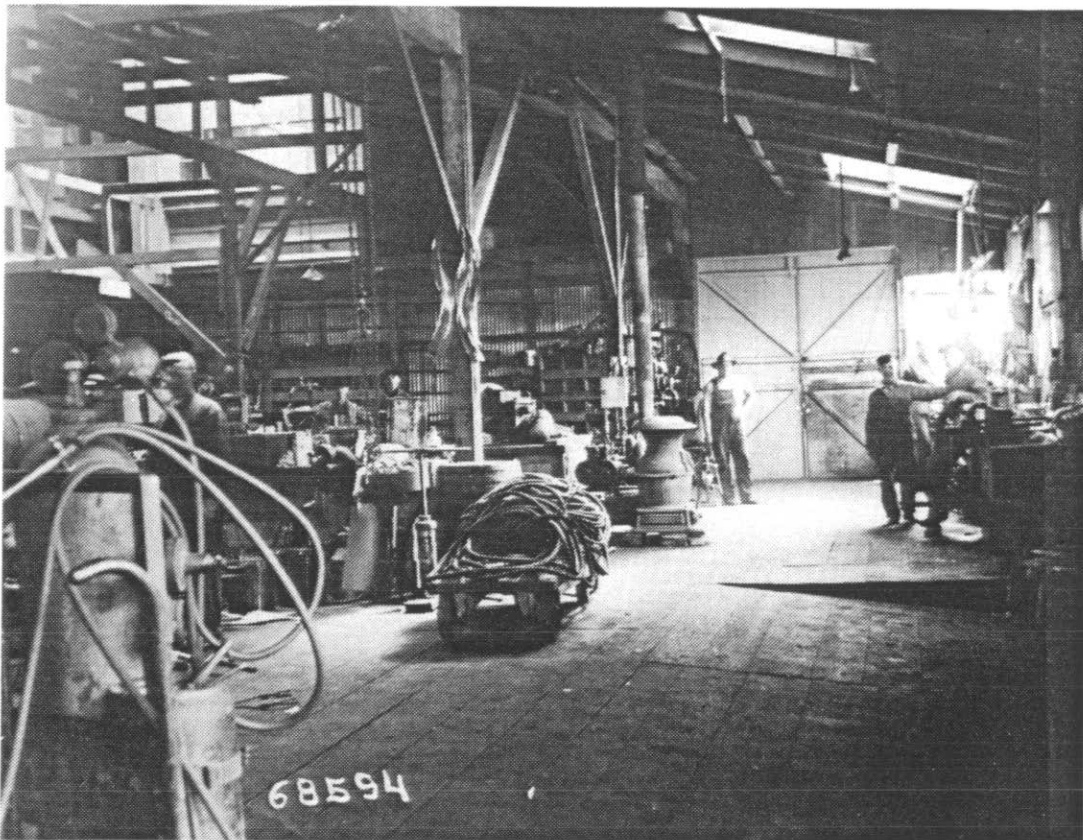


tainment and education managed by the non-profit Fort Mason Foundation. The Administrative Offices of the GGNRA are located in Headquarters Building 201 for which a Historic Structure Report was written in 1978 to assist the adaptation of the structure to that use. Lower Fort Mason houses the Fort Mason Foundation, whose functions are in keeping with the direction of the General Management Plan. Lower Fort Mason is the focus of this Historic Structure Report.

The Fort Mason Foundation manages the structures of Lower Fort Mason under a cooperative agreement and rents space to various environmental and humanitarian groups. The National Park Service uses a major portion of one warehouse structure (FM315) to house a Maritime Library and collection storage facility. The NPS also uses an entire pier and pier shed structure (FM316 and 317) to house mainte-

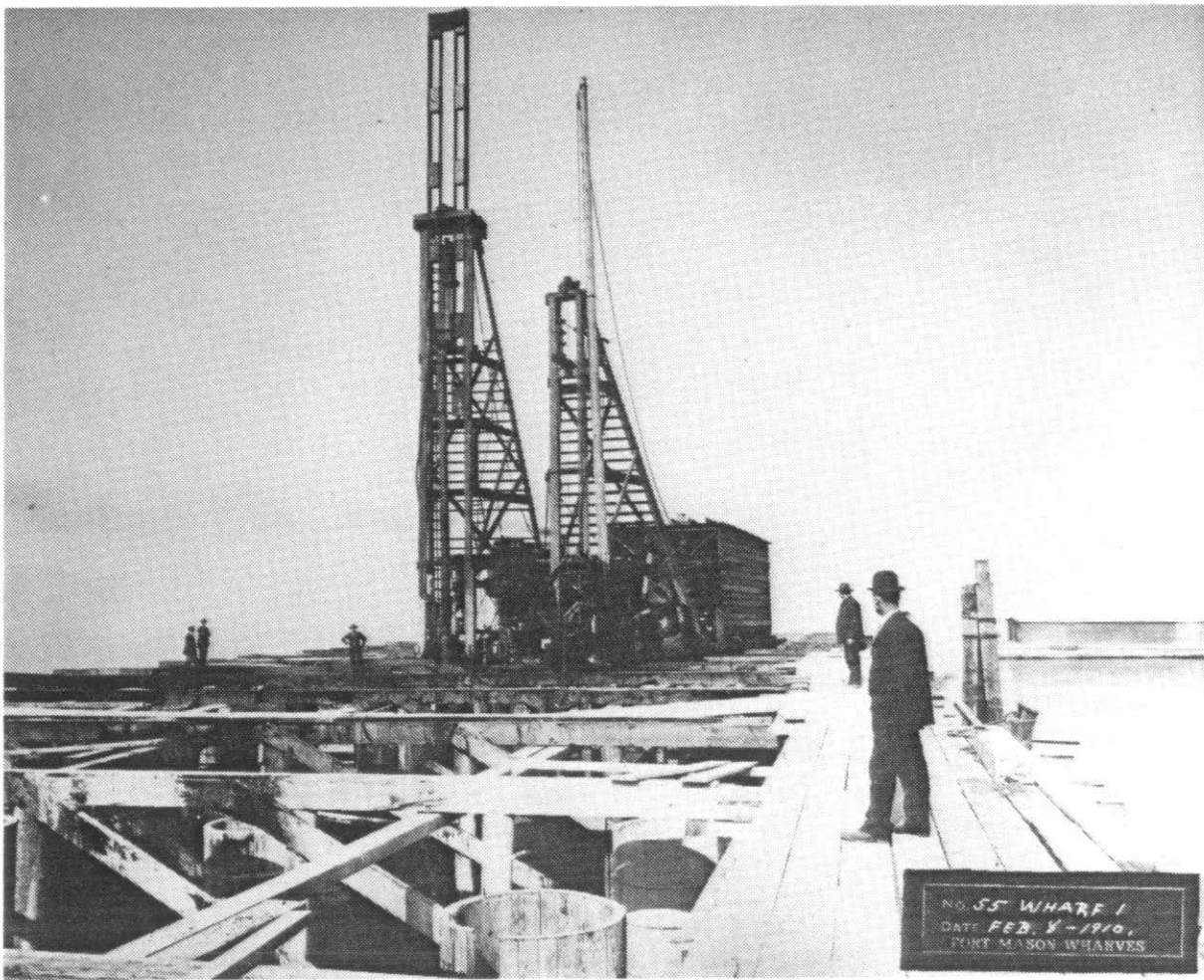
nance functions. However, maintenance will be moving out of Fort Mason as a part of the assimilation of the San Francisco Presidio into the GGNRA and the pier structure will become part of the Fort Mason Foundation. To date the preservation efforts and structures modifications required by the various functions have been handled on a case by case basis with no specific guidance for the overall effort of preserving significant character defining features and fabric while rehabilitating the structures.

The purpose, then, of this Historic Structure Report is to provide direction to the National Park Service and to the Fort Mason Foundation in both the preservation and rehabilitation of these Landmark structures.



*Machine Shop, c.  
1920s*

*Pile driving on Wharf 1, Feb. 8, 1910*





## HISTORICAL DATA

### SUMMARY

Fort Mason is located on a point of land on the south side of San Francisco Bay, within the city of San Francisco. Originally, most of the land within the military reservation was composed of sand dunes (Punta Medanos). Some vegetation on the rocky promontory itself and on the sheltered east side gave a dark appearance to the point, particularly after early settlers on the point engaged in some horticulture, that resulted in the local name of Black Point. The military reservation of Fort Mason, as it was finally established in 1870 and enlarged in 1909, and as it remains today, is considered to be a historic district.

Although construction activities at Fort Mason began as early as 1797 (the Spanish constructed earthworks on the point and mounted five 8-pounder guns), the decision to construct the buildings at Lower Fort Mason had to await the establishment of the fort as the U.S. Army's headquarters for its supply activities in the Pacific. As a result of America's expansion into the Pacific (Spanish-American War), army supply activity through the port of San Francisco increased greatly. In 1908, the decision was made to concentrate this function at a general depot at Fort Mason. The submerged land to the northwest of the reserve was acquired through condemnation and, in 1910, construction began on what came to be called the San Francisco Port of Embarkation. This land acquisition increased the size of the reservation from 55 to 68.5 acres.

Between 1912 and 1915, three large piers (FM316, 318, and 320) and four concrete, two-story warehouses (FM310, 312, 314, and 315) were completed. Pier 3 (FM320) was enlarged in 1934. Eventually, three pier sheds were constructed (FM317, 319, and 321). Pier Sheds 1 and 3 (FM319 and 321) were reconstructed in 1934. The Army considered the Port of Embarkation to be a project of great importance, and it employed the architectural firm of Rankin, Kellog, and Crane, of Philadelphia, to plan the structures. These architects adopted the Mission Revival style, and the warehouses and pier sheds were

*Historical information in this section is compiled from the Description section of the National Register Nomination Form for Fort Mason, pages 1 - 6.*

the first army structures in the Bay Area to be built using this style, if sparingly.

A railroad tunnel was constructed under Fort Mason in 1914 and tracks were laid to the dock area.

Later, additional permanent structures—the Marine Repair Shops (FM308), the Battery Charging Station (FM322), the Provost Marshal's Office (FM302), and an entrance gate (FM303) were added to the port facilities.

Beginning in World War I (1917), a number of temporary frame warehouses were added, both in the dock area and on the plateau above.

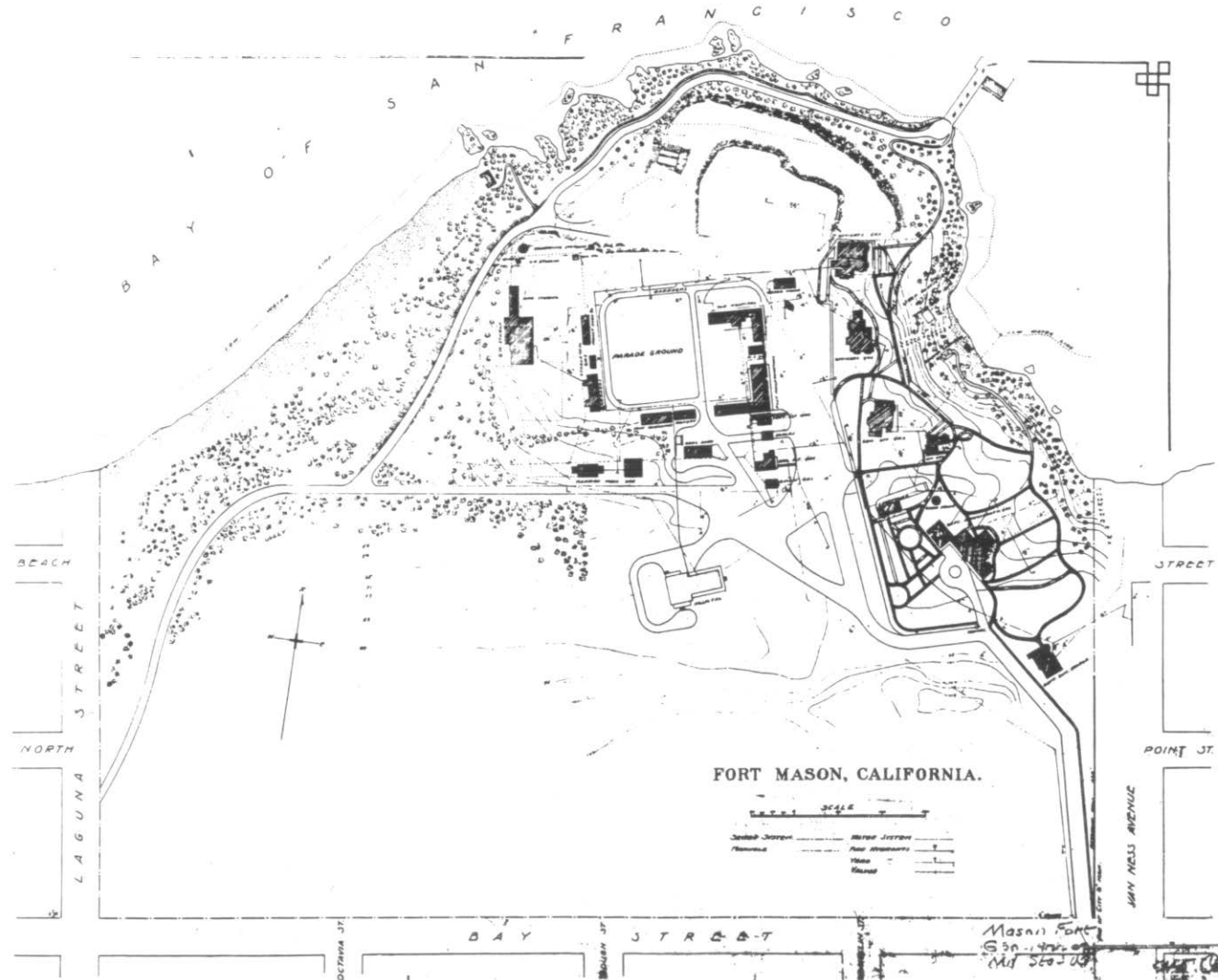
After the Army abandoned the western portion

of Fort Mason, the General Services Administration removed nearly all the temporary warehouses and other buildings from both the dock area and the western portion of the post.

Two large retaining walls also contribute to the historic setting. The other concrete retaining wall is in the dock area; construction commenced in 1912. The first portion built was along the western slope of the bluff on the south side of the dock area. An extension constructed in 1938 is believed to be the wall on the east side of this corner of the dock area.

Although the information used for the preparation of this historic structures report is ade-

Site map of the Fort Mason environs, c. 1910





quate, a full history study should be undertaken for the San Francisco Port of Embarkation. Based on the landmark status of this resource, further study is warranted, and would assist in further interpretation of the site as well as supporting rehabilitation efforts.

## OUTLINE HISTORY

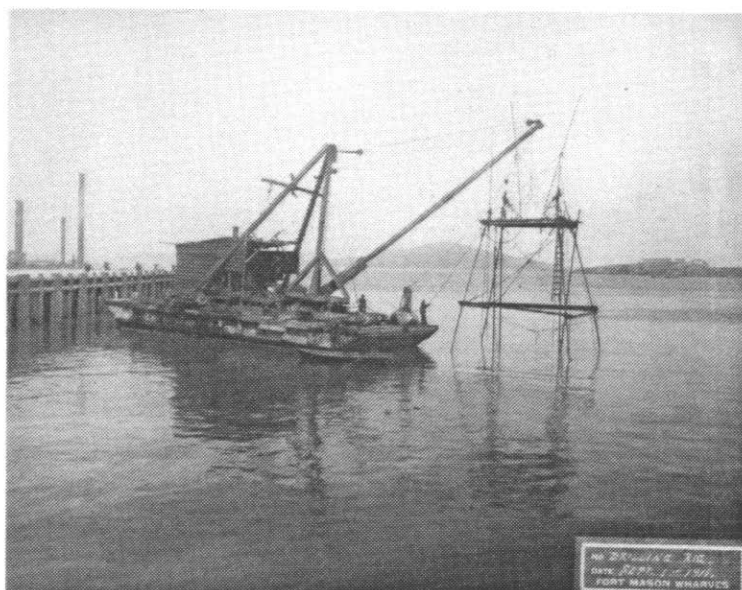
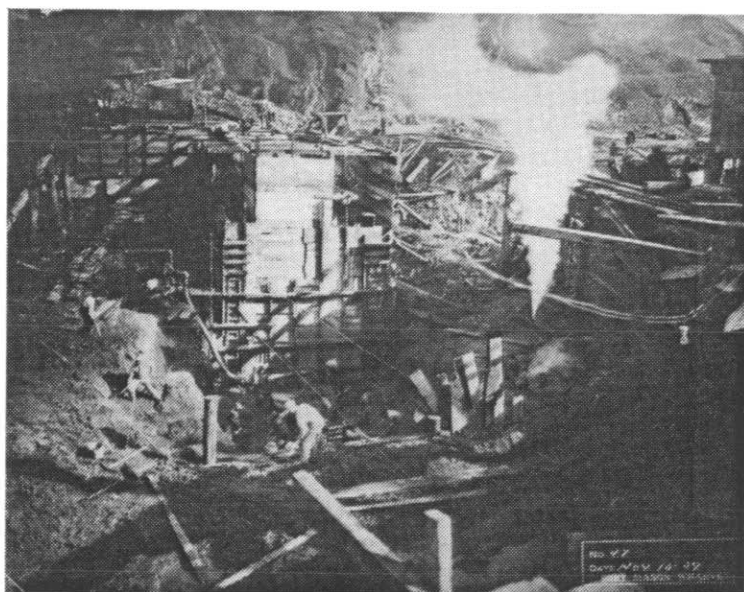
The following outline provides a more detailed accounting of the construction activities at Lower Fort Mason. This outline is based on material obtained from the Golden Gate National Recreation Area including dated maps and photographs, and an outline written by Erwin N. Thompson dated 29 January 1980.

### *Pre-1909*

The area comprising Lower Ft. Mason was primarily a small bay and beach below the main fort.

### *1909-1912 Construction Activity*

1. Three finger piers—structures 316, 318, 320 [Piers 1, 2, and 3 respectively].
2. A shed for the central pier—Building 319 [original Pier Shed 2].
3. Pilings to the south of the finger piers and a sand fill around the pilings.
4. Two storehouses built on the pilings and fill south of the piers—buildings 310 and 312 [Buildings B and C, respectively].
5. A north-south seawall along the alignment of Laguna Street. "A Crib Wall paralleled and was adjacent to the concrete seawall along the west side of the depot area."
6. "The first of the retaining walls along the bluff to the south began in 1910. No specifics available."
7. "In 1911, \$4,000 authorized to construct macadam (crushed rock) road in the port area." (Note: no historical evidence in the form of photographs or other accounts provides substantiation that this road was constructed.)
8. By 1912, the east-west road along the piers was covered with concrete. But because of heavy wear, authority was given to cover this stretch with asphalt. (Note: no historical evidence in the form of photographs or other accounts provides substantiation that this road was resurfaced in asphalt.)



### *1913-1915 Construction Activity*

1. In 1914, a contract was prepared to put asphalt on the road from the port entrance to Pier 1. (Note: no historical evidence in the form of photographs or other accounts provides substantiation that this road was surfaced in asphalt.)
2. Two additional storehouses constructed—buildings 314 and 315 [Buildings D and E, respectively].
3. Building 20 [Signal Corps Shop and Store-

top -- Construction of the seawall, Nov. 10, 1909

bottom -- Drilling rig, Sept. 1, 1911

house]. This building, now demolished, was located immediately south of Building 312. The exact date of construction is uncertain, but it can be placed between 1915 and 1917. By 1917, a small addition was built onto its south end. Demolition took place ca. 1943.

4. Construction of a Scale House (FM304) near the site entrance.
5. Railroad.
  - 1914—completion of railroad tunnel under Ft. Mason.
  - 1914—specifications for a single track from Beach/Laguna Streets to structure 320, double tracks to Buildings 310 and 312, and a single track east to structures 316 and 318.

#### *1917-1918 Construction Activity*

1. Buildings 317 and 321 were constructed on structures 316 and 320. These were “temporary” in nature and were later replaced with the current buildings (see 1930-1941 Construction Activity section below).
2. A storehouse was constructed south of Building 310. A “temporary” building, it was later demolished (date unknown).
3. Watchman’s Shelter constructed between the entrance and the Scale House (FM304). Little information on either of these buildings exists though it is known that both were removed at later, unknown dates. The Watchman’s Shelter was most likely removed during the construction of Buildings 301 and 303 prior to WWII. The most recent evidence of the Scale House is an aerial photo dated 1954.
4. Retaining Wall. Appears in a 1917-1918 map to be substantially complete along the bluff.
5. Garage and Marine Shops. East of Building E. Temporary building. Demolished.
6. Chemical Laboratory. East of Pier 3. Temporary building. Demolished.
7. Washing Shed. East of Pier 3. Temporary building. Demolished.
8. Oil Shed. East of Pier 3. Temporary build-



*Warehouse foundations  
before backfilling, July  
1, 1910*

ing. Demolished.

9. Asphalt surfacing in front of the Garage and Marine Shops was laid by or in 1917.
10. In 1917, a shed was constructed in the space between Buildings 310 and 312. This wood framed structure was later demolished ca. 1943.

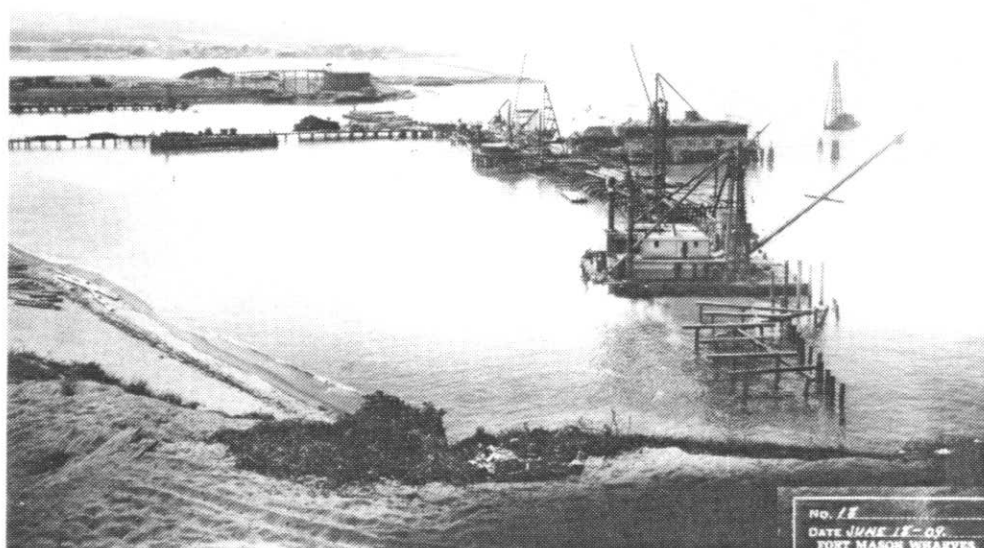
#### *1930-1941 Construction Activity*

1. Extension of structure 318.
2. Extension of Building 319.
3. Extension and widening of structure 320.
4. New pier sheds for structures 316 and 320. The new shed, Building 317, on structure 316 was approximately the same size as the older "temporary" building. The new shed, Building 321, on structure 320 was constructed wider and longer than the original "temporary" building.
5. Building 308 [Marine Shops Building] constructed south of structure 316 and west of Building 310.
6. Building 309 [New Fire Station] constructed southwest of structure 316.
7. Building 322 [Battery Charging Station] constructed east of structure 320.
8. Building 302 [Identification Building] constructed at the entrance (later, in 1948, it became the War Department Security Patrol office). Originally it was 18' x 40'.
9. Buildings 301 and 303 [Entrance Gate and Wall, and Guard Station] constructed for Port of Embarkation.
10. Miscellaneous:
  - Retaining Wall (near entrance) extended
  - Paving in dock area
  - "Temporary" buildings—Washing Shed, Oil Shed, Chemical Laboratory, Garage and Marine Shops located east of Building 315 and Structure 321—were demolished.
  - Railroad tracks relaid and repaired; wooden ties replaced with steel.

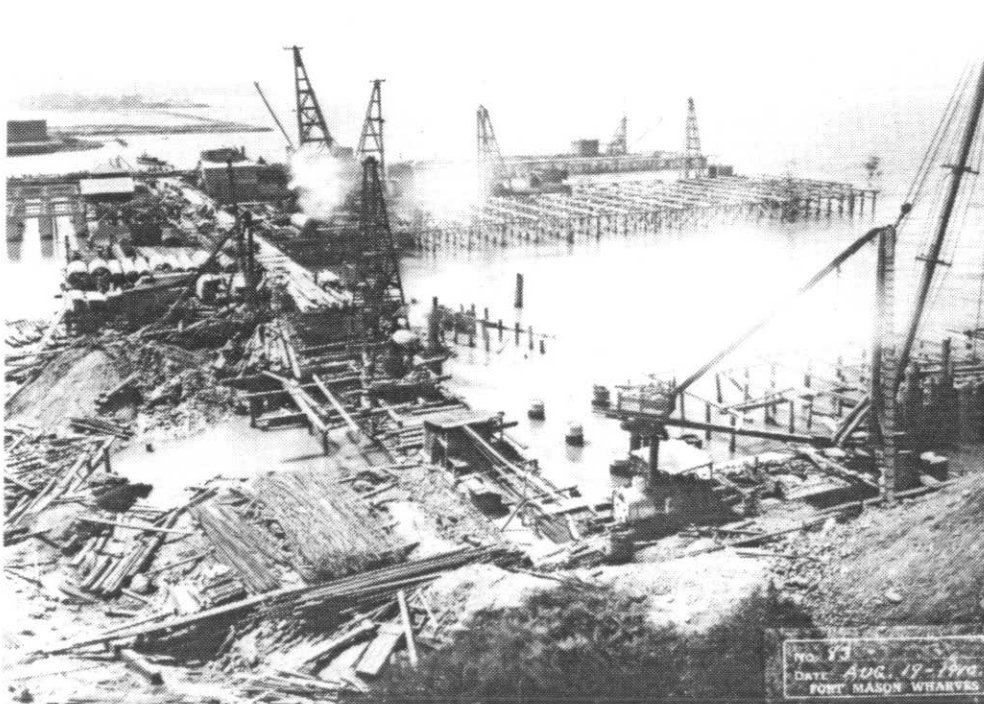


*Pier Shed 2 under construction, April 20, 1911*

SIMILAR VIEWS of the Fort Mason waterfront. Looking west during and just following construction in the early 1900's.



*Construction of the seawall, June 18, 1909.*

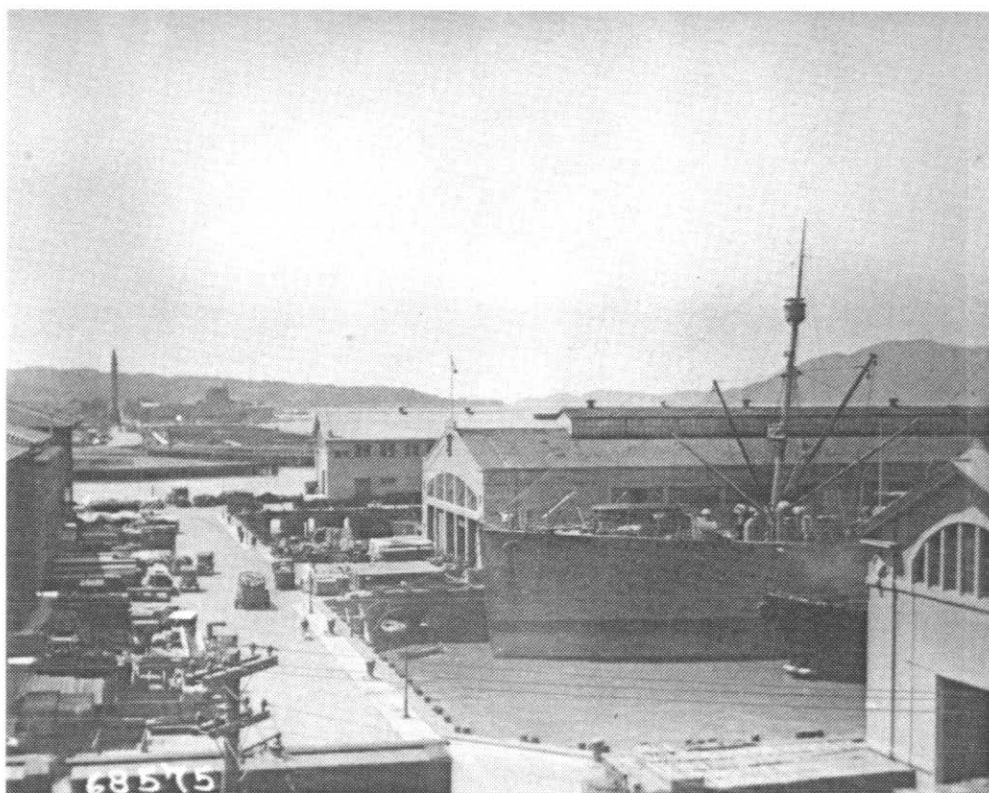


*Construction of piers, August 19, 1910*





*Pier Shed 2 under construction, May 15, 1911*

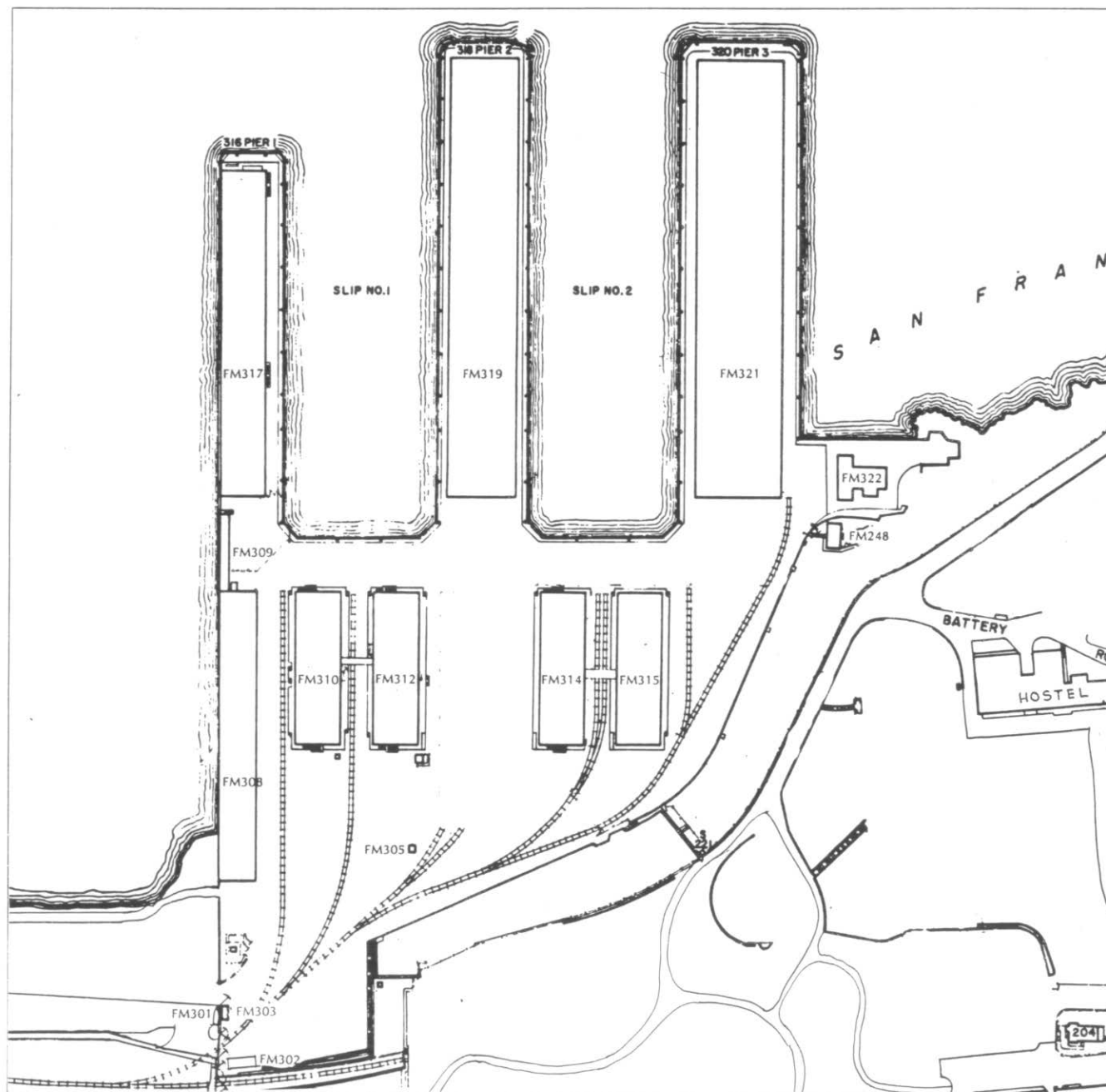


*Completed Pier Sheds with Pan American. Exposition buildings visible in the background. c. 1920s.*

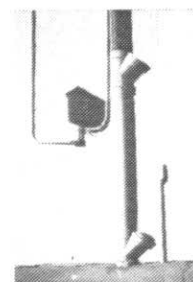
Site plan of Lower Fort Mason showing structure numbers.

For more information, see these guidelines:

- |                     |                    |
|---------------------|--------------------|
| 15. WATERFRONT      | 20. LANDSCAPING    |
| 16. HILLSIDE        | 21. LIGHTING       |
| 17. GROUND SURFACES | 22. SITE FURNITURE |
| 18. UTILITY AREAS   | 23. SIGNS          |
| 19. BUS SHELTERS    |                    |



## ARCHITECTURAL DATA



## SITE

### DESCRIPTION

The Lower Fort Mason Historic District consists of a variety of utility structures all associated with the maritime function of the site. Reinforced concrete is the predominant building material. Major structures are rectangular in plan, are oriented along a north-south axis, and include three pier warehouse sheds (FM317, 319, 321), four storehouses (FM310, 312, 314, 315), and one Marine Repair Shop (FM308). Minor structures include one Battery Charging Station (FM322), one fire station (FM309), one transformer vault (FM305), and one transformer house (FM248). At the district entrance is the Entrance Gate and Wall (FM301) and Guard Station (FM303). To the south side of the entrance, within the stucco wall is the Provost Marshal's Office also known as the Identification Building (FM302).

On the north edge of the site the three finger piers with storage sheds project into San Francisco Bay. South of the pier sheds are the four storehouses grouped in pairs. Train tracks run between each of these structures, and one track spur continues along the east edge of the site terminating in front of the eastern pier warehouse shed. To the east of the track termination is the Battery Charging Station. Above the station, behind a concrete retaining wall which enclosed the site to the south and southeast, is the transformer house.

The western edge of the District is defined by a pier shed to the north, the Marine Repair Shop in the center, and a stucco wall extending

*Numbers in parentheses  
refer to structure numbers  
assigned by the military.*



*Pier Shed 2 prior to construction of the storehouses and Pier Shed 3, c. 1910.*

from the repair shop to the southwest corner of the site where the main entrance is located. Immediately inside the entrance is an Identification Building to the south and a Guard Station to the north.

In addition to the structures, there are several other site features. Along the piers are marine bollards as well as steel pipe railings. Street light stanchions are positioned at the south end of each slip and at other locations throughout the site. The only recent construction is the exedra to the east of the Battery Charging Station.

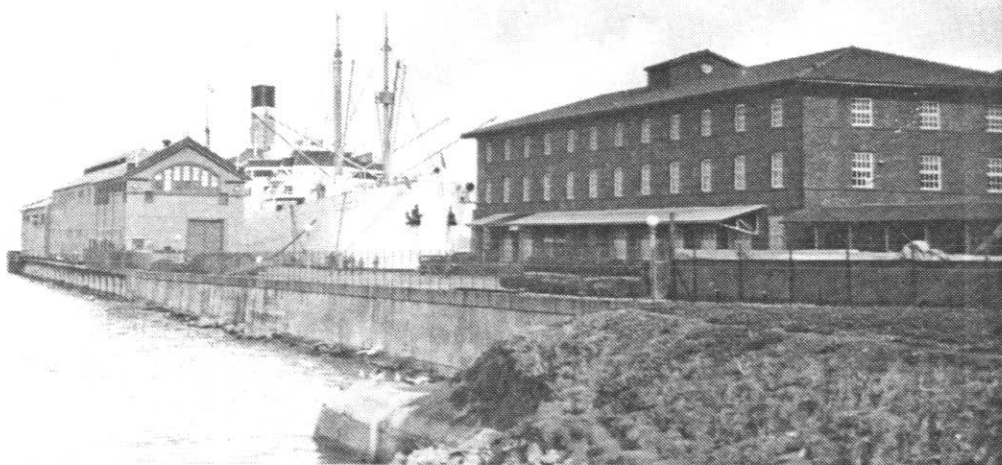
#### SITE EVOLUTION

The evolution of the site is well documented by period photographs and the Fort Mason Maintenance Building Books. The first features to appear were the three piers with pier sheds which were all ready for use in 1912. The middle shed with reinforced concrete walls has survived, but the other two corrugated steel sheds on piers one and three were subsequently replaced in 1934 and 1935 respectively.

The next building campaign encompassed the four reinforced concrete storehouses, the Transformer House, the Watchman's Shelter and the Scale House, all of which were completed by 1917. Also constructed at this time was a wood storage shed positioned between the western pair of store houses, buildings 310 and 312. Although this building has not survived, it remained in service until at least 1923. The stucco Scale House survived until at least 1954.

In 1917 a very large two-story wood frame storehouse was completed which occupied the area between the pairs of store houses, buildings 315 and 312. Two sets of train tracks ran through the center of the ground story which allowed rail transport activity to proceed regardless of inclement weather. This structure has been removed, but remained standing until at least 1925. The small Transformer Vault was finished in 1918.

The last major building campaign was begun in the early thirties, and by 1935 the fire station, Marine Repair Shop, Battery Charging Station,



*above -- Pier Shed 1 and Building 310 prior to construction of the Marine Repair Shop.*

Entrance Gate and Wall, Guard Station, and the extension of Pier Shed 3 were finished. The Watchman's Shelter was removed prior to the construction of the Entrance Gate and Wall and the Guard Station. During this period the two corrugated steel pier shed were demolished, and replaced with concrete sheds. Sometime after 1935 the fire station acquired a second story on its northern half. The Provost Marshal's Office, also known as the Identification Building, at the site entrance was completed in 1941.

#### ANALYSIS OF HISTORIC SITE CHARACTER

Early photographs suggest that the site was originally unpaved. Some features such as light stanchions and free standing fire call boxes have not survived, and a limited number of minor additions are evident such as railings around the pier slips, light fixtures attached to the buildings, and the cyclone fence across the entrance to one of the pier sheds. In general, however, little physical change appears to have occurred since the late thirties.

*below -- Aerial view showing woodframe buildings which were subsequently removed. c. late 1920s.*





*Pier Shed 3, replaced by existing concrete structure in 1935. c. 1920s.*



## PIER SHEDS

Pier Shed 1, Building 317, was completed in 1934; Pier Shed 2, Building 319, was finished in 1911; and Pier Shed 3, Building 321, was completed in 1935. Buildings 317 and 321 replaced wood and corrugated steel piers shed constructed in 1911 and 1912 respectively.

These long narrow piers shed warehouses share several common features although they were constructed at different periods. The structures are approximately sixty to one hundred feet wide by four hundred to six hundred feet long, one story high, and gable roofed along the short dimension. The structures are steel frame with concrete curtain walls and have steel truss roof frames supporting the gable roofs. Above roof ridges, which run the length of the structures, are roof monitors with copper roof vents. Low parapet walls surround the roof on all four

sides. Factory type solid steel section windows are used throughout. The three sheds each enclose an expansive uninterrupted interior space, and warehouse offices are located at the south end of each building.

The principal south elevations all have top story windows with curved head jambs that form a segmented arch across the facades. Below each raised apex block on north and south elevations is a decoratively painted cast stone relief of the Quartermaster Corps insignia which consists of an eagle on a wagon wheel with a crossed key and saber. East and west elevations have warehouse doors and factory type windows. The walls of these elevations are battered. All exterior concrete except for the insignias are painted a light yellow and metal is painted red.

*Most photos in this section are from the Army building maintenance book and the date of the photo is not known. Exceptions are noted.*



For more information,  
see these guidelines:

1. BUILDING INTERIORS
3. BITUMINOUS ROOFS
4. EXTERIOR CONCRETE WALLS AND ELEMENTS
6. WINDOWS
8. ROLL-UP DOORS
10. METAL ENTRANCE DOORS
13. APPENDAGES
21. LIGHTING
23. SIGNS

## PIER SHED 1

BUILDING 317

Building 317 has three bays on the gabled north and south elevations, and twenty-three on the east and west elevations. Non-functional radar equipment is mounted on the north end of the roof.

The south elevation is divided into two stories and has one warehouse door in the middle bay of the ground story. East and west ground and second story bays each have one factory type window.

The north elevation is configured in a similar way as the south with the exception of there being a factory type window in the center ground story bay instead of a warehouse door.

Each bay of the east elevation has one clerestory factory type window. Below this row of clerestory windows, warehouse doors alternate with factory type windows across the facade. This pattern is interrupted near the north end of the elevation where one pair of doors and windows are grouped together instead of alternating. Warehouse doors each have one factory type window in the upper section. Two exterior

fire escape staircases have been installed on this elevation which each lead from the pier deck to clerestory window openings elongated to accommodate doorways.

The west elevation is similar to the east with the exception of the absence of warehouse doors. Instead of doors, all bays are fitted with factory type windows.

### *Analysis of Historic Character*

Early photos of the structure indicate that fire escape staircases were not originally installed on the east elevation. The staircases were added at some time after 1942 and prior to 1972 when the National Park Service took possession of the site.

*Pier Shed 1 is now called Pier 1*

For more information,  
see these guidelines:

1. BUILDING INTERIORS
3. BITUMINOUS ROOFS
4. EXTERIOR CONCRETE WALLS AND ELEMENTS
6. WINDOWS
8. ROLL-UP DOORS
10. METAL ENTRANCE DOORS
13. APPENDAGES
21. LIGHTING
23. SIGNS



## PIER SHED 2

BUILDING 319

*Pier Shed 2 is now called Pier 2. (Photo not from building book.)*

Building 319 has five bays on the south elevation, four on the north elevation, and twenty-two on the east and west elevations. The two-story south elevation has one steel roll-up door in each ground story bay. Flanking these roll-up doors on each side is one small opening. The west opening has one horizontal pivot window, and the east opening is filled with a louvered sheet metal vent. Above each roll-up door are factory type windows.

East and west elevations each have a row of clerestory factory type windows the full length of the structure. Beneath the row of clerestory windows are roll-up doors in every second bay.

The gabled north elevation has two roll-up

doors each with clerestory windows above. The two bays flanking the roll-up doors each have one small factory type window.

### *Analysis of Historic Character*

In 1933 the structure was lengthened, adding five bays to the north. A recent major alteration, completed during the National Park Service period, was the insertion of a theater in this northern addition. Associated with the theater installation was the addition of glass and steel storefront assemblies behind original roll-up doors.





For more information,  
see these guidelines:

1. BUILDING INTERIORS
3. BITUMINOUS ROOFS
4. EXTERIOR CONCRETE WALLS AND ELEMENTS
6. WINDOWS
8. ROLL-UP DOORS
10. METAL ENTRANCE DOORS
13. APPENDAGES
21. LIGHTING
23. SIGNS

## PIER SHED 3

BUILDING 321

Building 321 has six bays on the gabled north and south elevations, and thirty-two on the battered east and west elevations.

The three-story south elevation has two steel roll-up doors in the center of the facade which are two stories high. Bays on each side of these roll-up doors have factory type windows on both the ground and second stories. The outside eastern bay on the ground story has one metal door with a four-light window, and one factory type window. The outside western bay has one two-leaf door each with a four-light window. The third story of the south elevation has six windows; two over each of the roll-up doors, and one over each of the bays which flank the roll-up doors.

Bays on the east and west elevation have roll-up warehouse doors and factory type windows which alternate the length of the building. Door openings have been lowered by installation of a steel panel which fills approximately the upper half of the opening. In the middle of the west elevation is a modified dormer containing a roll-up door.

### *Analysis of Historic Character*

There do not appear to be any major alterations to the structure, however, glass and steel storefront assemblies have been added behind original roll-up doors.

*Pier Shed 3 is now called Pier 3.*



## STOREHOUSE BUILDINGS A, B, C, D

BUILDINGS 315, 314, 312, 310

*Storehouse Buildings A, B, C, and D are now called Buildings E, D, C, and B.*

Completed in 1915, the four reinforced concrete store house buildings are three stories high with hipped, straight barrel mission tile roofs. East and west elevations of the structures have twelve bays, and the north and south elevations three bays. Positioned in the center of the roofs are roof monitors the width of one bay. Sill courses separate the first and second, and second and third stories. Apart from sill courses, the concrete walls are unembellished. Surrounding each building is a concrete loading dock.

The buildings are grouped in pairs with elevated passages connecting the second and third stories of each pair. Fire escape stairways, not original features, are installed on the north and south elevations of buildings 310, 312, 315.

Windows in the second and third stories have two horizontal pivot sashes each with eight

lights, four over four. A limited number of windows have been altered. First floor windows are double hung, also with eight lights, four over four. Sashes and frames are constructed of hollow galvanized metal and are painted red.

The east and west elevations ground story windows in the two outer and two center bays are fitted with security bars. The three ground story windows on the north and south elevations are also fitted with security bars. The bars are bolted to steel anchors imbedded in the concrete, and are painted red.

East and west elevation ground story door openings have either kalamein canopy-type warehouse doors, kalamein entrance doors, non-original storefronts, or have been modified with unit masonry.



For more information,  
see these guidelines:

1. BUILDING INTERIORS
2. TILE ROOFS
4. EXTERIOR CONCRETE WALLS AND ELEMENTS
6. WINDOWS
7. WAREHOUSE DOORS
10. METAL ENTRANCE DOORS
11. AWNINGS
12. EXTERIOR STAIRCASES
13. APPENDAGES
14. LOADING DOCKS
18. UTILITY AREAS
21. LIGHTING
23. SIGNS

Original warehouse doors are divided horizontally into two sections. The upper portion has a row of four windows each with four lights. Below each of these window in the lower section are recessed rectangular panels. The two sections are fastened together by six large surface mount strap hinges on each style.

Above the warehouse doors on the west elevations of buildings 310 and 315, and the east elevations of buildings 312 and 314 are corrugated steel awnings supported by concrete corbel blocks. Small translucent plastic panels are installed in the corrugated steel over each entrance allowing light into the covered areas. Tenant signs are hung from awning framework as well as being affixed to building walls.

Concrete corbel blocks are also seen on the east elevations of buildings 310 and 315, and the west elevations of buildings 312, and 314.

These blocks are positioned higher than those on opposite elevations. There is no physical or photographic evidence that these blocks were ever used.

#### *Analysis of Historic Character*

The most conspicuous type of alteration to these buildings has occurred in ground story bays. Many warehouse doors have been replaced with storefront type doors or windows, and some openings have been filled-in or reduced in size with unit masonry. The only remaining original entrance doors are on the east elevation of Building 315, and the west elevation of Building 314.

Some wall surfaces have been parged with cementitious coatings. This stippled coating hides the original texture of the walls. No specific reference was found concerning these pargings, but there is mention of "waterproofing cracks" in April 1934, and "exterior water proofed" in May of 1939 for all four buildings in the Fort Mason Maintenance Building Books. The presence of these coatings suggests a history of concrete deterioration problems such as spalling, and the existence of at least two paint layers on the concrete indicates that the coatings have been in place for some time.



Installation of fire escapes on the north and south elevations, which are not original to the buildings, has necessitated the removal of security bars on the ground story of buildings 310, 312, and 315. On the second and third stories of these elevations' middle bays, windows have been elongated to accommodate fire escape doors.

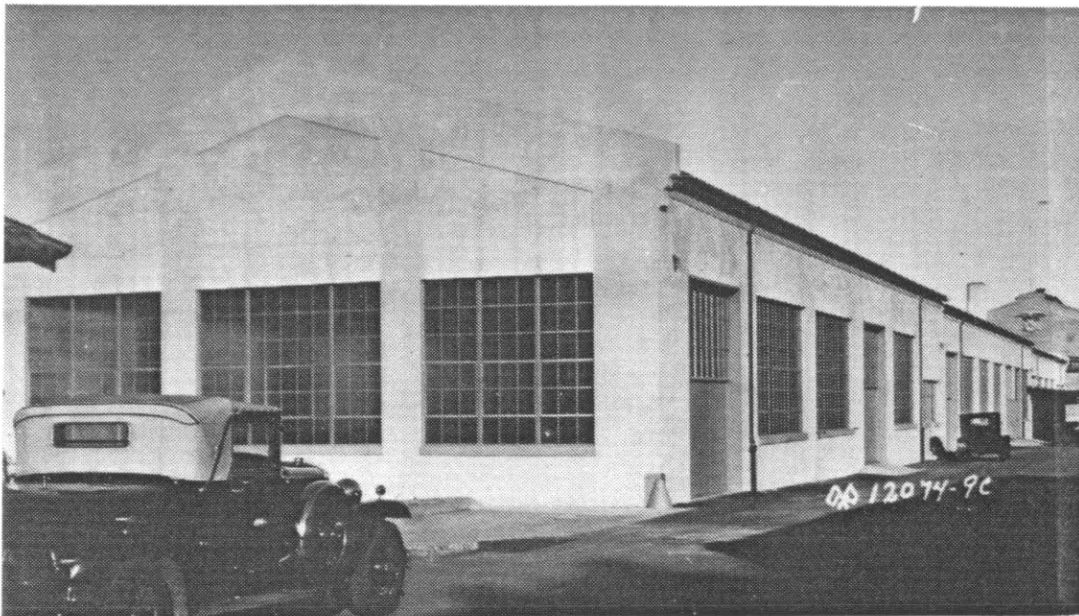
Above the ground story minor modification of windows has occurred. Muntins had been removed from some sashes and the separate panes replaced by one sheet of glass. In a number of windows, ducts, and vents have been installed. The plastic panels, fitted directly over warehouse doors in the corrugated steel awnings, are also a modification of original design.

Existing copper gutters and leaders are replacements. Leaders draining round-bottom hanging gutters originally entered the walls near the third story windows and connected to cast iron stacks mounted on interior walls. There were originally six leaders on each of the east and west elevations, and two on the north and south

elevations. The existing drainage system has only two leaders per elevation and copper trough gutters have replaced round-bottom gutters. The size of the gutters was increased, presumably to accommodate the reduction in the number of leaders. All leaders now run down the building exteriors, draining into cast iron pipes.

The original drainage system was in place in 1942 according to a period photograph, but was replaced prior to the transfer of the site to the National Park Service. It appears likely, judging from design and condition, that the gutters and drains were installed near the end of the military period.





For more information,  
see these guidelines:

1. BUILDING INTERIORS
2. TILE ROOFS
4. EXTERIOR CONCRETE WALLS AND ELEMENTS
5. EXTERIOR STUCCO WALLS
6. WINDOWS
8. ROLL-UP DOORS
10. METAL ENTRANCE DOORS
13. APPENDAGES
21. LIGHTING
22. SITE FURNITURE
23. SIGNS

## MARINE REPAIR SHOP

### BUILDING 308

Building 308, which contained the Marine Repair Shop, is a one-story reinforced concrete building with a concrete gable roof. It was completed in 1934. The roof is covered with straight barrel mission tiles with copper gutters, leaders, and roof vents. Rectangular in plan, the east and west elevations of the structure are divided into three equal sections which make two small descending steps toward the north. The south and north elevation each have three bays, and the east and west elevations have nineteen bays. All exterior walls are stuccoed.

The three equal bays of the gable end south elevation each have one factory-type solid section steel window. The north elevation has a projecting chimney stack in the middle of the facade which rises above the tile roof. On each side of the chimney are two factory-type solid section windows.

Each bay in the east elevation has either a building entrance, roll-up door, or factory type solid section window. The west elevation has factory-type solid section windows in each bay.

### *Analysis of Historic Character*

Several alterations to the openings on the east elevation have occurred. These include replacement of factory type windows with multi-pane aluminum frame windows, the reduction of opening size with unit masonry, and installation of natural finished wood replacement doors which sharply contrast with other building materials.

*The Marine Repair Shop is now called Building A.*

For more information,  
see these guidelines:

1. BUILDING INTERIORS
2. TILE ROOFS
5. EXTERIOR STUCCO WALLS
6. WINDOWS
9. WOOD SIDING AND ENTRANCE DOORS
10. METAL ENTRANCE DOORS
13. APPENDAGES
19. BUS SHELTERS
20. LANDSCAPING
21. LIGHTING
22. SITE FURNITURE
23. SIGNS



## PROVOST MARSHAL'S OFFICE AND GUARD STATION

### BUILDINGS 302 AND 303

*The Provost Marshal's Office is now called the Gatehouse. (Photo not from building book.)*

The small rectangular structures at the west entrance to Lower Fort Mason are each wood frame coated with painted stucco and have hipped, straight barrel tile roofs. Windows in each building are double hung and those in Building 302 have six lights, three over three. The one exposed window in Building 303 has four lights to a sash, two over two. Building 302 has three entrance doors; two on the north elevation, and one on the south. There is only one entrance door to Building 303 on the east elevation.

#### *Analysis of Historic Character*

Two of the three windows in Building 303 are covered with plywood, and the solid core entrance door is a replacement. In Building 302 one door on the north, and one on the south are each replaced with solid core doors. One window on the south elevation has been covered over on the interior, but is still exposed on the exterior.



For more information,  
see these guidelines:

1. BUILDING INTERIORS
2. TILE ROOFS
4. EXTERIOR CONCRETE WALLS AND ELEMENTS
6. WINDOWS
7. WAREHOUSE DOORS
8. ROLL-UP DOORS
10. METAL ENTRANCE DOORS
13. APPENDAGES
21. LIGHTING
23. SIGNS

## BATTERY CHARGING STATION

### BUILDING 322

Building 322, designated as the Battery Charging Station and completed in 1935, is reinforced concrete and cross shape in plan. The main axis of the building runs east west. The central structure and the two wings all have gable roofs covered with straight barrel mission tiles, and copper roof vents. On the south elevation is a flat roof dependency.

The west elevation has four warehouse door openings; two in the central section, and one in each wing. These openings have been divided horizontally. Upper portions have factory type windows and the lower sections are plywood. North, east, and south elevations are all fitted with factory type windows.

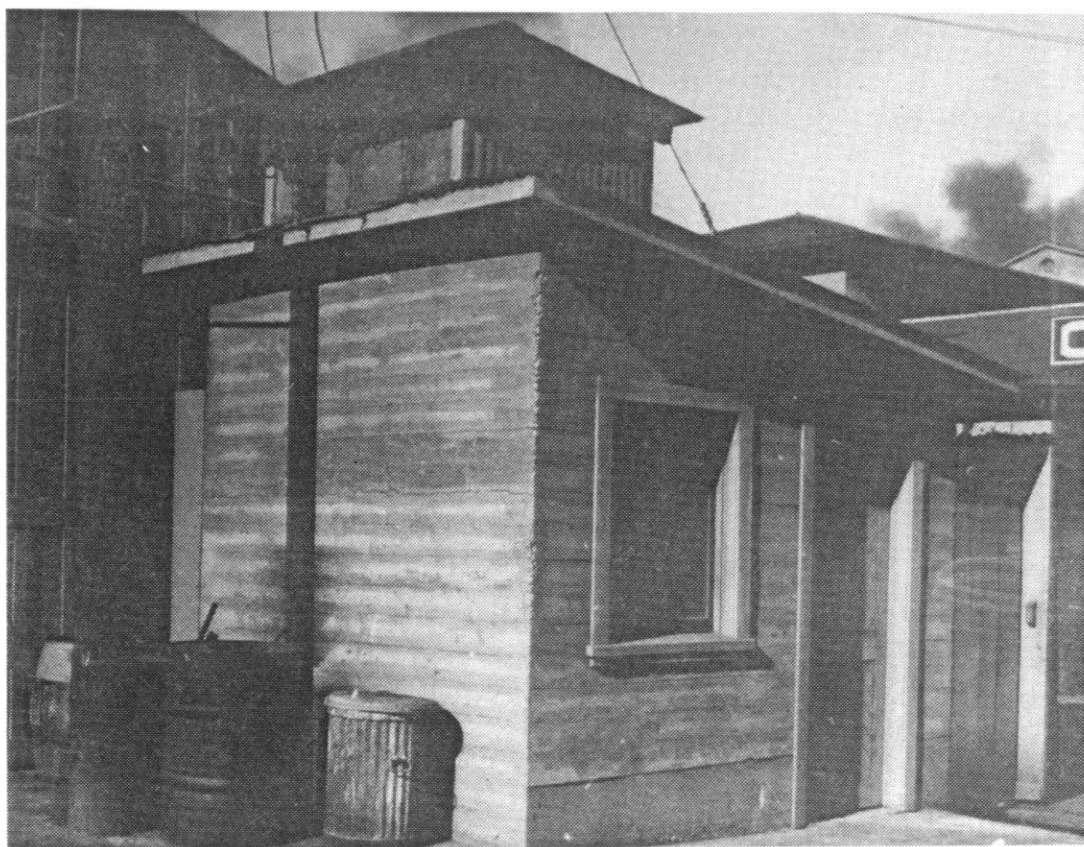
#### *Analysis of Historic Character*

Original warehouse doors have been removed on the east elevation.

*The Battery Charging Station is now called Building F or the Firehouse.*

For more information,  
see these guidelines:

1. BUILDING  
INTERIORS
4. EXTERIOR  
CONCRETE WALLS  
AND ELEMENTS
6. WINDOWS
10. METAL ENTRANCE  
DOORS
13. APPENDAGES
21. LIGHTING
23. SIGNS



## TRANSFORMER VAULT

### BUILDING 305

Building 305, originally a transformer vault and completed in 1919, is a small reinforced structure with a shed roof surmounted by a roof monitor also with shed roof. Both roofs are corrugated steel. The east elevation has one door and one window. The other three elevations have no openings.

#### *Analysis of Historic Character*

The steel grill currently installed on the window is not shown in an early photo of the building. The existing door does appear to be original according to the photo.





For more information,  
see these guidelines:

1. BUILDING INTERIORS
2. TILE ROOFS
4. EXTERIOR CONCRETE WALLS AND ELEMENTS
5. EXTERIOR STUCCO WALLS
6. WINDOWS
9. WOOD SIDING AND ENTRANCE DOORS
13. APPENDAGES
21. LIGHTING
23. SIGNS

## TRANSFORMER HOUSE

### BUILDING 248

Building 248, completed in 1913, originally served as an electrical transformer house. The structure is square in plan, and is constructed of reinforced concrete. The hipped roof is covered with straight barrel red mission tiles with copper roof gutters and leaders. There is one window on the west elevation, and one entrance door and one window on the east elevation. Decorative cast stone shield shaped medallions are positioned at walls corners under the eaves on each elevation.

### *Analysis of Historic Character*

Since its construction, this building has been enlarged to the south resulting in a rectangular plan. Presumably at this time the roof dormer seen in early photos was removed. Two of the three original windows on the west elevation have also been removed, and a window was added on the south elevation west of the entrance door. The existing solid core door is not original.

For more information,  
see these guidelines:

1. BUILDING  
INTERIORS
3. BITUMINOUS  
ROOFS
4. EXTERIOR  
CONCRETE WALLS  
AND ELEMENTS
6. WINDOWS
7. WAREHOUSE  
DOORS
9. WOOD SIDING  
AND ENTRANCE  
DOORS
10. METAL ENTRANCE  
DOORS
13. APPENDAGES
15. WATERFRONT
18. UTILITY AREAS
21. LIGHTING
23. SIGNS



## FIRE STATION AND TRANSFORMER VAULT

### BUILDING 309

Building 309 is a narrow, rectangular reinforced concrete structure with a built-up shed roof. The east elevation has eleven bays with overhead garage doors, entrance doors, and factory type windows. The structure was originally designated as a fire station and transformer vault.

#### *Analysis of Historic Character*

Since construction in 1935, a second story with wood ship lap siding has been added to the north half of the building. The structure has also been elongated to the south adding three bays, and now extends all the way to Building 308.

## PROPOSED STRUCTURES TREATMENT



### RECOMMENDATIONS FOR PRESERVATION

The original use and purpose of Lower Fort Mason is clearly apparent to both tenant and visitor. This is due primarily to two factors: 1) there have been no major exterior alterations to the original structures; and 2) most individual features are in place on the structures and site. This historic district retains the semblance of a military installation with the utilitarian structures orderly positioned on the site for maximum efficiency. Interiors also retain a military character. In the pier sheds the original expansive interiors, enclosed by concrete walls and exposed steel truss roofs, remain, for the most part, free of obstructions. Limited changes have occurred in the central service cores of the storehouses. These areas contain such original features as elevators, stairways, railings, and doors.

The historic significance of Lower Fort Mason dictates that the existing structures, site features, and designated areas of the interiors be preserved. Major alterations or additions to building exteriors would have an adverse visual impact on the simple and straightforward scheme of the individual buildings, as well as on the orderly composition of the site as a whole.

Existing individual architectural features should be retained and preserved. These features and the materials from which they are made communicate important information concerning the history of Lower Fort Mason. Features such as corrugated steel awnings, kalamein loading dock doors, and window grills illustrate to the visitor the utilitarian purpose of the structures. Red tile roofs recall indigenous California building traditions, and relate the buildings to the Mission

Revival movement of the early 20th century. Replacement features should be replicas of original components. When no example is available or information is incomplete, replacements should be designed to be compatible with the historic character; however, the newly fabricated features should be readily discernable as replacements upon close inspection to avoid confusion with original features.

Interiors should retain a military quality thereby recalling the original purpose of the structure. Uses for pier sheds which require compartmentalization or obstruct views of the spacious interiors are inappropriate. In general, partition walls may be inserted in the storehouses, but should be so designed that they are easily removed without significant damage to original building fabric. This is consistent with the military use of the storehouses which were designed to accommodate a variety of uses.

Design precedence for most minor improvements not covered in this report can be found by consulting historic photographs of the Lower Fort Mason structures. Clearly illustrated in these photos are such features as light standards, bollards, and railings. When there is not a specific precedence for a particular change, an appropriate design may be generated by conforming to the utilitarian/military motif evident in the historic photographs. As with replacement features, changes should be readily discernable as replacements upon close inspection.

The remainder of this report consists of 23 guidelines which incorporate the preservation concepts outlined above. The guidelines are divided into three parts: Building Interiors; Building Exteriors; and Site Areas and Elements.

Specific interior areas to be preserved unaltered are identified in Guideline 1, Building Interiors, and appropriate guidelines for all interior spaces are presented.

Building exteriors are divided by individual features and discussed in Guidelines 2-14. Following a description of the feature and its condition are recommendations which propose a general approach for dealing with each com-

ponent. Conservation recommendations are then discussed, and this heading is divided into three parts; Stabilization, Maintenance, and Preservation.

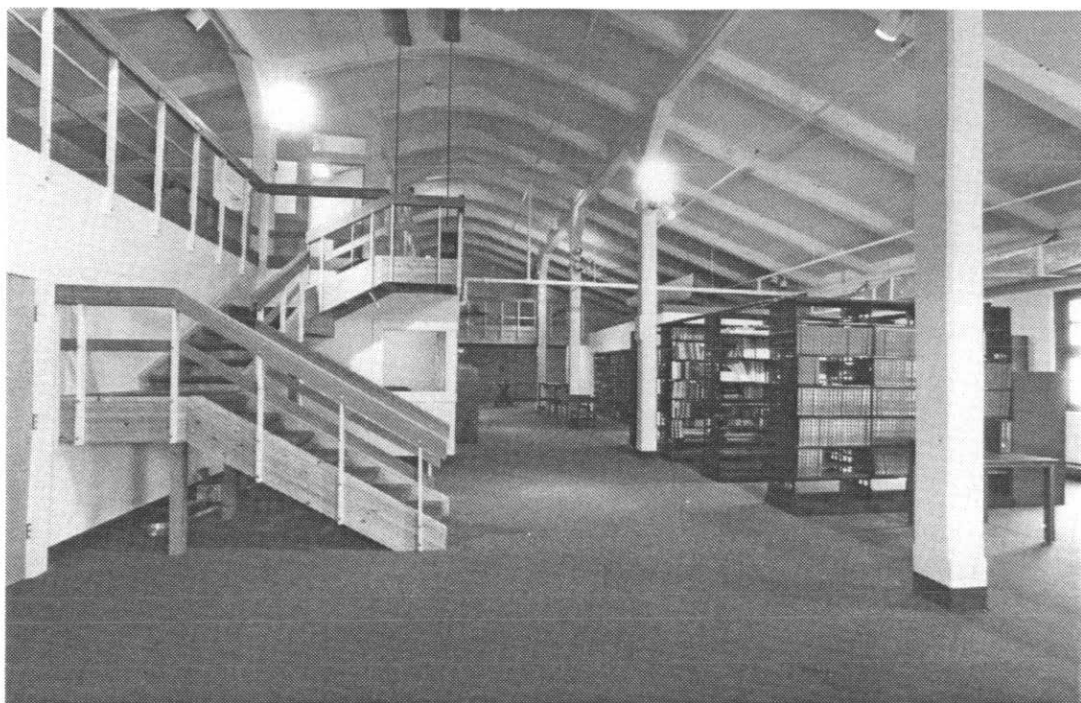
Treatments listed under Stabilization should be implemented as soon as possible to prevent further degradation of the material. Cost estimates for stabilization are included in Appendix F. Maintenance is defined as periodic treatment which will keep the materials in a serviceable condition. Finally, under Preservation are listed procedures for preservation of original features, and, where applicable, design guidelines for replacing missing features. This last section is included only where relevant.

Site Areas and Features are discussed in Guidelines 15-23, which define the various exterior features and then presents design guidelines for them.

#### *Recommendations for Further Study*

Stabilization and maintenance may result in the loss of physical evidence which provides important information concerning historic structures. This is especially true of painted materials; when deteriorated paint is removed for better adhesion of subsequent coatings, evidence of original colors is destroyed. For this reason it is recommended that a paint analysis be conducted for those features from which original paint coatings are to be stripped.

The significance of the radar school which was located in Pier Shed 1 should be determined. The research for this study must include identifying the importance of the radar hardware presently installed on the roof of Pier Shed 1. A similar study should be conducted for the passenger loading system in Building 321.



# 1

## BUILDING INTERIORS

*The Maritime Museum Library, a complimentary new use for the top floor of Building 315.*

### DESCRIPTIONS

Significant interior spaces have been designated as the staircases, elevator lobbies and third stories of buildings 310, 312, 314, and 315. Also significant is the passenger loading system in Building 321 (Pier Shed 3). These areas are among the few interiors which have remained in their original condition. In general, interiors of the Lower Fort Mason buildings were utilitarian in design with no unusual architectural treatments.

#### *Staircases*

The north and south portions of each storehouse building is divided by a central service core containing two freight elevators with a staircase to the side of the elevators. The stairs connect all three stories, and extend past the third story leading to roof monitors where elevators motors are housed.

Staircases are positioned on the east side of Buildings 310 and 315, and the east side of Buildings 312 and 314, and connect with the elevated passages.

Second and third story stair landings have three door openings: one each to the north and south portions of the buildings, and one opening onto the elevated passageway. The ground story stairhall is configured similarly to the stair landings, but connects with the building entrance instead of the elevated passages.

Original kalamein doors with a four-light window are in place in the majority of the north and south openings, and each concrete staircase has steel pipe handrails painted black.



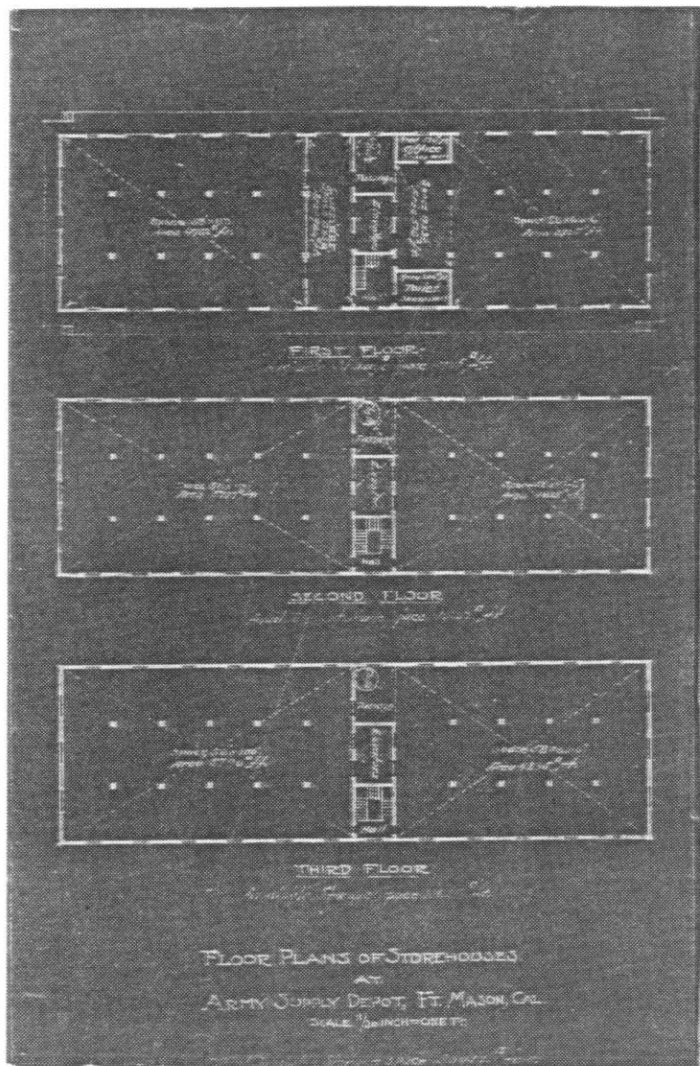
### *Elevator Lobbies*

Two freight elevators are located in each elevator lobby and open to the south. Opposite the elevators on the ground stories of buildings 314 and 315 are original self-closing sliding kalam-ein warehouse doors. One hydraulic elevator has replaced the original in Building 310, and elevators in the other buildings are used only for handicap access.

### *Third Stories*

Third story ceilings are open and have exposed concrete purlins and rafters supported by square concrete columns.

*Floor plans of the storehouses showing column grid and elevator & stair core.*



### CONDITIONS

#### *Staircases, Elevator Lobbies, Third Stories*

The staircases and elevator lobbies exhibited normal signs of use. Most original staircase doors are in place, and freight elevators were functional.

Various types of partitions have been installed in the third stories. Some partitions have been built the full height of the space thus blocking views of the concrete purlins and rafters from public areas.

Tenant spaces in the storehouse buildings are generally disorganized because of the lack of a coherent framework for allocating space to new tenants. The result is haphazard layout, with new tenants accommodated in a labyrinth of deadend corridors and spaces with limited means of egress.

### GUIDELINES

#### *General*

A general survey of the buildings should be conducted to inventory original features in all buildings. The survey would encompass such components as doors, but also includes more obscure elements which may help communicate the original function of the structures. One such feature noted is a fire sprinkler replacement cabinet in place in the ground story elevator lobby of Building 314.

Tenant spaces, especially on the ground floors of the storehouse buildings should be gradually rearranged as tenants change so that primary access is provided through the central stair and elevator lobbies. A second means of egress should be provided through the exit doors at the ends of the buildings. A good example of this type of layout is in Building 314 (Building C).

#### *Building 321 (Pier Shed 3)*

The passenger loading system, including mechanical components, should be documented and all original features retained.

### *Staircases*

Original features of the staircase should be retained including handrails and doors. Signs should be attached to walls adjacent to the doors, and not fastened to the doors themselves. Any other material covering the doors should be removed, and paint removed from glass. Design guidelines for interior signs should follow those for exterior signs.

### *Elevator Lobbies*

Original elevator hardware should not be removed from the walls. Existing sliding warehouse doors opposite the elevators should be retained and repaired as necessary.

### *Third Stories*

Third story partitions should be installed so as not to block views of concrete rafters and purlins.

## CONSERVATION RECOMMENDATIONS

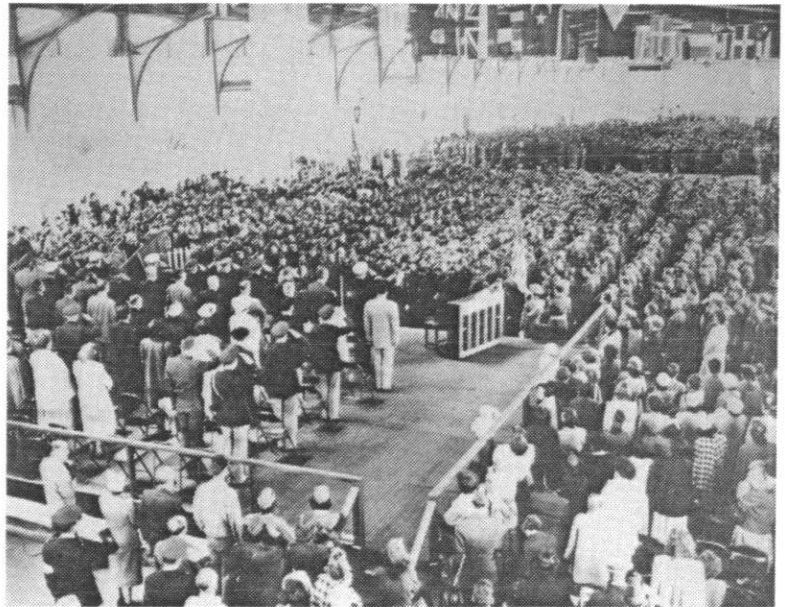
### *Stabilization and Maintenance*

Stabilization and maintenance of interior doors should include the following:

1. Remove loose paint by scraping.
2. Repair small areas of corrosion by cutting back affected areas to sound material and patching with epoxy compound formulated for use on metal. Repair areas larger than 1" square with galvanized metal of same gauge and configuration secured in place by soldering.
3. Replace broken glass with wire glass.
4. Paint doors with alkyd based paint formulated for use on galvanized metals.
5. Replace deteriorated glazing compound.

### *Preservation*

A paint analysis should be conducted to determine the original color(s) of the doors and hand railings. This information may then be used for future painting.



top -- An assembly in Pier Shed 2. c. WWII.  
bottom -- A similar current use of the building.

## 2

### TILE ROOFS



#### DESCRIPTION

##### *Buildings 310, 312, 314, 315*

These buildings have hipped roofs with straight barrel red clay mission tiles. The tiles are secured to the roof with copper nails, one per tile. Positioned in the center of the roofs are roof monitors the width of one bay also covered with tile. Copper trough gutters are drained by round copper leaders running down exterior walls and mortared into cast iron drain pipes. These gutters and leaders are replacements. Leaders originally entered the walls near the third story windows and connected with interior cast iron drain pipes.

##### *Buildings 302, 303*

Buildings 302 and 303 also have hipped roofs covered with straight barrel mission tiles and copper gutters and leaders.

##### *Buildings 248, 308*

These two buildings have gable roofs. The gable end walls rise above the roof forming short parapet walls. Straight barrel mission tiles and copper gutters with exterior leaders are also used on these structures.

Apart from being a very serviceable roofing system and original historic fabric, the tile roofs provide a visual link between the Upper and Lower Fort Mason structures. They also recall indigenous California building traditions, as well as relating the buildings to the Mission Revival movement of the early 20th century.

## CONDITIONS

*Cracked Tiles*

Approximately ten cracked tiles were observed on buildings 310, 312, 314, 315. The cracks occurred primarily along the edge of the roof near gutters.

*Displaced and Damaged Tiles*

Damaged tiles were observed on buildings 308, 314, 248, and 322. The areas of damage on the east side of 314, and on the west side of 308 were approximately three square feet. Damage to the tiles on the east and south side of Building 248 was more severe, affecting approximately six square feet. Tiles were broken and displaced, exposing roofing felt and wood nailers. Extensive damage to tiles was noted on the west side of Building 322.

*Damaged or Missing Leaders and Gutters*

Two missing leaders were noted on the north elevation of Building 322, and one on the north side of Building 302. The west side of Building 308 had two missing leaders, approximately 30' of missing gutter, and 10' of damaged gutter.

## GUIDELINES

There should be no visual disruption of the tile roof surfaces and therefore no penetrations including those for large vents or ducts. Because the purpose of roof monitors is for ventilation of interior spaces, it is appropriate to investigate utilizing these features for venting needs on buildings 310, 312, 314, and 315. This is the preferred approach.

If venting is not possible through the monitors, penetrating the windows for this purpose may be considered. Glazing could be removed and stored as described in the WINDOW section; however, no frames, sashes, or muntins may be altered. All window penetrations should be uniform in terms of color and design, and if possible should exit the buildings at the same location in each window.

Photographic evidence indicated that original gutters were hanging type with round bottoms. This gutter type should be used when replacement of existing gutters becomes necessary.

## CONSERVATION RECOMMENDATIONS

*Stabilization and Maintenance*

Stabilization and maintenance will include the following:

1. Replace broken tiles with tiles matching existing and reset displaced tiles. Replace damaged roofing felt and nailers. Only copper nails should be used to secure tiles.
2. Reset loose flashing around monitors. Flashing should be set with lead wedges followed by elastomeric sealant. Replace missing flashing with flashing of same material and gage.
3. Repair and replace broken gutters and leaders. Broken joints should be re-soldered. Patching, if necessary, should be done with copper of same weight, configuration, and temper secured in place by soldering.
4. Check all drains and clear obstructed roof drains. Check monthly for obstruction, and more frequently during periods of heavy rains.

*Preservation*

1. Photographic evidence indicated that original gutters were hanging type with round bottoms. This gutter type should be used if possible when replacement of existing gutters becomes necessary.
2. Replacement mortar used to secure tiles on ridges and hips should match original mortar as closely as possible in terms of color, texture, and mix design.

*For a discussion of  
leaders see guideline  
13 - APPENDAGES.*



## 3

BITUMINOUS  
ROOFS

## DESCRIPTION

*Buildings 317, 319, 321*

All three buildings have gable roofs with roof monitors. Roofs are surrounded by low parapet walls on all four sides, and these main roofs as well as the monitor roofs are covered with composition roll roofing material applied over wood decking. Large copper roof vents on top of the monitors have been painted on buildings 317 and 319. The roofs of buildings 319 and 321 have been replaced recently. Non-functioning radar equipment is mounted on the roof of Building 317 at the north end.

The buildings are equipped with interior leader pipes which collect water from roof drains located at the base of the parapet walls. Overflow drainage is provided by scuppers which penetrate the parapet walls.

*Building 322*

Building 322 has a small dependency on the south elevation which has a built-up gravel roof.

## CONDITIONS

The following conditions were noted.

*Obstructed Drains*

Feathers, bones, and other debris deposited by roosting birds were observed obstructing roof drains.

*Failed Membrane*

The composition roll roofing material on Building 317 was bubbled and cracked and is no longer providing adequate waterproofing.

*Deteriorated Flashing*

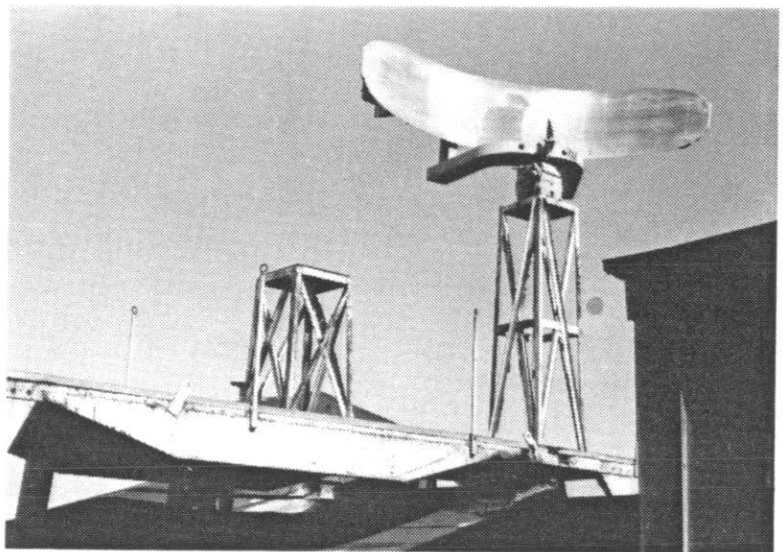
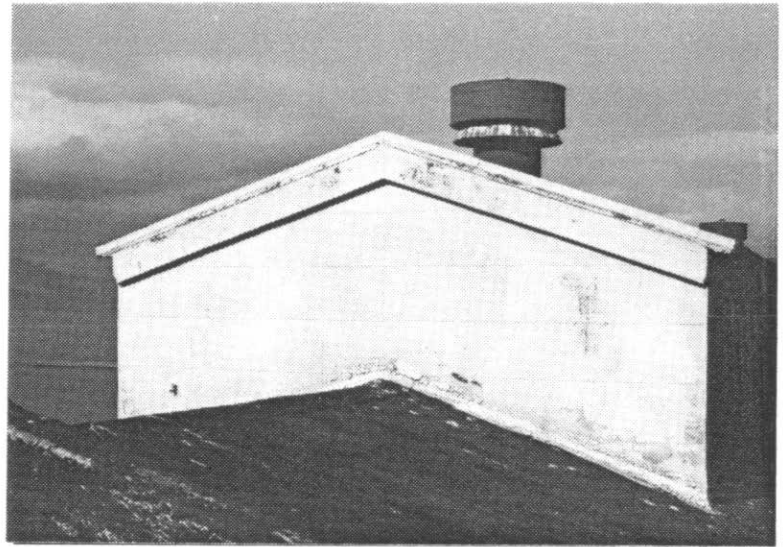
Deteriorated flashing was noted on the clerestory eaves of Building 317. Attempts have been made to repair the deterioration with fiberglass patching compound.

## GUIDELINES

These roofs are generally free of penetrations. This condition should be retained. Waste system vents and other small penetrations should be located close to the parapet walls. HVAC equipment should be kept off the roof as there is ample room to contain these systems within the structures.

HVAC vents may be located in clerestory windows of the roof monitors. Removed glass should be stored by doubling it with adjoining





panes. Vents should be flush with the exterior surface of the clerestory. One roof color should be selected, and this color used when the structures are re-roofed.

#### CONSERVATION RECOMMENDATIONS

##### *Stabilization and Maintenance*

Stabilization and maintenance will include the following.

1. Replace roof on Building 317. This will involve removing existing membrane down to wood decking. Inspect exposed decking and replace deteriorated wood. Replace roof with similar system. Bituminous paint should be used between dissimilar metals.
2. Check and clear obstructed roof drains on all buildings. Install drain screens where necessary. Check monthly for obstruction, and more frequently during periods of heavy rain.
3. Further study is necessary to determine the historic significance of the radar training school located in Building 317. The radar equipment mount on the north end of roof should remain in place until the study has been completed.

top -- Roof monitor and copper vent.  
bottom -- Non-functioning radar equipment on Building 317.

## 4

EXTERIOR  
CONCRETE  
WALLS  
AND  
ELEMENTS

## DESCRIPTION

The walls of all buildings in Lower Fort Mason are reinforced concrete except for those of Building 302 and 303 which are stucco on wood frame. The east and west walls of the three pier sheds, Buildings 317, 319, and 321 are battered. With the exception of Buildings 248 and 308, all walls bear the impression of wood form boards used during construction. This finish has been obscured in some areas by the application of a cementitious parging material which appears to have been mechanically applied. The presence of at least two paint layers on the concrete suggests this coating has been in place for some time.

Embellished rafter tails on buildings 310, 312, 314, and 315 are also concrete, as well as the corbel blocks on these buildings which support the steel awnings.

## CONDITIONS

The following conditions were observed.

*Graffiti*

There was a limited amount of graffiti noted primarily on the north elevation of buildings 321 and 319.

*Bird Debris*

Pigeons have roosted in several protected areas especially under elevated walkways connecting buildings 310 and 312, and buildings 315 and 314. Nests and other debris has soiled walls, porches, and surrounding material.

*Biological Growth*

Green biological growth was noted on parapet walls.

*Ferrous Staining*

Corroded ferrous metal attachments have caused stains on all elevations.

*Buildings 248 and 308 are discussed in the following guideline, 5 - EXTERIOR STUCCO WALLS*

### *Failed Paint Coatings*

The condition of paint coatings varied depending on exposure. Flaking and loss of adhesion was evident on most elevations.

### *Cementitious Patches*

Losses in the concrete walls have been repaired with cementitious patching materials. In all cases observed, the patch did not match the texture of the original wall surface. One case was noted in which a decorative reglet in the concrete had been filled by patching material thus obscuring original detailing.

### *Cracks, Incipient Spalls, Spalls*

These three conditions are typically caused by corrosion jacking of reinforcing bars or imbedded steel anchors. Corrosion jacking is the increase in dimension that ferrous metals undergo during oxidation due to the presence of moisture. Iron oxide (rust) may expand up to eight times the thickness of the original metal. The increase in size exerts great pressure, leading to the rupture of the surrounding materials.

**Cracks.** Cracks are fissures in the material of random width and length. A limited number of cracks were observed which varied in severity, and typically ran parallel with the building edges and window and doorway openings.

**Incipient spalls.** Incipient spalls are portions of loose concrete which have not detached from the building. The spall is visually defined by cracks at the edge of the affected area, as well as by bulging.

Incipient spalls were noted on all elevations of the pier buildings, and at random locations on other structures primarily at window and door openings.

**Spalls.** Spalls are losses in the concrete surface. Frequently, exposed reinforcing bars were visible in the spall area. Although spalls were observed on all elevations of the buildings, the most severely affected area was on the west elevation of Building 319.

### *Impact Losses*

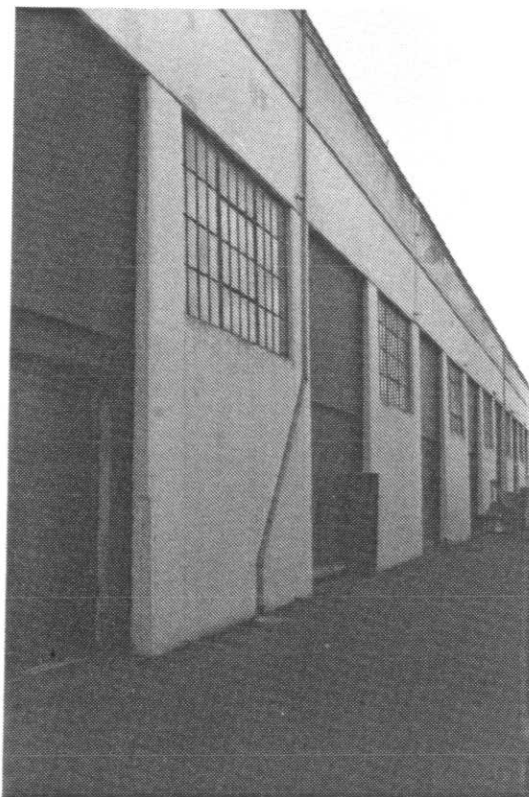
Losses due to impact were noted primarily at building corners.

### GUIDELINES

In general, all repairs should replicate the original form and texture of the affected area. No architectural details should be obscured by concrete repairs. The marks of the form lumber visible in the surface of the concrete should be retained and replicated. This will require imprinting lumber marks on fresh concrete patches. Boards ripped to the appropriate width, not plywood, should be used for this step.

In areas where lumber marks are not visible because of parging, patched surfaces should be matched to surrounding texture.

Maintenance coating color(s) should be matched to existing.



*Exterior battered concrete wall on Pier Shed 3.*

#### CONSERVATION RECOMMENDATIONS

As a modification to this report, laboratory analysis of the concrete was conducted. A total of thirteen (13) three inch cores were taken from buildings 310, 312, 314, 315, 317, 319, and 321, and submitted to Micro-Chem Laboratories, Campbell, CA. The analysis included petrographic examination, chloride analysis, and compressive strength testing. The type and range of testing was selected in order to provide a general overview of the condition of the concrete, and to identify any inherent characteristics of the concrete that may be responsible for deterioration. In five samples the chloride content was established at the top, middle, and bottom of the cores in order to determine the extent and depth of chloride contamination. Findings of the analysis are included in Appendix.

According to the analysis report, there was no significant cracking or deleterious reactions noted in the petrographic examination. Both the petrographic analysis and the compressive strength test indicated a wide range in strength among the samples; however, the analysis report concludes that "The lower strengths were not due to general deterioration, deleterious reactions, or presence of cracks in the concretes." The chloride test indicated that there were no excessive amounts of chloride in the samples.

The analysis results suggest that standard repair methods for spalled concrete would be appropriate for the Lower Fort Mason buildings. The concrete appears to have no inherent characteristics that may be causing deterioration, and the low concentrations of chloride indicates that there has been little, if any, chloride contami-

nation. It was observed during the conditions survey that exposed, corroded steel was within one to two inches of the surface of the concrete. By current standards this amount of coverage would be considered inadequate to provide proper protection to imbedded steel.

#### *Emergency Stabilization*

Cracks and spalls visible in rafter tails indicate the possibility of loose material which may detach from the building. It is recommended that each rafter tail be examined at close range immediately. This will involved the use of a boom or other type of mechanical lift. Each rafter should be sounded with a masonry hammer over its entire surface and loose portions removed.

#### *Stabilization*

Stabilization of the concrete should involve repairing all spalls and cracks. This will require removing loose material, removing corrosion from reinforcing bars, coating reinforcing bars, and patching the affected area. Corroded attachments must also be treated. Repairs to decorative features, such as rafter tails, should be sculpted to replicate original profiles.

Window sills and corbel blocks which allow standing water should be flashed. Paint coatings, which isolate the concrete from moisture as well as the harsh marine environment, should be maintained and reapplied as necessary. Areas where pigeons roost should be covered with specially manufactured bird netting sensitively installed.

Stabilization treatment for cracks, spalls, and incipient spalls will include the following:

1. Cut out all cracked, bulged, or otherwise

damaged concrete back to sound material. Sawcut perimeters in straight uniform cuts to the appropriate depth.

2. Repair all corroded steel reinforcing revealed by concrete removal. Cut beneath reinforcing bars (minimum 0.75") if there is oxidation of metal.
3. Shoulder of saw cut should be at least 90 degrees. On soffits the shoulder cut should be greater than 90 degrees to facilitate physical keying of the final cement patch.
4. Blast reinforcing bars to Commercial Grade Blast Cleaning.
5. The underside of steel reinforcing bars should be wire brushed.
6. If reinforcing bar has lost more than 25% of its original section, splice in a new piece.
7. After blasting remove all sand, dust and grit with a vacuum cleaner, compressed air, (clean and dry) or a clean brush. Also clean areas in close proximity to surfaces to be coated to prevent windblown debris from contaminating the work.
8. Paint metal with two coats of an epoxy mastic formulated for application on metal within 2 hours of blasting. The first coat should be of a color which contrasts with the blasted metal surface such as red. The second coat should contrast with the first. Contrasting primers allow the mechanic to apply coatings uniformly.
9. Apply patch. Patch should be a two-part latex modified concrete patching and coating system consisting of polymeric emulsion, and a hydraulic powder. Surface should be matched to surrounding texture using form boards ripped to appropriate

width.

10. Coat patch with vapor permeable emulsion type coating matched to existing color. Allow adequate time for curing of patch.

Treatment for removing or replacing corroding attachments:

1. Remove all corroded non-functioning attachments and patch hole as described above.
2. Replace functional attachments with non-corrosive attachments, or remove all corrosion on existing attachments and paint with epoxy mastic as described above.

Treatment for Projections:

1. Flash window sills and corbel blocks standing water with lead coated copper. Cut reglets as necessary, and anchor flashing in reglets with lead wedges followed by elastomeric sealant.

#### *Maintenance*

Maintenance will consist of treatments described above. Protective paint coatings should be maintained and reapplied when necessary. Maintaining coatings on both sides of parapet walls is particularly critical. Biological growth and pigeon debris should be removed from the walls by lower pressure water rinse method using a mild detergent.

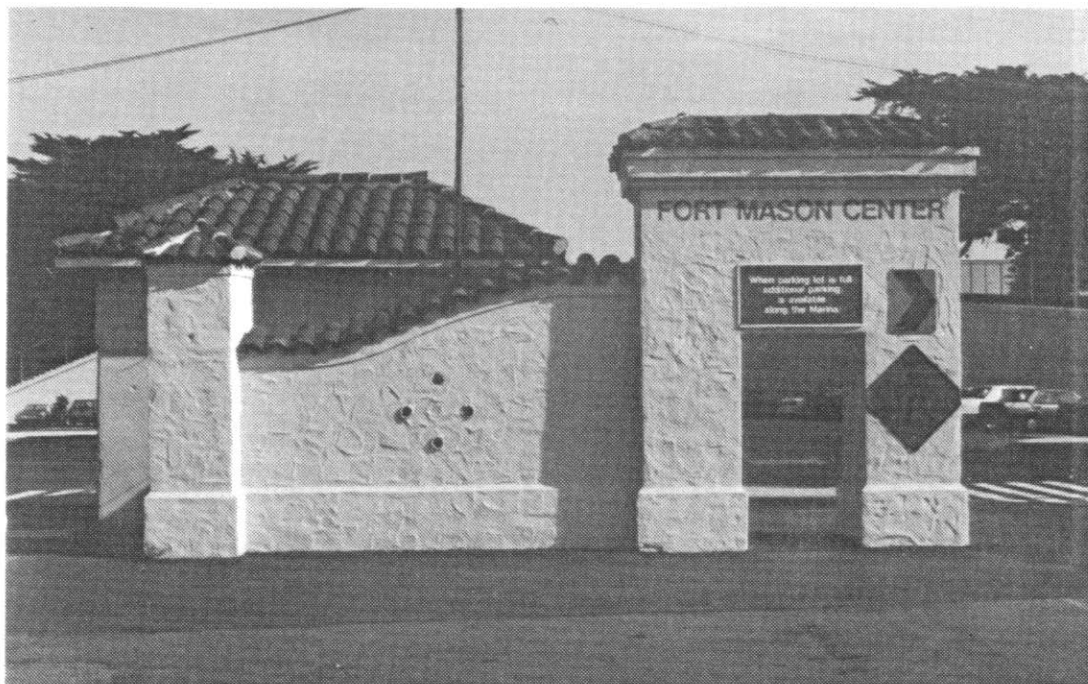
#### *Preservation*

Preservation of the concrete should include a paint analysis as outlined under **RECOMMENDATIONS FOR FURTHER STUDY**. It is important that a paint analysis include the cast concrete insig-nias on the south elevations of buildings 317 and 321. This information may then be used for future surface treatment of the concrete.



# 5

## EXTERIOR STUCCO WALLS



### DESCRIPTION

Cement stucco is the exterior finish treatment of buildings 248, 302, 303, 308, and the west entrance wall. The walls of Buildings 248 and 308 are reinforced concrete, and the walls of the other two are wood frame.

### CONDITIONS

Apart from minor losses and hairline cracks, stuccoed surfaces were in good condition.

### GUIDELINES

All stucco repairs should be matched to existing surface textures. Repairs to decorative features should be sculpted to conform with original profiles. Paint color(s) should be matched to existing.

### CONSERVATION RECOMMENDATIONS

#### *Stabilization*

Stabilization procedures for buildings with walls of reinforced concrete will be the same as those listed in **EXTERIOR CONCRETE WALLS AND ELEMENTS, CONSERVATION RECOMMENDATIONS, Stabilization**. Stabilization for stucco on wood frame entails repair of narrow cracks. These repairs should be made in conjunction with

repainting of the stucco which is outlined below under **MAINTENANCE**.

#### *Maintenance*

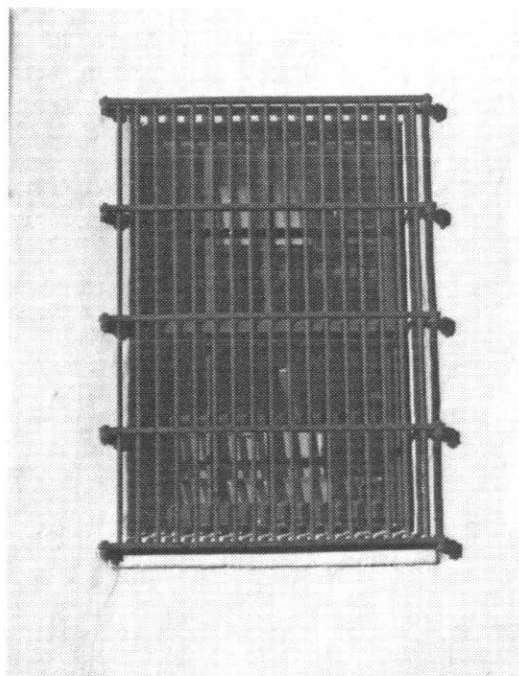
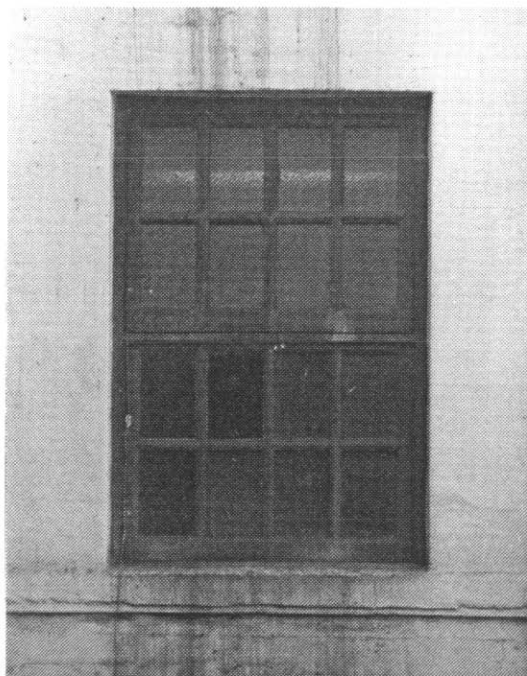
Maintenance of stuccoed surfaces will include the following:

1. Remove soiling and biological growth with low pressure water rinse method using a mild detergent applied with natural fiber brushes.
2. Repair all hairline cracks with knife grade patching compound formulated for use on stucco surfaces.
3. Coat all patched walls with a vapor permeable emulsion type coating matched to existing color. Allow adequate time for curing of patch.
4. Maintain paint coatings by applying vapor permeable coating when necessary matched to existing color.

#### *Preservation*

Entrance gate, now in NPS possession, should be restored and reinstalled.

*For more information on the stabilization and maintenance of the Entrance Gate see guideline 12 - EXTERIOR STAIRCASES*



## 6 WINDOWS

left -- Metal double hung windows, Warehouse buildings.

right -- Metal pivot window with bars, Warehouse buildings.

### DESCRIPTION

*Buildings 310, 312, 314, 315*

The warehouse buildings have hollow, galvanized metal windows on all three stories composed of two horizontal pivot sashes on the second and third stories, and double hung windows on the ground story. Each sash has eight lights, four over four, separated by wide muntins. Weatherstripping is integral with the sashes and frames. The original glazing is an obscure figured wire glass. Some panes have developed a purplish tint, and all metal windows components are painted red.

The ground story windows of the east and west elevations are fitted with bars in the two outer and two center bays. The bars are bolted to anchors imbedded in the concrete. Bars have been removed on some windows to allow clearance for the installation of fire escape stairways. Storefronts installed in some ground story bays have windows integral with the design.

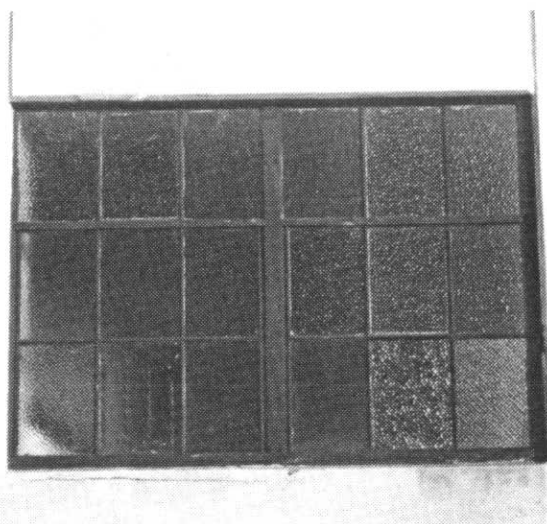
The heavy construction of the original frames and sashes as well as the use of wire glass recalls the utilitarian purpose of the structures.

The multi-pane design of the sashes contribute visual interest to the facades.

Original obscure wire glass has a distinctive reflective quality which diffuses light due to its figured texture. Clear glass replacement panes are more reflective, and do not diffuse light in the same way as original glass. Replacement glass is therefore quite noticeable, interrupting the regularity of the fenestration, and thus impairing the appearance of the elevations.

*Buildings 308, 317, 319, 321, 322*

Galvanized factory type windows with figured wire glass are used in all four elevations of these buildings. South elevation second story windows of buildings 317, 319, and 321 have segmented arched head jambs. Most windows retain original figured wire glass, but the south elevation windows of buildings 317, 319, 321, and the east elevation of Building 308 have large areas of clear glass. Installation of clear glazing appears to be a later alteration. Most window components are painted red. Some recently installed window in Building 308 have unpainted aluminum frames.



*Factory sash typical of windows in the pier sheds.*

#### *Buildings 302, 303, 248*

Buildings 302 and 303 each have double hung windows. Two of the three windows in Building 303 have been covered with plywood. The remaining uncovered window has four lights to a sash, two over two. Window sashes in Building 302 have six lights, three over three. Window openings in Building 248 are covered with plywood.

#### CONDITIONS

##### *Buildings 310, 312, 314, 315*

A total of fifteen windows on the east and west elevations of the buildings have been modified to accommodate ducts and vents. The muntins of four sashes in four separate windows have been removed and the eight panes replaced with one piece of clear glass or louvered vents.

In general, the windows appeared to be in good condition and operable. Bent weatherstripping was noted as preventing the complete closure of approximately half of the windows examined. Paint coatings were in fair to poor condition depending on exposure.

##### *Buildings 308, 317, 319, 321, 322*

Loss of paint adhesion to frames was common, and random panes of broken glass were observed. Bowed frames were noted on the east side of Building 321. Approximately half of the

sixteen windows on this elevation were bowed. The cause of this condition is not readily apparent. One possibility is impact damage from fork lifts and other moving equipment striking the windows. Another possibility is that pressure is being exerted on the mullion by corroding steel reinforcing bars imbedded in the concrete sills and head jambs.

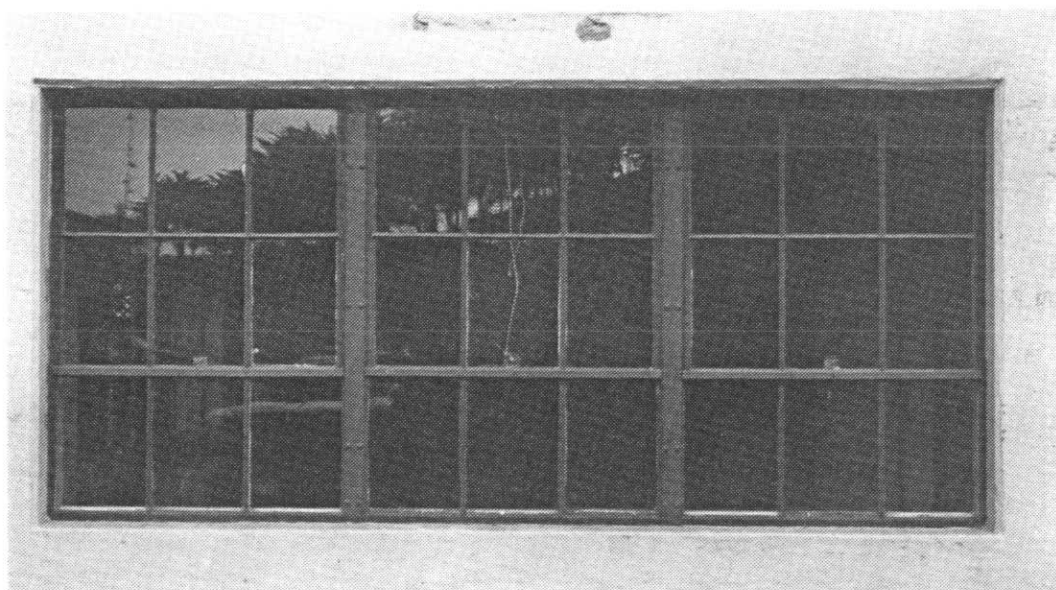
#### *Buildings 302, 303, 248*

Extensive paint loss with areas of exposed wood was noted.

#### GUIDELINES

The purpose of these guidelines is both to accommodate the needs of the tenants and retain historic character. Existing windows as currently configured function satisfactorily for the majority of users with one exception; figured wire glass does not allow outside views. It is primarily office workers who are affected by this condition.

To remedy this situation two alterations are recommended based upon window types. 1) Double hung windows may be fitted with interior storm type windows. In this case, the lower sash with original figured glass may be raised to allow an exterior view, but the interior storm is kept in place to keep out the elements. This alteration is reversible. 2) Horizontal pivot window lights and factory window lights may



*Factory sash in Building A.*

be fitted with clear wire glass instead of figured. Providing the original wire glass is salvaged and kept on-site, this alteration also meets the criteria of reversibility. Each alteration would only be necessary where spaces are used for offices.

To determine the amount, location, and type of alteration necessary, a window survey should be conducted which records the following.

1. Condition of each window
2. Location of altered sashes and frames
3. Location of replacement panes
4. Tenants who have found it necessary to alter windows

Based upon information gathered in the survey, a general window plan for adapting windows may be formulated. In addition to the survey results, several points must be considered when determining whether altering historic fabric and character by replacing original glass is appropriate. These issues include the current use of the interior space, the Foundation's projected use of the space, and the legitimate need for exterior view of the tenants.

In general, as much original glazing should be retained as possible, and there should be no windows without a portion of original glazing. Only those panes which block views while workers are seated are to be replaced. In build-

ings 310, 312, 314, 315 this would be the two rows of panes in lower sashes. Likewise for the south elevations of buildings 317, 319, 321, only the lower two rows of panes should be altered. Within these parameters alterations should be done in an architecturally consistent manner and not haphazardly.

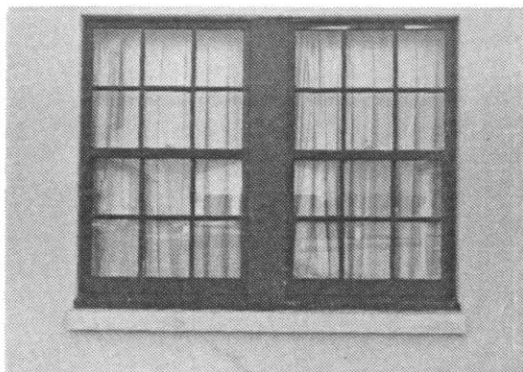
Ideally, original glass which has been removed should remain with the window. One method of accomplishing this is to install the removed panes over those already in place, that is, doubling up the panes. The altered panes can then be easily restored at a later date with original glazing. This procedure will require field testing. Alternatively, panes may be stored on site. Any window work, including replacing broken lights, should be accomplished by skilled mechanics to avoid damaging window components.

In cases where original panes have been replaced, and use does not dictate the need for clear glazing, glass matching the original should be installed. There should be no removal of frames, sashes, muntins, or exterior bars.

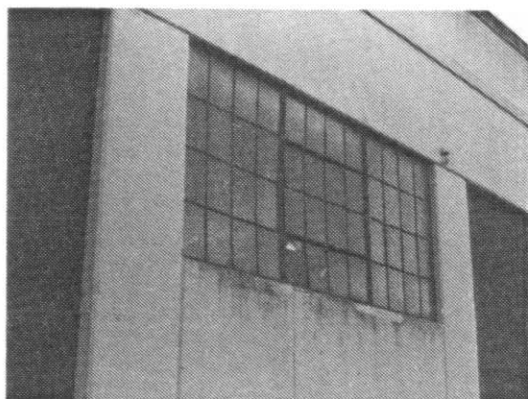
Maintenance coating color(s) should be matched to existing, and existing aluminum window frames should be etched and painted to match painted windows.



Wood double hung window in the gatehouse.



Factory sash in Pier Shed 3 with a bowed frame.



## CONSERVATION RECOMMENDATIONS

### *Stabilization and Maintenance*

Stabilization and Maintenance should include the following.

1. Make all windows operable by freeing frozen sashes and correcting misalignment of weatherstripping. Replace missing hardware with new hardware matched to original. Replace missing sash cords and weights in double hung windows.
2. Remove loose paint by scraping.
3. Repair small areas of corrosion in metal windows by cutting back affected areas to sound material and patching with epoxy compound formulated for use on metal. Repair areas larger than 1" square by patching with galvanized steel of same gage

secured in place by soldering.

Fill all holes and defects in wood windows. Repair deteriorated areas of wood windows with dutchmen secured in place with waterproof adhesive.

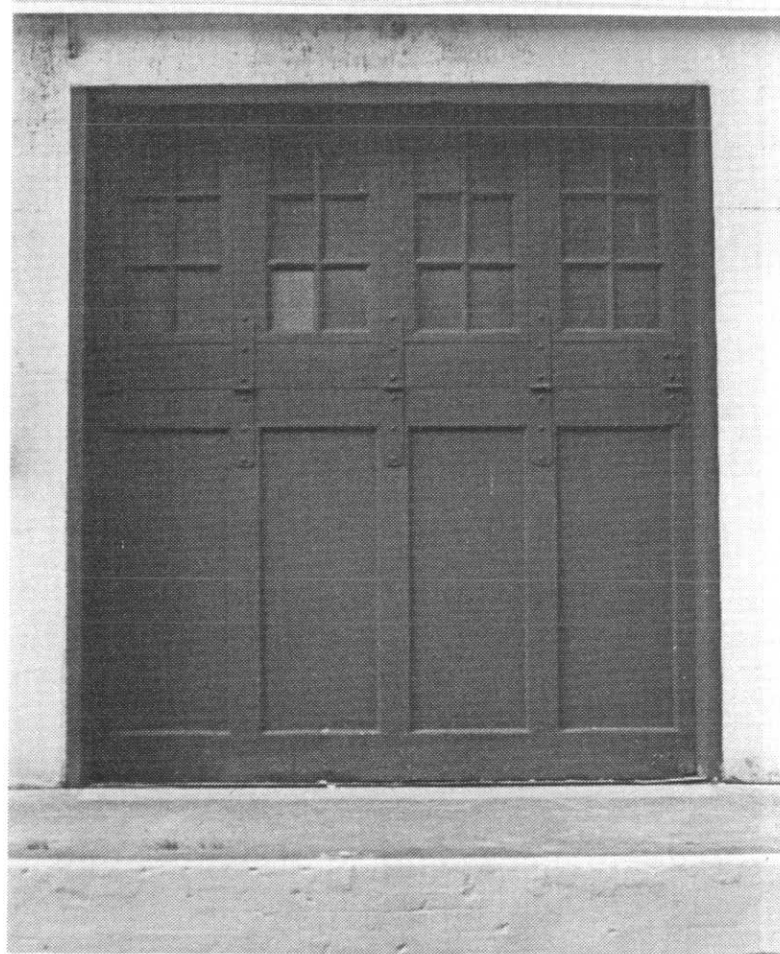
4. Replace broken glass.
5. Paint metal windows with a coating formulated for use on galvanized steel. Prime exposed wood on wood windows with alkyd based oil primer, and coat all surfaces with two top coats of compatible alkyd based paint.
6. Replace deteriorated sealant and glazing compound.

### *Preservation*

Missing muntins, sashes and frames should be replaced and matched to original.

For a discussion of utilizing windows for intake and exhaust systems see guideline 2 - TILE ROOFS.





## 7

WAREHOUSE  
DOORS

## DESCRIPTION

Original canopy-type warehouse doors in buildings 310, 312, 314, and 315 are galvanized steel, kalamein type painted red. The doors are divided horizontally into two sections. The upper portion has a row of four windows each with four lights. Below each of these windows in the lower section are recessed rectangular panels. The two sections are fastened together by five large surface-mounted strap hinges on each style.

The majority of these doors have been replaced in Building 310 and 312, while most are still in place in buildings 314 and 315. Some openings have been reduced in size with unit masonry and are fitted with replacement doors or windows.

The existing kalamein doors serve to readily identify the original warehouse function of the structures.

## CONDITIONS

The doors appeared to be in fair to good condition and operable. The condition of the encased wood framework could not be assessed. Small patches of corrosion were noted on some doors located primarily at lower corners.

## GUIDELINES

All existing doors are to be retained in their openings and maintained in operable condition. Replicas of original doors should be installed in bays with replacement doors. This treatment also applies to bays in which unit masonry has been used to reduce the size of the bay, and will require removal of this masonry. These

improvements may be accomplished when there is a change of tenants. Thus the only acceptable location for glazed replacement storefronts are the central bays which lead to the stairwell and elevators.

Main entrances to the tenant spaces should be through the central stair and elevator lobbies, though the access will be possible through the operable canopy doors as well when weather permits.

In addition to retaining original building components, this plan will serve to visually unify the ground level of the storehouse facades.

Maintenance coating color(s) should be matched to existing, and existing aluminum window frames should be etched and painted to match painted windows.

*For a more detailed discussion of circulation and the organization of tenant spaces see guideline I - BUILDING INTERIORS.*

## CONSERVATION RECOMMENDATIONS

### *Stabilization and Maintenance*

Stabilization and maintenance should include the following:

1. Remove loose paint by scraping.
2. Repair small areas of corrosion by cutting back affected areas to sound material and patching with epoxy compound formulated for use on metal. Repair areas larger than 1" square with galvanized metal of same gage and configuration secured in place by soldering.
3. Assess condition of internal wood frame and repair if necessary.
4. Replace broken glass.
5. Paint doors with a emulsified acrylic coating formulate for use on galvanized metals.
6. Replace deteriorated sealant and/or glazing compound.
7. Repair and maintain counterweight operating mechanisms.



*Storefront installed in the opening of a large door in Building A.*



## 8

ROLL-UP  
DOORS

*Roll-up doors in Building 319 with new recessed storefront behind.*

## DESCRIPTION

Roll-up doors are used in buildings 308, 317, 319, 321, and 322. The doors are made flexible by using interlocking slats of sheet steel. The ends of the slats are held behind guides at the sides of the doors.

## CONDITIONS

The roll-up doors had moderate to heavy corrosion. Many original roll-up door openings had been modified by adding fixed storefront glazing systems behind the doors. This addition does not impair roll-up door operation.

## GUIDELINES

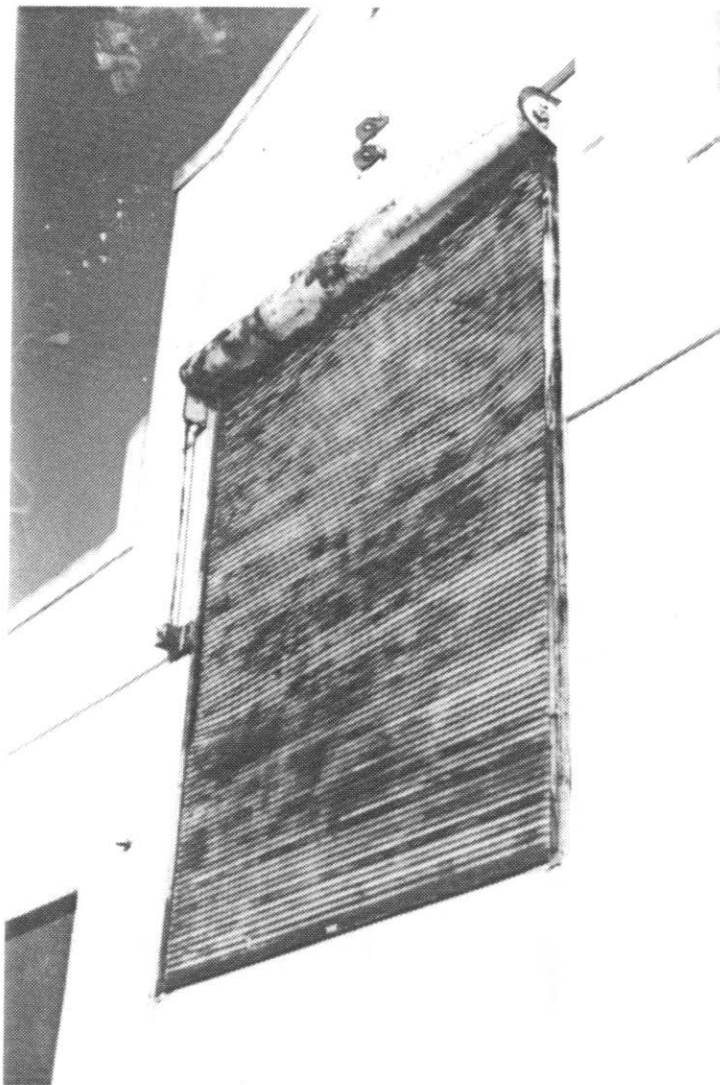
All roll-up doors should be retained and maintained. Maintenance coating color(s) should be matched to existing. The current method of installing storefronts behind the doors so that they remain operational should be continued.

## CONSERVATION RECOMMENDATIONS

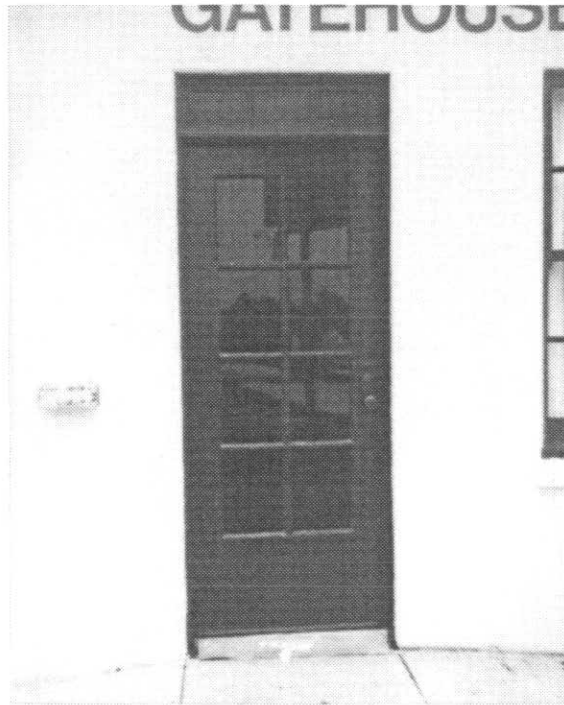
*Stabilization and Maintenance*

Both stabilization and maintenance of ferrous metals consists of isolating the metal from corrosive elements with a protective coating. In the metal finishing industry there is general agreement that the effect of surface preparation upon the lifetime of coatings is tremendous. Therefore, proper preparation cannot be over-emphasized. Stabilization and maintenance of roll-up doors will include the following:

1. Replace or repair severely corroded metal by removing steel that has lost more than 25% of its original dimension and replace with new steel welded into place. New steel and portions affected by repairs should be coated as described below.
2. Blast to Commercial Grade Blast Cleaning.
3. After blasting remove all sand, dust and grit with a vacuum cleaner, compressed air (clean and dry) or a clean brush. Also clean areas in close proximity to surfaces to be coated to prevent windblown debris from contaminating the work.
4. Paint metal with two coats of an epoxy mastic formulated for application on metal within 2 hours of blasting. The first coat should be of a color which contrasts with the blasted metal surface such as red. The second coat should contrast with the first. Contrasting primers allow the mechanic to apply coatings uniformly.
5. The finish coat should be a two component aliphatic polyurethane.
6. Ferrous metal components should be checked biannually and any areas of corrosion removed and the surface re-coated.



*Elevated roll-up door in Pier Shed 3 used to facilitate the boarding of troops directly onto the upper decks of ships.*



## 9

### WOOD ENTRANCE DOORS

#### DESCRIPTION

Buildings 302, 303, and 248 originally had wood doors. On the north elevation of Building 302 one of two doors is a solid core replacement while the other has eight lights. The east elevation of Building 303 has one solid core door, and the south entrance to Building 248 is also solid core. Early photos of Building 248 indicate that the south entrance originally contained a double leaf three-panel door with a glass transom.

#### CONDITIONS

The one existing exposed door that may be original in Building 302 had extensive paint loss with large areas of exposed wood.

#### GUIDELINES

The replacement door for Building 248 should be matched to the original as indicated by the historic photograph.

Solid core doors should be replaced with glass light doors similar to the one on the north elevation of Building 302. Paint color(s) should be matched to existing.

#### CONSERVATION RECOMMENDATIONS

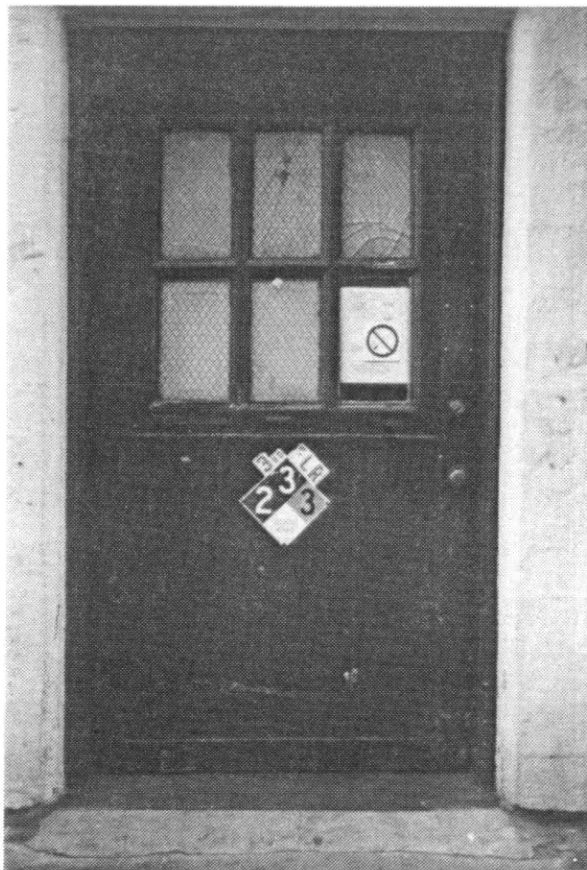
##### *Stabilization and Maintenance*

1. Replace missing hardware with new hardware matched to original.
2. Remove loose paint by scraping.
3. Fill all holes and defects in wood. Repair deteriorated areas larger than 1" square with dutchmen secured in place with waterproof adhesive.
4. Replace broken glass.
5. Prime exposed wood on wood windows with alkyd based oil primer, and coat all surfaces with two top coats of compatible alkyd based paint.
6. Replace deteriorated sealant and glazing compound.



# 10

## METAL ENTRANCE DOORS



### ORIGINAL DOORS

#### DESCRIPTION

A limited number of kalamein entrance doors remain in storehouse Building 314 and 315, and in the three piers sheds. In Buildings 312 and 310 all doors have been replaced.

#### CONDITIONS

The doors appeared to be in fair to good condition and operable.

#### GUIDELINES

All existing doors are to be retained in their openings and maintained.

#### CONSERVATION RECOMMENDATIONS

Refer to same section under **WAREHOUSE DOORS**.

### REPLACEMENT DOORS

#### DESCRIPTION

Many original doors have been replaced in the storehouses. Some replacement doors approximate original design and materials. Several doors in Building 308 have metallic finishes instead of painted, and in one instance in Building 308 wood doors have been installed where metal would have been originally.

#### CONDITIONS

Replacement doors were in fair to good condition.

#### GUIDELINES

Existing doors with metallic finishes should be painted the same red color as ferrous metal doors. Replacement doors should be matched to original door design and materials.

#### CONSERVATION RECOMMENDATIONS

Refer to same section under **WAREHOUSE DOORS**.

## 11

## AWNINGS

## ALSO:

- SHEET METAL ON PASSAGE BETWEEN BUILDINGS 310 AND 312

- CORRUGATED ROOF ON BUILDING 305



## DESCRIPTION

Awnings are constructed of angle steel frames and corrugated steel roofs. The awning assemblies are supported by concrete corbel blocks as well as being anchored to the concrete walls. Each awning has one section of glazed panels which appear to be original. These panels were presumably positioned over the main entrance to the buildings. The glass used in these panels matches the obscure wire glass installed in the building windows. Over each warehouse door sections of the corrugate awing steel have been removed and replaced with translucent corrugated plastic panels to allow additional light into the covered areas. These plastic panels are a later alteration. Signs identifying building tenants are currently hung from the awning assemblies.

The shed roof and roof monitor of the transformer vault is covered with the same type of corrugated steel as that of the awnings. The elevated passage between Buildings 310 and 312 has sheet metal siding and soffits.

## CONDITIONS

Minor to moderate corrosion was noted on all corrugated steel and awning assemblies. Portions of corrugated steel on the east elevation of building 314 were bent and deformed. Birds roosting on awning framework have soiled walls, porches, and surrounding material.

Both the siding and the soffit panels of the elevated passage have light to moderate corrosion.

*For tenant sign guidelines see guideline 23 - SIGNS.*



Damaged awning on  
Building 314

Translucent panel  
installed in awning.



#### GUIDELINES

There are currently plans to install additional lighting under the awnings. This increase in light will allow the removal of the plastic panels which are not original. The panels should be replaced with corrugated steel matched to existing. Replacement of the panels should be coordinated with re-painting of the awnings. When replacement of glass in the awing panels becomes necessary, the replacement panes should be matched to existing obscure wire glass. Maintenance coating color(s) should be matched to existing.

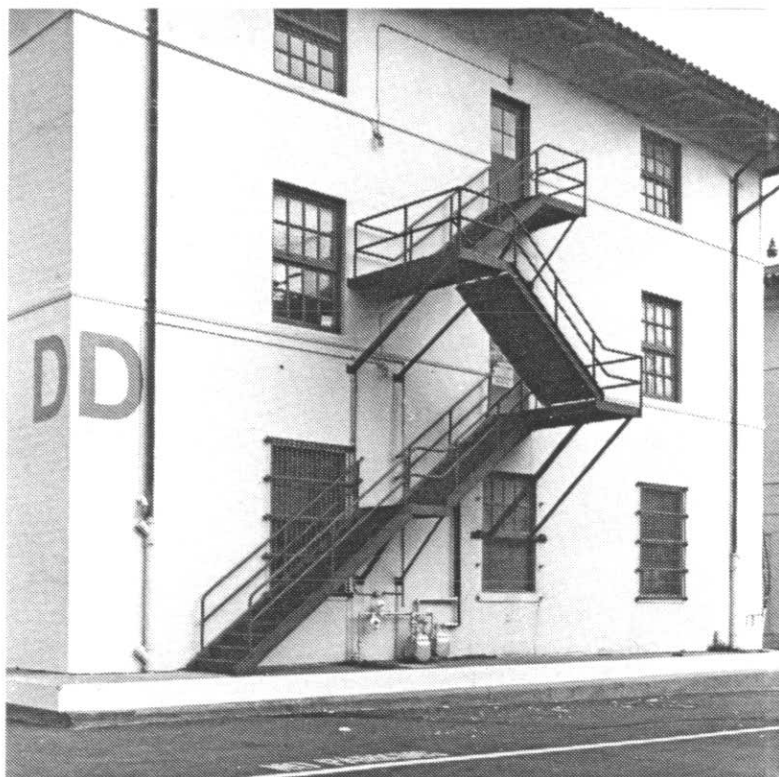
The elevated passage and roof of building 305 should be preserved with no alterations to the existing building fabric. As with the awnings, maintenance coating colors should be matched to existing.

#### CONSERVATION RECOMMENDATIONS

##### *Stabilization and Maintenance*

Stabilization and maintenance of awnings should include the following:

1. Repair or replace deformed awning components.
2. Scrape loose or flaking paint and remove all corrosion from metal by wire brush.
3. Prime bare metal and paint all metal using appropriate coating of the same system for use on exterior ferrous metals. Finish coat color should match existing.
4. Check all metal biannually for any areas of corrosion. Remove corrosion and re-coated surface.
5. Areas where birds roost should be covered with specially manufactured bird netting sensitively installed.



# 12

## EXTERIOR STAIRCASES

### DESCRIPTION

Fire escape stairways have been installed on the north and south elevation of buildings 310, 312, and 315. Windows in the center bays on the first and second stories of these elevations have been elongated to accommodate fire escape doors. Two exterior fire escape staircases have been installed on the east elevation of Building 317. These stairways each lead to clerestory window openings which are also elongated.

### CONDITIONS

The stairways did not appear to have been painted for some time. Corrosion was common and so severe in some areas that the integrity of the steel may have been affected.

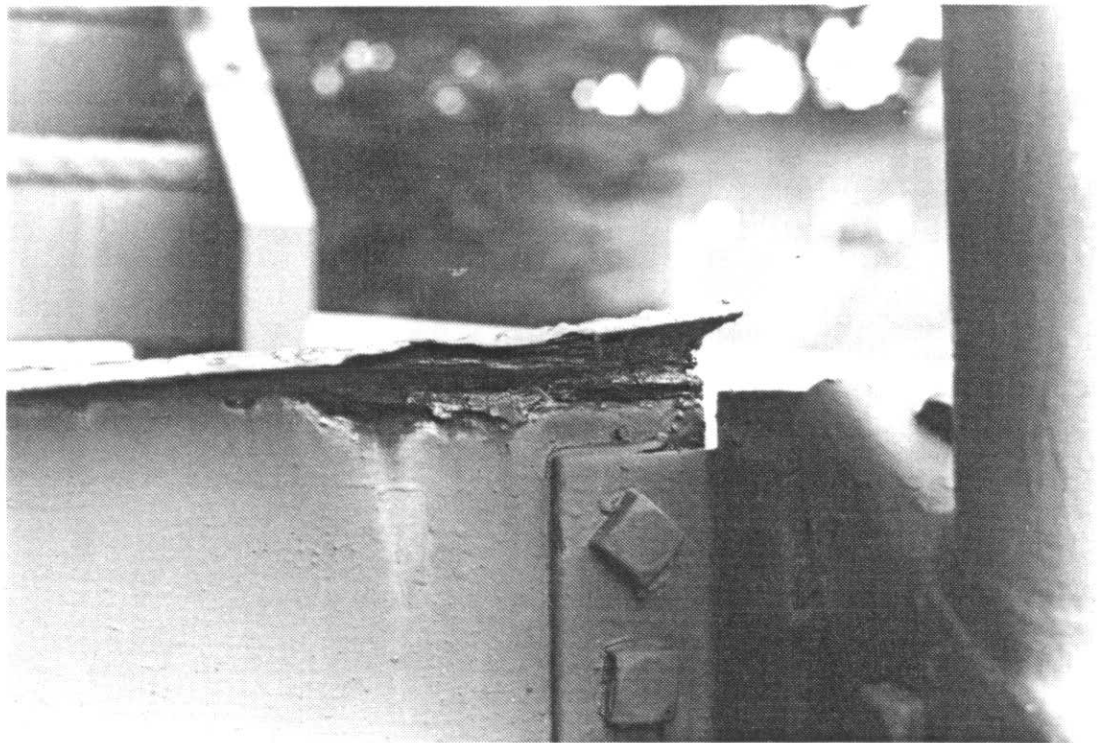
### GUIDELINES

The stairways should be well maintained for safety reasons. Because they are not original features, effort should be made to reduce their visibility. This can be accomplished by painting the staircases the same color as the buildings (stairs were added after the period of significance).

### CONSERVATION RECOMMENDATIONS

#### *Emergency Stabilization*

Fire escape stairways should be surveyed immediately and severely corroded portions repaired. This will involve removing steel that has lost more than 25% of its original dimension and replacing it with new steel welded into place. In some cases it may be more economical to replace entire stair runs. New steel and portions affected by repairs should be coated as described below.



*Corroded section of  
exterior stair landing.*

#### *Stabilization*

Stabilization should include the following:

1. Replace or repair severely corroded metal.
2. Blast to Commercial Grade Blast Cleaning. Protect all adjacent building elements, cars, and pedestrians from blasting media.
3. After blasting remove all sand, dust and grit with a vacuum cleaner, compressed air, (clean and dry) or a clean brush. Also clean areas in close proximity to surfaces to be coated to prevent windblown debris from contaminating the work.
4. Paint metal with two coats of an epoxy mastic formulated for application on metal within 2 hours of blasting. The first coat should be of a color which contrasts with the blasted metal surface such as red. The

second coat should contrast with the first. Contrasting primers allow the mechanic to apply coatings uniformly.

5. The finish coat should be a two component aliphatic polyurethane.

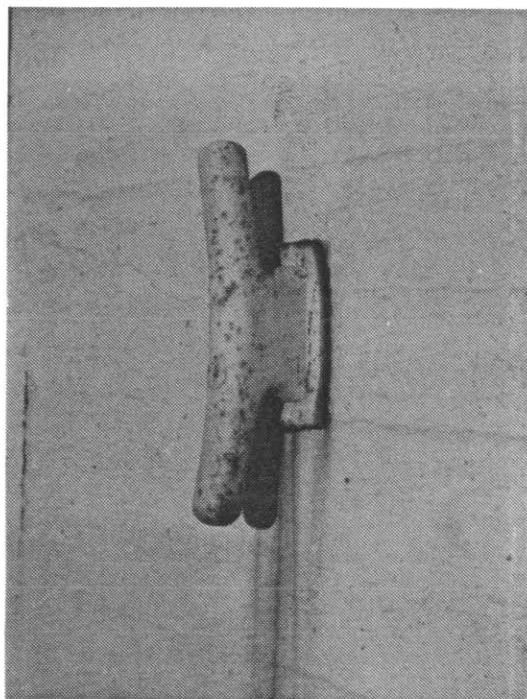
#### *Maintenance*

1. Ferrous metal components should be checked biannually and any areas of corrosion removed and the surface re-coated.



## 13

## APPENDAGES



## DESCRIPTION

Metal appendages such as conduits, electrical service boxes, meters, vent pipes, and light fixtures were supported on the building by steel anchors imbedded in the exterior concrete walls. It appeared that a substantial number of these appendages or anchors were non-functional.

Copper leaders draining roof gutters are attached to the exterior walls at each corner of buildings 310, 312, 314, and 315. The leaders originally penetrated the concrete walls at the height of the third story windows and connected to interior cast iron drain pipes.

Historic photographs indicate the presence of appendages on the building which were consistent in their utilitarian design and placement.

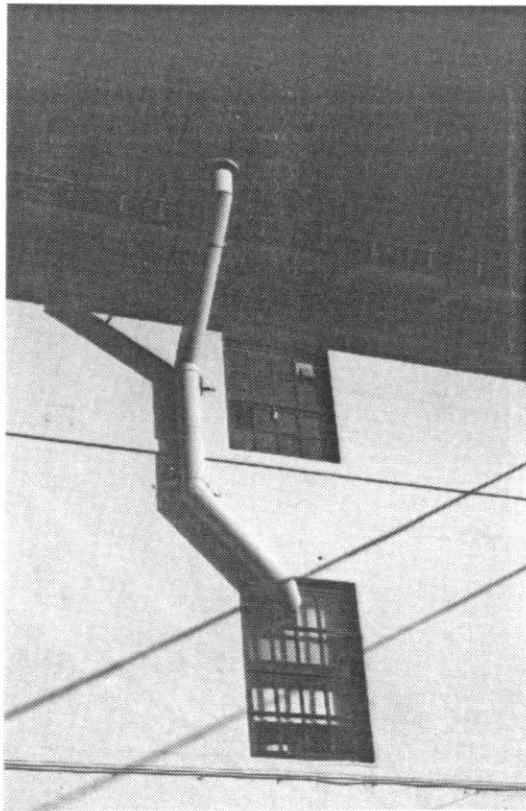
## CONDITIONS

Corrosion of ferrous metal appendages was common.

## GUIDELINES

All non-functioning appendages should be removed from the buildings. The military orderliness should be replicated when appendages are added or re-configured. Standard designs should be adopted for conduit types, meters, vents, fire alarm boxes, etc.

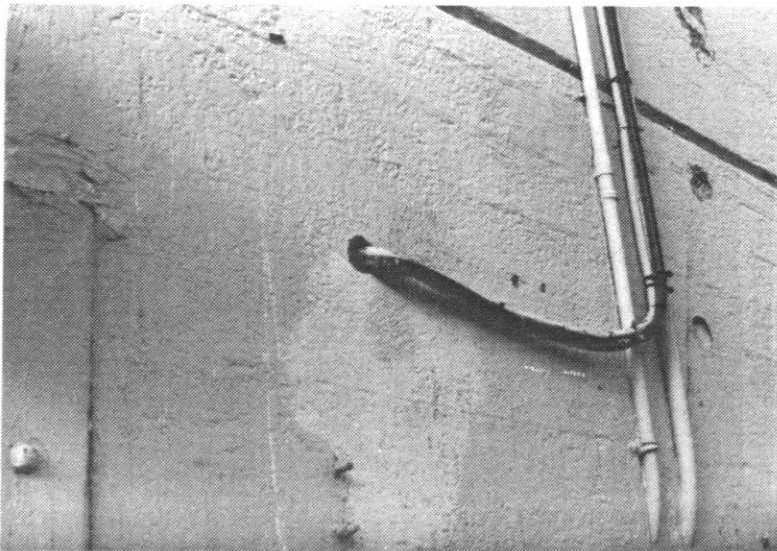
Copper leaders which are secured to the building should be painted to blend with the building walls. The portion of the leader which is angled out from the building and attached to the gutter should remain un-painted. This scheme will visually approximate the original configuration of the leaders which entered the wall near the height of the third story windows.



*Duct attached to exterior wall of Building 314.*

*right -- Rain gutters and leaders.*

*below -- Electrical conduit applied to and penetrating concrete wall.*

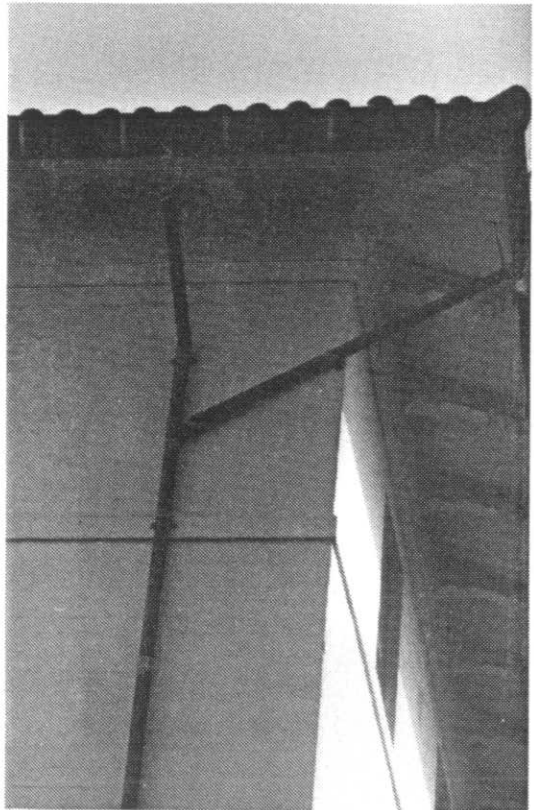


#### CONSERVATION RECOMMENDATIONS

For metal appendages refer to **EXTERIOR CONCRETE WALLS, CONSERVATION RECOMMENDATIONS, *Treatment*** for removing or replacing corroded attachments.

#### *Stabilization, Maintenance*

1. Repair and replace broken gutters and leaders. Broken joints should be re-soldered. Patching, if necessary, should be done with copper of same weight, configuration, and temper secured in place by soldering.
2. Check all drains and clear obstructed roof drains. Check monthly for obstruction, and more frequently during periods of heavy rains.





# 14

## LOADING DOCKS

### DESCRIPTION

Concrete loading docks surround buildings 310, 312, 314, and 315. Some portions of porch decks have been covered with asphalt.

### CONDITIONS

Large cracks with corresponding displacement of walls and sinking of decks were noted in the porch walls. This damage may have been caused or exacerbated by the October 1989 earthquake.

### GUIDELINES

Funding has been appropriated by the National Park Service for replacing the loading docks. The new design should incorporate handicap access as well as access to the middle of the docks. Whenever possible the new design should replicate the original docks as seen in early photographs of the structures contained in this report.

### CONSERVATION RECOMMENDATIONS

#### *Stabilization, and Maintenance*

The loading docks should be examined by a structural engineer to determine stability and feasibility of repair. Pedestrians should not be allowed on decks which are sunken or displaced.

*Settling on a loading dock caused by the 1989 earthquake.*





## GUIDELINES FOR SITE AREAS AND FEATURES

In general, guidelines for site features follow the same premise as do the guidelines for buildings and building features. First, to conserve all historic material, and second to maintain the historic character of the place despite the need for additions or alterations. A site plan, based on guidelines contained in this report, should be prepared to coordinate the design and placement of site features and provide a consistent, long-term approach to site improvements and maintenance.





## 15

## WATERFRONT

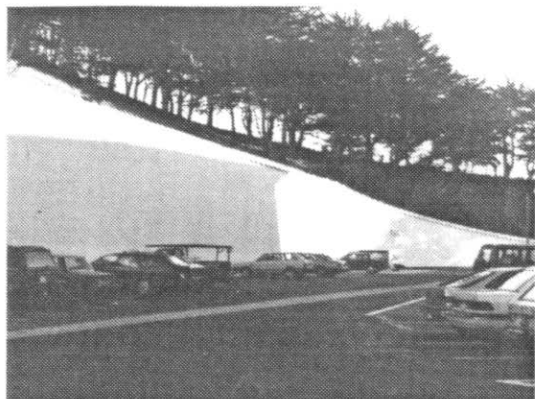
Lower Fort Mason's connection to the San Francisco Bay is central to its historic character. Although original warehousing and dock activities no longer exist, the hardware of that time, bollards, cleats, and railings remain and should be preserved. Current uses of the waterfront include pedestrian activities such as walking, sitting, sight-seeing, picnicking, and fishing. The decision made in the General Management Plan is for pedestrian use of the waterfront. In order to comply with the Plan, street furniture placed on the site supporting this use should be compatible to its historic character.

The waterfront should be treated consistently throughout the site with similar railings, signage, lighting, and furniture. It should be clean and orderly, and unused, non-historic hardware such as fences and portable toilets should be

removed. The design of the waterfront should support all types of existing pedestrian uses, solitary and quiet such as sitting or talking, as well as active such as fishing.

The General Management Plan is now being amended. A portion of the amendment determines that the National Park Service Maintenance Facility will eventually be moved to the Presidio. When this occurs the Fort Mason Foundation will be given use of Pier Shed 1 where the Facility is now located. Until the time of transfer, the chain link fence now in place should remain to protect pedestrians from machinery and other safety hazards related to the Facility's activities.





right -- Historic photo shows the sparsely vegetated hillside behind the foundation of Building 310, still partially exposed, October 31, 1910.

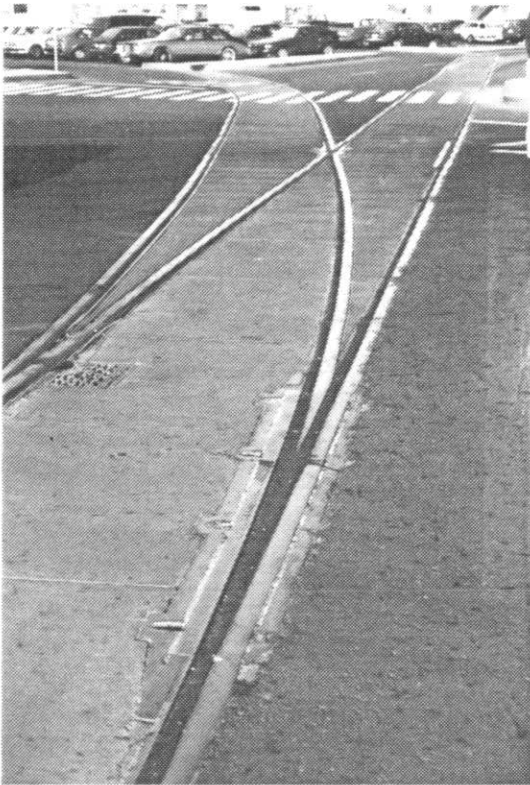


## 16 HILLSIDE

The eroded vegetation and built features on the hillside above Lower Fort Mason should be repaired and maintained. Any additions to the hillside, such as benches, stairs, railings, and flower beds should be constructed of materials used for similar elements elsewhere on the site and have a similar character.

Prior to construction of the fort, the hillside formed a bluff above the beach which lies below what is now the parking lot. Cypress trees planted on the slope have grown large over the years, but the sparse, windswept character of the slope has remained. At present the hillside offers the site its only vegetation and steps should be taken to assure the continued health of the existing trees and shrubs, and to prevent further erosion of the slope. Future plantings on the hillside should be simple and of the same character as the existing vegetation. Small, flowering plants, such as annuals, would be appropriate on the stairs and adjacent to the benches.

Much of the retaining wall dates from the early history of the site and should be maintained as it is now. The three stairways that ascend from the parking lot to upper Fort Mason should be repaired and maintained for pedestrian use. Of the three stairs only the middle one is useable at this time. The other two should be repaired and maintained. Railings should be metal and the same as those used elsewhere on the site. Erosion control measures such as warning signs and terracing should be repaired and maintained as necessary to stabilize the slope. The spherical globes on the streetlights along the top of the retaining wall should be replaced with historic globes as described in the guidelines for outdoor lighting. Any additional light fixtures for the hillside should be chosen and placed following those guidelines as well.



# 17

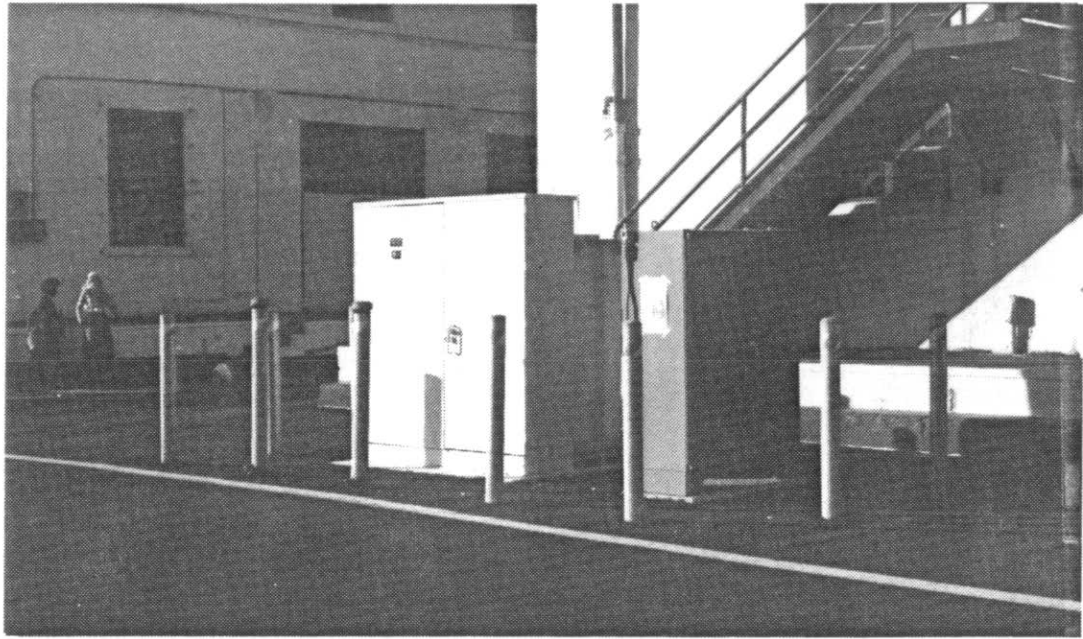
## GROUND SURFACES

Original ground surfaces, including railroad tracks, should be preserved. Raised sidewalks are not appropriate. Pedestrians traffic should be directed using bollards of a similar design as seen in historic photographs of the site contained in this report.

For most of the period of significance, the flat areas on the site have been covered by hard surfaces. Though the open yard area is covered with new asphalt, the railroad tracks attest to the warehousing activities that took place earli-

er. The dividers and pavement graphics denoting the yard's current use as a parking lot are easily seen as an overlay on top of the old use, denoted by the railroad tracks. Rather than completely covering the historic fabric of the site, the new use is layered on top and serves to illustrate the change that has taken place.

As the railroad tracks are a significant feature they should not be covered over by any future repaving proposals.



## 18

### UTILITY AREAS

Utility equipment should be placed indoors where possible. When it is necessary to have it outside, utility areas should be bounded by bollards, painted an unobtrusive color and the equipment placed as orderly as possible.

In general, utility and communication equipment should be bounded and set apart by bollards, rather than fences. Given the industrial character of the site there is no need to hide utilities and unless safety demands it, there is no need to keep people away. The one exception is the utility area between the entrance to Lower Fort Mason and Building 308 which contains a large transformer and is adjacent to a picnic area.

*Alternate 1:* If the transformer serves upper Fort Mason it should be moved to upper Fort Mason. If the transformer is not historic, it should be moved elsewhere. In either case the area should be redesigned for picnicking. In constructing the picnic area, the existing foundation slab of Building 304, underneath the transformers, should be left exposed and uti-

lized as an illustration of change rather than covered with a patio.

*Alternate 2:* If the transformer serves Lower Fort Mason and is historic it should remain. However, the chain link fence should be replaced with a stucco wall similar to those nearby and finished with the texture found on Building 303. The wall will be more appropriate to the formal character of the entrance gates and provide enclosure to the patio.

In keeping with the military history of the site, the utility equipment and its pipes and conduits should be orderly and organized. Trash areas should be clean and out of direct lines of traffic. Equipment should be painted an unobtrusive dark color that does not call attention to itself. Extraneous and unused equipment should be removed and placed elsewhere.



*Fort Mason entrance and parking lot during WWII. See pg. 67 for similar view today.*

## 19 BUS SHELTERS

There are two alternatives for bus shelters.

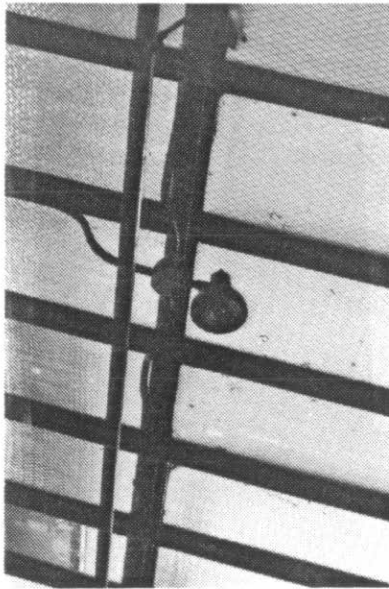
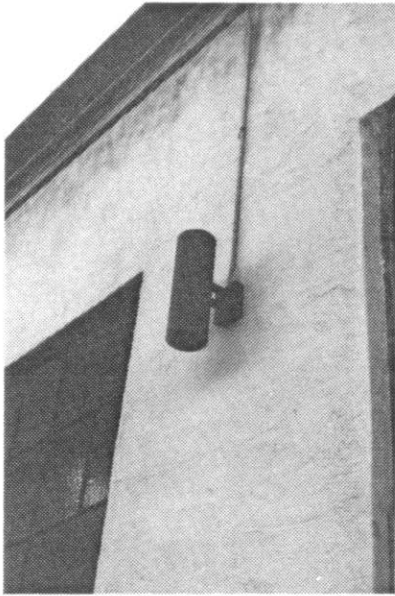
*Alternative 1:* Explore the feasibility of using one of the entrance buildings as a bus shelter. This is consistent with current Park Service guidelines which state that existing structures should be adapted for current uses before considering construction of new structures.

*Alternative 2:* Construct a permanent shelter which will complement the existing structures by using similar materials. One such example may be painted corrugated metal and wire glass which echo storehouses awnings. The structure should compliment the character of the site but refrain from historical mimicry.

## 20 LANDSCAPING

Given the industrial character of Lower Fort Mason, plants would be inappropriate in the paved exterior areas of the site. Therefore the addition of plants to the site should be limited to the interior tenant spaces and the hillside behind the site. Potted trees and plants should not be placed along the buildings or on the loading docks.

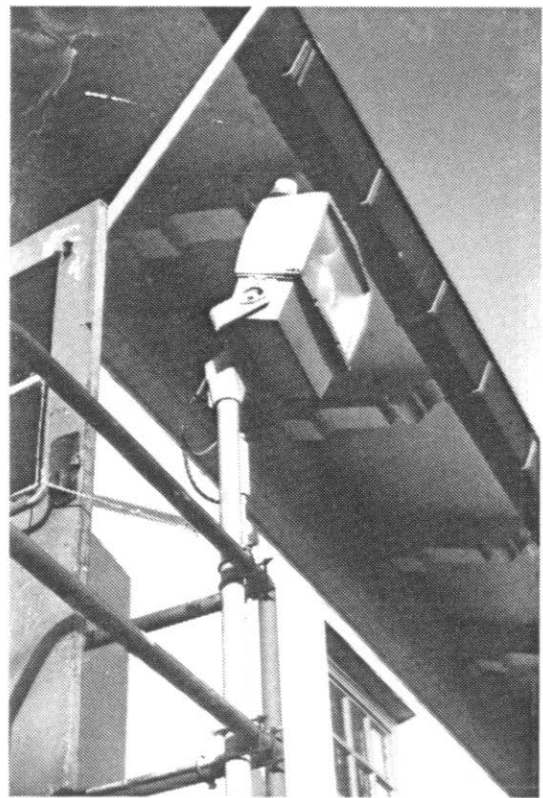




## 21 LIGHTING

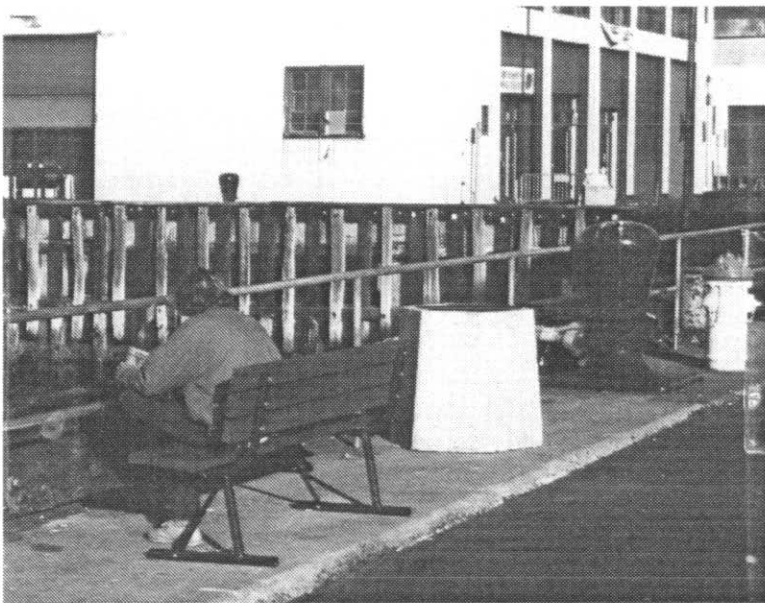
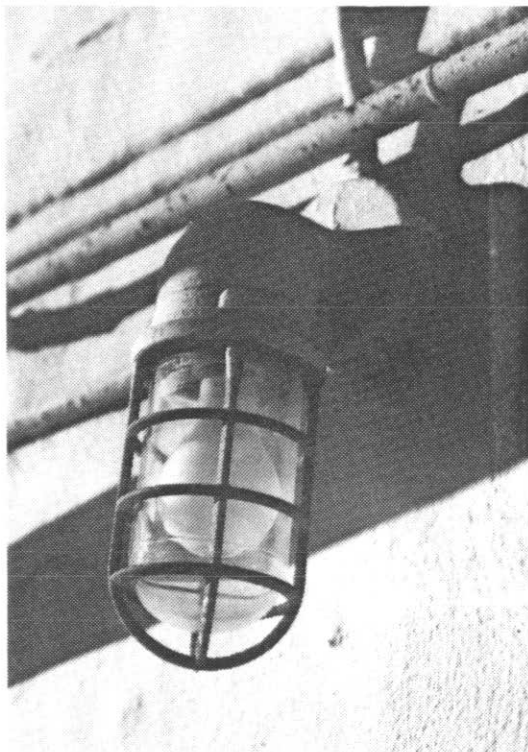
Exterior lighting is presently an inconsistent mix of fixtures and lamps which result in uneven and inappropriate light levels on the site. A comprehensive lighting plan should be developed with the assistance of a professional lighting consultant which evaluates current lighting needs and satisfies them by either duplicating historic fixtures or replacing them with compatible fixtures.

Historic photographs show three types of fixtures on the piers. Two were free standing fixtures, one with a straight pole and a very small globe on top facing up, the other with a crook neck pole and a reflector and globe facing down. The third type was a fixture mounted on the side of telephone poles with a reflector and globe facing down. New fixtures should replicate the historic fixtures and should be



*Historic photos in this report showing light fixtures can be found on pgs. 19, 27, and 30. Photos with additional information regarding light fixtures may be viewed at the Maritime Museum Archives, Fort Mason.*





## 22

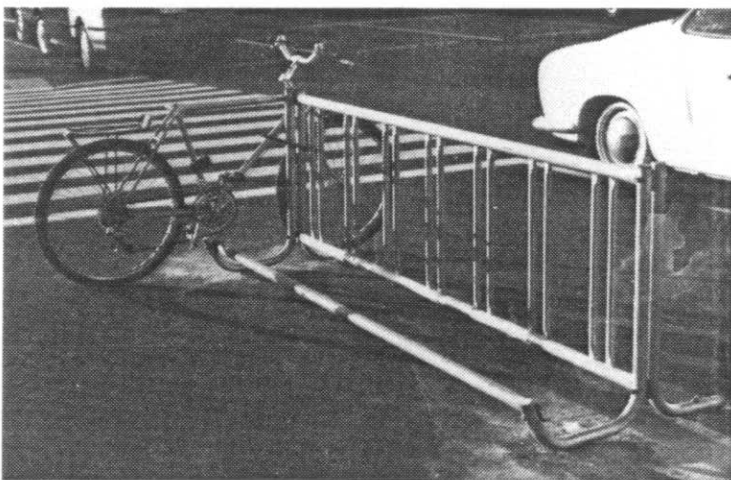
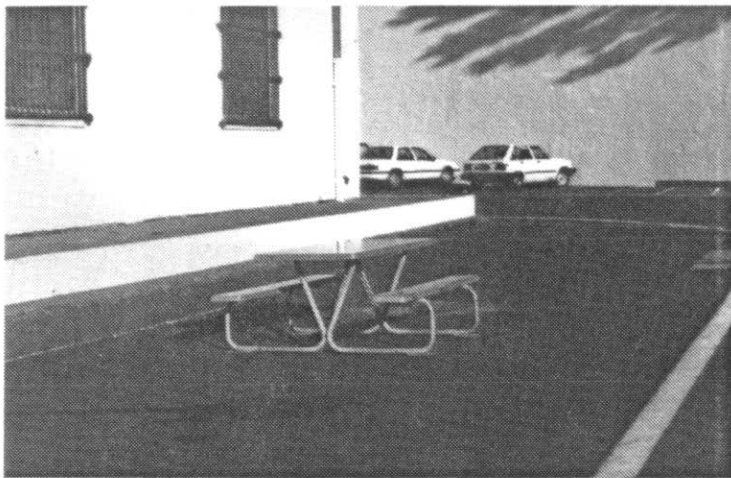
### SITE FURNITURE

installed in the same locations. The new fixtures should be fitted with lamps having a color and presence similar to incandescent lamps.

Hanging fixtures should be installed under the awnings to light the loading docks along the warehouses. Other areas near buildings should be lit with wall mounted fixtures. As with free standing lights, the new fixtures should replicate the historic fixtures or be compatible, and should be installed in the same locations shown in historic photos. The new fixtures should be fitted with lamps having a color and presence similar to incandescent lamps.

In order to avoid a haphazard appearance, and to insure that adequate services are provided, a site plan for street furniture should be developed. The plan must balance the outdoor use of Fort Mason with retention of the historic character of the District. Currently most street furniture seems to be temporarily and randomly placed. The plan should designate areas where such features as picnic tables should be positioned, and define what services are needed such as telephones and where these services should be located. Guidelines for individual pieces of site furniture are presented below.

*Benches and Picnic Tables.* Existing benches and picnic tables are limited in number and therefore do not fully accommodate the needs of visitors to Lower Fort Mason. The benches along the piers which are permanent, comfortable, and well oriented appear to be the most successful installations. The site plan should designate areas where benches and picnic tables can be located without producing a significant change in the historic character of this site. Materials should be chosen which will



Photos above illustrate the inappropriate placement of picnic and bicycle facilities.

blend with existing materials. Concrete may be considered an appropriate choice.

Spaces between the two sets of storehouses are particularly underutilized. Two potential uses for these areas are: 1) as handicap links between the two sets of storehouses, and 2) lunch areas. Both these needs could possibly be achieved by positioning flat bed railroad cars on the original tracks in these spaces, and constructing unobtrusive ramps from the buildings to the railroad cars. Such a scheme would have the added benefit of illustrating the connection of Fort Mason with rail transportation.

**Public Telephones.** There should be access to public telephones on-site at all hours for emergency use. This may require installation of some outdoor phones.

**Portable Toilets.** Portable toilets are inappropriate and inadequate. If portable toilets are required for a temporary special event they should be removed immediately following. To conform with Section 110 of the 1980 amendments to the 1966 National Historic Preservation Act, existing buildings should be used for toilets before constructing new facilities.

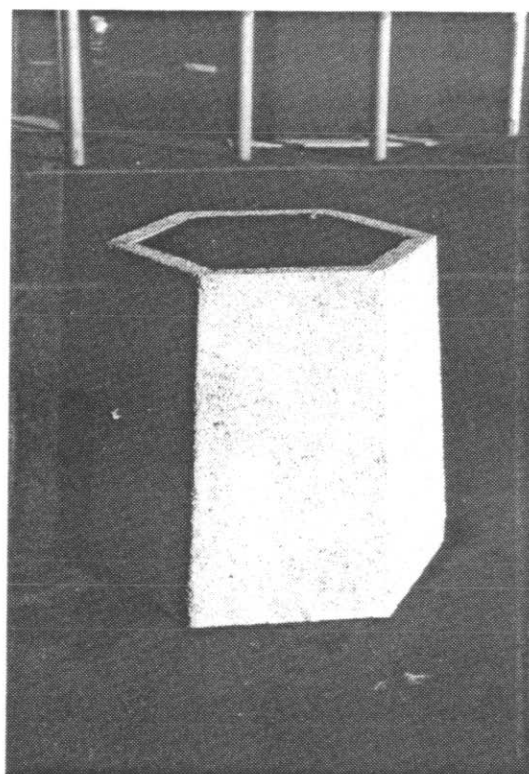
**Bicycle Racks.** Bicycle racks should be coordinated in the site plan with other street furniture and permanently installed unobtrusively. The racks should be covered or in sheltered locations whenever possible.

**Trash Containers.** Containers typically used in parks or public spaces are inappropriate as they detract from the character of the site. It is recommended that containers with an industrial character be used throughout the site.

**Marine Hardware & Bollards.** Historic marine hardware is present on the piers and should be preserved and maintained. Smaller, non-marine bollards used as barriers elsewhere on the site should replicate bollards seen in historic photos included in this report.

**Fences and Railings.** Fences and railing should be constructed of galvanized steel pipe. They should be similar in design to the stair railings in the storehouses, with heavy ball type railings connections. This is consistent with the design of existing features of this type such as the stair railings in the storehouses. Railings are detailed in original construction drawings and where necessary now should be constructed from these drawings.

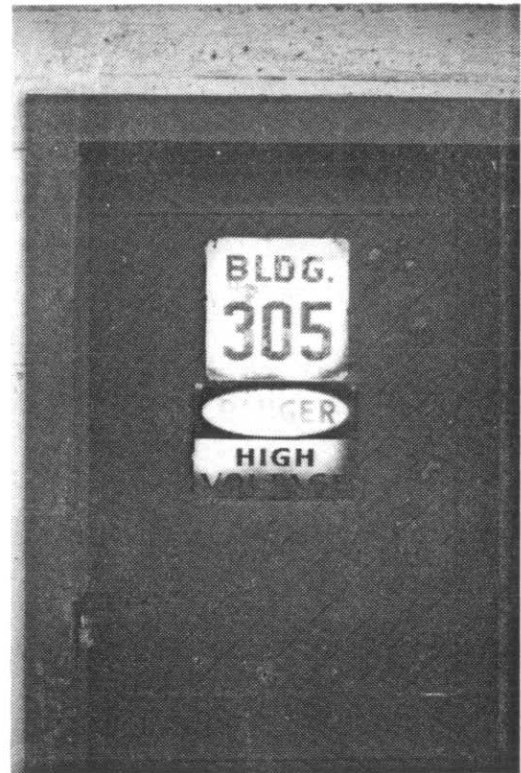
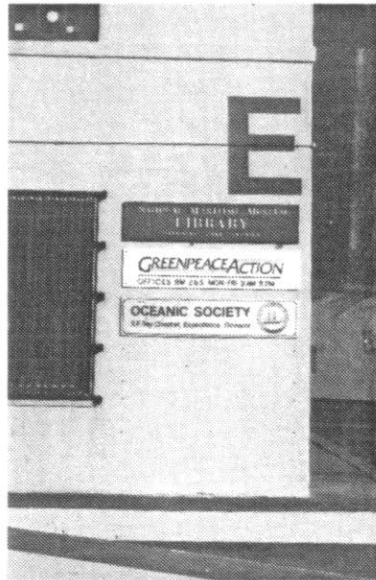
**Sculpture.** Given the industrial character of Lower Fort Mason, sculpture is inappropriate in the exterior areas of the site. Therefore the addition of sculptural pieces should be limited to the interior tenant spaces.



*left -- Public telephone  
and trash container of  
an inappropriate type.*



left -- Two types of wall-mounted signs, affixed and painted.  
right -- Historic artifact sign.



## 23

### SIGNS AND TEMPORARY CONSTRUCTIONS

Four types of signs were identified. Historic signs are those signs which were installed by the military within the period of significance. Interpretation signs are those signs which have been placed on-site by the National Park Service and provide a narrative on significant historic features at Fort Mason. Signs which identify the location of tenants are referred to as Fort Mason Foundation signs, and traffic signs are designated as directional signs.

Though historic photographs often show the site cluttered with large piles of machinery and freight, it was spare graphically. This Spartan trait should be kept in mind when considering the addition of new signs and what the signs should look like. The installation of location maps or orientation placard should be coordinated with the Park Service.

It should be clear to visitors that Fort Mason is under the jurisdiction of the National Park

Service. This is to be accomplished by including the Park Service arrowhead symbol on some non-historic signs as outlined below. Sandwich board signs, though a sign type without historic precedence, are appropriate for two reasons: 1) they are moveable and thus completely reversible, and 2) their presence does not conflict with the historically cluttered nature of the spaces surrounding the site's buildings.

#### HISTORIC SIGNS

Existing building and room number signs placed by the military should be retained. Where new spaces have been created for tenants, such as in the storehouses, signs which designate these areas should be compatible with historic signs but should not imitate them. There should be no confusion as to which signs are original.





#### INTERPRETATION SIGNS

These signs are the responsibility of the National Park Service. Sign materials should be consistent with those found on the site, most typically painted metal and glass, rather than wood or plastic.

#### FORT MASON FOUNDATION SIGNS

Visitors to Lower Fort Mason need to know what tenants are in which buildings and how to find specific tenants once they know their address. In addition, the tenant information signs help illustrate the site's new use as a cultural center and taken together express the individuality of the tenants and the collective spirit of the center today. They should be unquestionably of this time and should not mimic historic military signs, though they should share their orderliness and consistency. Tenant information signs should reflect the fact that tenants are non-profit organizations and not

call attention to themselves as retailers trying to attract business.

Most of the existing Foundation signs are compatible and work within these guidelines. This is due to two factors: 1) the scale of the signs is small and non-intrusive, and 2) continuity is maintained by a consistency of size, similarity of materials (wood), and the uniform, military-like spacing. The design of future signs should conform to these parameters. Because of the small size of the signs, color is not considered to be an important aspect of

*top left -- Wall-mounted hanging sign.*

*top right -- Suspended tenant identification signs under awnings.*

*bottom -- Insignia of the Quartermaster Corp and a temporary hanging announcement banner beneath it.*





*above -- A sign that is too large. In many situations smaller signs should be considered.*

*right -- Sign clutter is an unsightly problem ameliorated by an organized sign system, part of an overall site plan.*



compatibility and can be left to the discretion of the individual tenant.

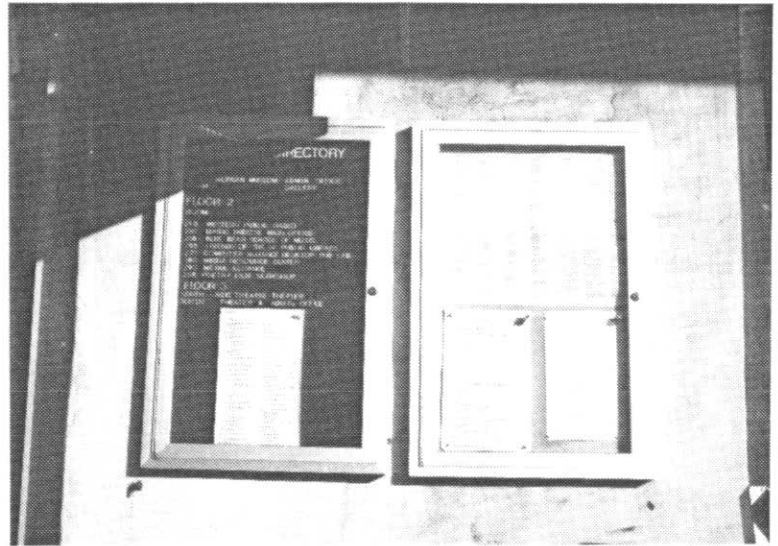
Although most existing signs are compatible, the super graphic letters used to identify the Foundation office building and the four storehouses are inappropriate. Historic photographs clearly show the size, placement, and style of original lettering which should replace the existing super graphics. It is not necessary to return the buildings to the original letter designations as seen in the historic photographs as this change would confuse visitors trying to locate an existing organization.

Previous Section 106 compliance decisions have ruled out the installation of permanent banners. Other signs that are inappropriate include paper signs hung from fences which give the site a retail feel. Temporary banners hung from buildings are appropriate and have historic precedent in the various banners for departing and arriving soldiers. These banners should be removed immediately following the

event they announce. Signs attached to building corners should be removed and hung from the awnings.

*Building Directories* -- Outside many entrances are glass covered display cases containing building directories and other information. These would be more appropriately placed inside the building entrances and their tenant identification functions assumed by an more orderly system tied to site directional graphics. The arrowhead symbol of the National Park Service should be included in the directory. It should be clearly visible, but not more prominent than other directory entries or symbols.

*Pavement Graphics* -- Pavement graphics should be used as necessary in automobile dominated areas. In predominantly pedestrian areas their use should be restrained to the bare minimum, if at all.

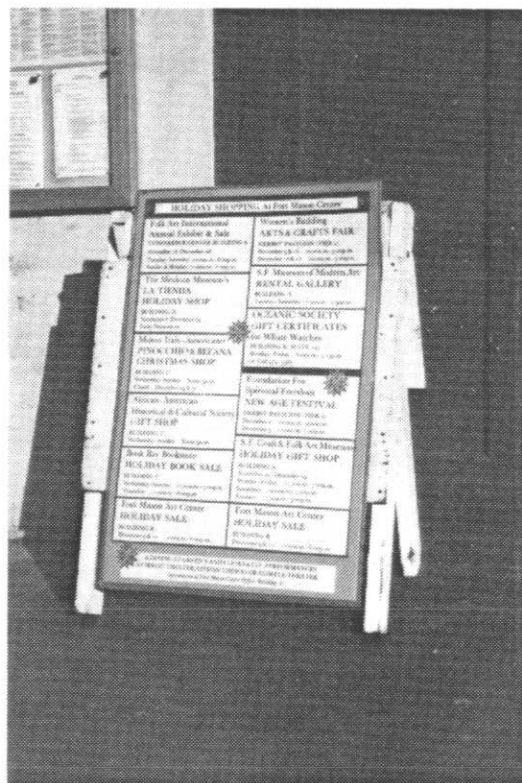


#### DIRECTIONAL SIGNS

These signs should be nationwide standard utility and warning signage that is easily recognizable to insure pedestrian safety. In areas where the standard size of these types of signs detracts from the character of the site a reduced scale should be considered. A comprehensive plan for vehicle and pedestrian signage should be generated.

#### TEMPORARY CONSTRUCTIONS

Temporary constructions (e.g. entryways, building facades, direction markers, etc.) for special events, art shows, traveling exhibits, and other one time occurrences would be, in general, inappropriate in the exterior areas of the site. The industrial character of Lower Fort Mason is to remain uncompromised at all times. Small scale temporary directional markers, such as sandwich boards, may be used to provide direction to visitors for special shows or events.



above -- Wall mounted exterior display case.  
left -- Parking control sign on loading dock.

Sandwich board announcement sign.



## APPENDICES



- A - DEFINITIONS OF CONDITIONS
  - B - CONCRETE ANALYSIS
  - C - ENGINEERING REPORTS
  - D - CODE ANALYSIS
  - E - COST ANALYSIS
  - F - GLOSSARY
  - G - BIBLIOGRAPHY
-





## APPENDIX A - DEFINITION OF CONDITIONS

### ROOF TILE

#### *Cracks*

Cracks are fissures in the clay tiles of random width and length. The tiles remain in the approximate position in which they were laid.

#### *Displaced Tiles*

Tiles which have moved from their original positions and no longer provide protection of the roof.

#### *Damaged Tiles*

Tiles which no longer retain their original form due to cracking and displacement.



## BITUMINOUS ROOFS

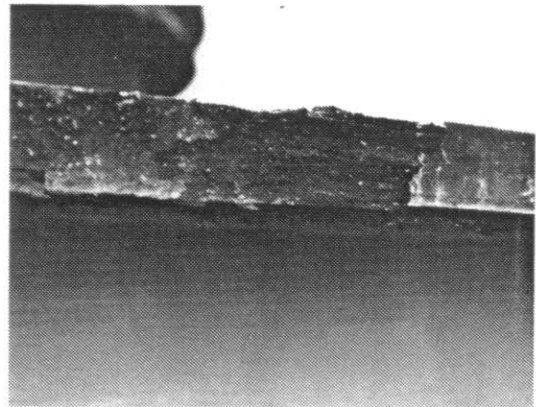
### *Obstructed Drains*

Drains in which debris restricts or stops normal rain water flow are designated as obstructed. Typical obstructions were feathers, bones, and pigeon droppings.



### *Failed Membrane*

Failed Membranes are identified by bubbles, cracks, and areas of loose material.



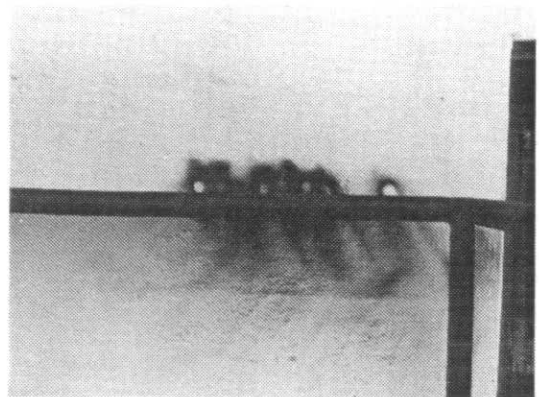
### *Deteriorated Flashing*

Flashing which is corroded due to oxidation of the metal is termed deteriorated.

## CONCRETE

### *Graffiti*

Unauthorized remarks or depictions drawn on a wall are termed graffiti.

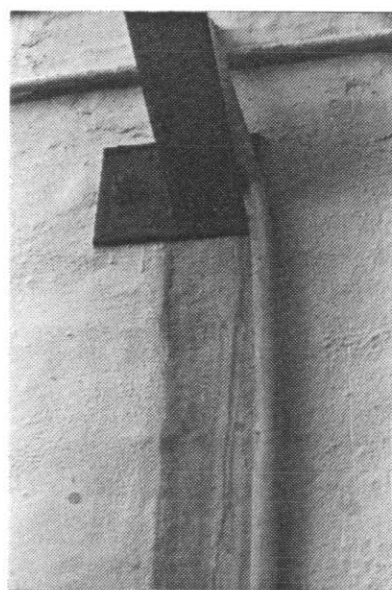


*Bird Debris*

Bird debris is defined as any material which has produced soiling on adjacent materials due to the presence of pigeons. This may include, but is not limited to nests, bones, feathers, and pigeon droppings.

*Biological Staining*

Biological growths producing dark green to black stains on the concrete.

*Ferrous Staining*

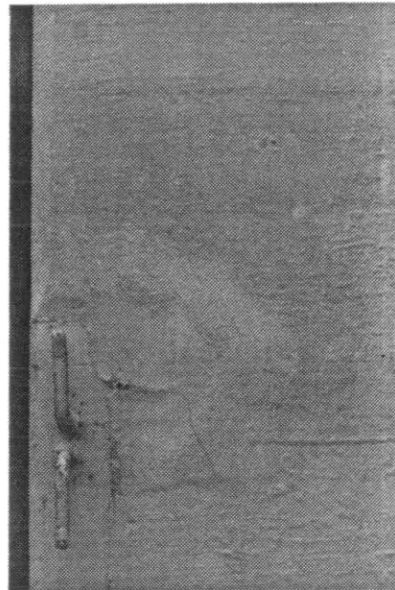
Ferrous staining is staining of the concrete surface due to the oxidation of ferrous metal adjacent to, or imbedded in the concrete.

*Failed Paint Coatings*

Failed paint coatings are characterized by flaking and loss of adhesion.

### *Cementitious Patches*

Patches which are of a plastic consistency when applied, and are composed of a cementitious material together with aggregate and a liquid are termed cementitious patches.



**CRACKS, INCIPIENT SPALLS AND SPALLS** are three conditions typically caused by corrosion jacking of reinforcing bars or imbedded steel anchors. Corrosion jacking is the increase in dimension that ferrous metals undergo during oxidation due to the presence of moisture. Iron oxide (rust) may expand up to eight times the thickness of the original metal. The increase in size exerts great pressure, leading to the rupture of the surrounding materials.

### *Cracks*

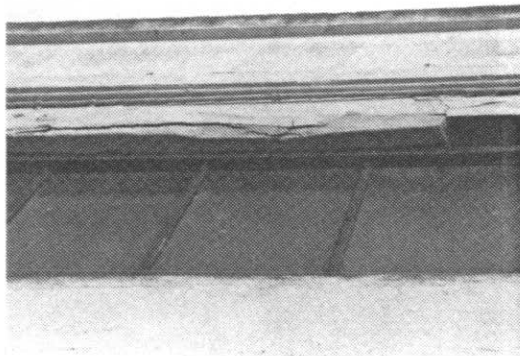
Cracks are fissures in the material of random width and length. A limited number of cracks were observed which varied in severity, and typically ran parallel with the building edges and window and doorway openings.



### *Incipient Spalls*

Incipient spalls are portions of loose concrete which have not detached from the building. The spall is visually defined by cracks at the edge of the affected area, as well as by bulging.

Incipient spalls were noted on all elevations of the pier buildings, and at random locations on other structures primarily at window and door openings.



### *Spalls*

Spalls are losses in the concrete surface. Frequently, exposed reinforcing bars are visible in the spall area. Although spalls were observed on all elevations of the buildings, the most severely affected area was on the west elevation of Building 319.



### *Impact Losses*

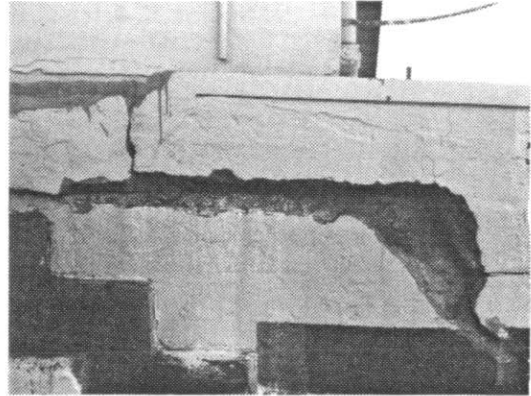
Losses due to objects striking building, primarily at corners.





*Displacement*

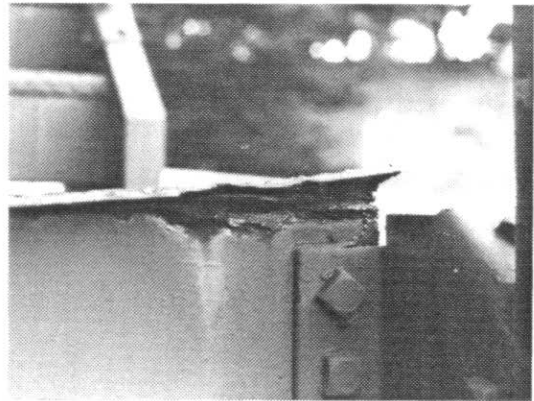
Large cracks with corresponding displacement of walls and sinking of decks were noted in the porch walls. This damage may have been caused or exacerbated by the October 1989 earthquake.



METALS

*Corrosion*

The deterioration of metal by chemical or electrochemical reaction resulting from exposure to moisture, chemicals or other agents.



*Failed Paint Coatings*

Failed paint coatings are characterized by flaking and loss of adhesion.



MISSING  
FEATURES

Absence of original features as judged by  
incompleteness of form or decoration.





APPENDIX B - CONCRETE ANALYSIS





# Micro-Chem Laboratories

1550 Dell Avenue, Suite E • Campbell, CA 95008 • (408) 374-3360 • Fax (408) 374-7269

July 2, 1990

Architectural Resources Group  
Pier 9 - The Embarcadero  
San Francisco, CA 94111

Job No. C-1885-90

Attn: Mr. David Wessel

RECEIVED

Re: Analyses of Concrete Cores  
Project: Lower Fort Mason

JUL 6 1990

ARCHITECTURAL  
RESOURCES GROUP

In response to your request, thirteen (13) concrete samples were received for petrographic examination, chloride analysis, and compressive strength testing. The samples were reportedly drilled from concrete structures located at the above referenced project. The objectives of the analyses were to evaluate the physical and mineralogical properties, determine the chloride contents at various levels, and determine the compressive strengths of selected samples.

## Sample Descriptions and Testing Program

The following 3 inch diameter cores were submitted for the following tests.

| <u>Core ID</u> | <u>Length, in.</u> | <u>Petro-graphic</u> | <u>Air Content</u> | <u>Compressive Strength</u> | <u>Chloride Analysis</u> |
|----------------|--------------------|----------------------|--------------------|-----------------------------|--------------------------|
| A              | 4 1/4              |                      | X                  |                             | T, M, B                  |
| B-1            | 5 1/4              | X                    |                    |                             |                          |
| B              | 5                  |                      |                    | X                           |                          |
| C              | 5 1/2              | X                    |                    |                             | T, M, B                  |
| D              | 5                  |                      |                    | X                           | T                        |
| E              | 5                  | X                    |                    |                             |                          |

| <u>Core ID</u> | <u>Length, in.</u> | <u>Petro-graphic</u> | <u>Air Content</u> | <u>Compressive Strength</u> | <u>Chloride Analysis</u> |
|----------------|--------------------|----------------------|--------------------|-----------------------------|--------------------------|
| F              | 5 1/4              |                      | X                  |                             | T, M, B                  |
| G              | 5 3/4              |                      |                    | X                           | T                        |
| H              | 5 3/4              |                      |                    | X                           | T                        |
| I              | 5 1/4              |                      |                    | X                           | T                        |
| J              | 5 5/8              | X                    |                    |                             | T, M, B                  |
| K              | 5 3/4              | X                    |                    |                             | T, M, B                  |
| L              | 5 3/4              |                      |                    | X                           | T                        |

T = Top

M = Middle

B = Bottom

### Test Methods

Selected concrete specimens were examined according to ASTM C-856, "Petrographic Examination of Hardened Concrete." The specimens were saw cut longitudinally, polished, and examined with a stereomicroscope to evaluate the physical properties of the concretes. Air contents were estimated based on comparison to reference concretes. Thin sections were prepared from the top 1 inch of the concretes and examined with a petrographic microscope to evaluate the mineralogy and degree of cement hydration.

The chloride contents were prepared and tested according to "Sampling and Testing for Chloride Ion in Concrete," Report No. FHWA-RD-77-85, Federal Highway Administration. In this method, total chloride of concrete is determined by the potentiometric titration of chloride with silver nitrate. Total chloride is expressed by weight of concrete.

Selected cores were submitted to and tested for compressive strength by Dynamic Consultants, Inc. A copy of their report is attached.

### Petrographic Examinations

1. The coarse aggregate in Cores E and K consisted of crushed diabase, sandstone, and chert. Maximum size aggregate was 3/4 inch. The fine aggregate in these cores consisted of quartz, feldspars, pyroxene, and chert. The sand appeared to have relatively high percentages of the finer (< 30 mesh) fractions. The coarse aggregate in Core K generally appeared to be well graded and uniformly distributed whereas Core E was poorly graded and segregated toward the bottom of the core. Moderate amounts of flat and elongated particles were observed in both cores.
2. The coarse aggregate in Cores B-1, C, and J consisted primarily of quartz, sandstone, serpentine, and chert. Maximum size aggregate was 3/4 inch. The fine aggregate consisted of quartz, feldspars, pyroxene, mica and coarse aggregate fragments. The aggregates in these cores generally appeared to be well graded, properly shaped, uniformly distributed, and hard. The cores appeared to have a high percentage of the No. 4-3/8 inch (pea gravel) fraction.
3. The physical properties of the cores were as follows.

| <u>Core ID</u> | <u>Paste Hardness</u> | <u>Paste Color</u> | <u>Paste Volume</u> | <u>Air Content, %</u> | <u>Consolidation</u> |
|----------------|-----------------------|--------------------|---------------------|-----------------------|----------------------|
| A              | -                     | -                  | -                   | 0.5-1.5               | Poor                 |
| B-1            | Hard to fairly soft   | Mottled            | Moderately high     | 1-2                   | Moderate             |
| C              | Fairly hard           | Light brown-gray   | Moderate            | 0.5-1.5               | Good                 |
| E              | Fairly soft           | Light brown-gray   | Moderately low      | 1.5-2.5               | Poor top 1/4 inch    |

3. (cont.)

| <u>Core ID</u> | <u>Paste Hardness</u> | <u>Paste Color</u> | <u>Paste Volume</u> | <u>Air Content, %</u> | <u>Consolidation</u> |
|----------------|-----------------------|--------------------|---------------------|-----------------------|----------------------|
| F              | -                     | -                  | -                   | 1.5-2.5               | Poor top 2 inches    |
| J              | Fairly soft to soft   | Light gray         | Moderate            | 2.5-3.5               | Poor                 |
| K              | Fairly hard to hard   | Light gray         | Moderate            | 2.5-3.5               | Poor                 |

4. Mortar and paint coatings were present on the exterior faces of Cores B-1, C, E, J, and K. The mortar coatings were 1/16 inch thick in Cores B-1, C, and K, 1/8 inch in Core E, and 1/4 inch in Core J. Generally, these mortar coatings were well bonded to the underlying concrete.

5. The mineralogical properties of the cement pastes were as below.

| <u>Core ID</u> | <u>Unhydrated Cement, %</u> | <u>Calcium Hydroxide, %</u> | <u>Depth of Carbonation, in.</u> | <u>Micro-cracks</u> |
|----------------|-----------------------------|-----------------------------|----------------------------------|---------------------|
| B-1            | < 1-5                       | 3-15                        | 1/2-1 1/2                        | Few                 |
| C              | < 1                         | 1-3                         | 1/4-3/4                          | Trace               |
| E              | 1-3                         | 3-15                        | 3/8                              | None                |
| J              | 1-3                         | Not Determined              | 2-2 1/4                          | None                |
| K              | < 1                         | 7-15                        | 1/4-1/2                          | None                |

6. No evidence of any deleterious reaction products or deposits were observed within the five core specimens.

Chloride Contents

The results of the chloride analysis were as follows.

| <u>Core<br/>ID</u> | <u>Location</u> | <u>Cl -, ppm<br/>by wt., concrete</u> |
|--------------------|-----------------|---------------------------------------|
| A                  | Top             | 105                                   |
| A                  | Middle          | 252                                   |
| A                  | Bottom          | 106                                   |
| C                  | Top             | 90                                    |
| C                  | Middle          | 91                                    |
| C                  | Bottom          | 50                                    |
| D                  | Top             | 162                                   |
| F                  | Top             | 318                                   |
| F                  | Middle          | 157                                   |
| F                  | Bottom          | 67                                    |
| G                  | Top             | 304                                   |
| H                  | Top             | 176                                   |
| I                  | Top             | 270                                   |
| J                  | Top             | 81                                    |
| J                  | Middle          | 144                                   |
| J                  | Bottom          | 56                                    |
| K                  | Top             | 109                                   |
| K                  | Middle          | 101                                   |
| K                  | Bottom          | 67                                    |
| L                  | Top             | 164                                   |



### Discussion and Conclusions

1. The results of the petrographic examinations indicated that two different aggregate sources were present among the samples. The concretes generally exhibited a wide range of paste properties (strength, color, and volume). Core K appeared to have the highest strength whereas Core J had the lowest on a relative basis. None of the cores were air-entrained. Consolidation ranged from good to poor. The cores with poor consolidation showed entrapped air-voids along the perimeters of the coarse aggregate particles. The portland cement in each of the cores was well hydrated. Some areas of the pastes appeared to be very low in calcium hydroxide content. No evidence of any significant cracking or deleterious reactions were observed in any of the cores.
2. The compressive strength test results indicated a wide range in strength. This correlated with the findings of the petrographic examinations.
3. The wide range in strength was probably due to differences in the mix proportions and overall quality of the concretes at the time of placement. The lower strengths were not due to general deterioration, deleterious reactions, or presence of cracks in the concretes.
4. The findings of the chloride determinations indicated that no excessive amounts of Cl- were present in any of the cores. Assuming a 15% cement factor, the amount of Cl- would range from 0.033% to 0.212%, by weight of cement. Cores A, C, and J contained less chloride in the top than in the middle of the core. This suggested that some leaching of the chloride occurred in these cores. The chloride values in the bottom areas of the cores were low strongly suggesting that calcium chloride was not added to the concrete mixes.

Architectural Resources Group  
July 2, 1990  
Job No. C-1885-90  
Page 7

Should any questions arise concerning the findings of this report, please contact the undersigned.

Respectfully Submitted,  
MICRO-CHEM LABORATORIES

*R C O'Neill*

Robert C. O'Neill  
Petrographer

RCO/nl

Enclosure



## DYNAMIC CONSULTANTS, INC.

415 Fairchild Drive  
Mountain View, CA 94043  
Tel: (415) 967-6080  
Fax: (415) 967-6955

5500 Dublin Blvd., Suite 200B  
Dublin, CA 94568  
Tel: (415) 933-9555  
Fax: (415) 933-0401

26 Hanger Way, Suite F  
Watsonville, CA 95076  
Tel: (408) 724-2334  
Fax: (408) 724-9166

June 13, 1990/tc

Micro-Chem Laboratories  
1550 Dell Avenue, Suite E  
Campbell, CA 95008  
Attention: Robert O'Neal

DCI No.: 2615-MO1  
Lab No.: 0-520047  
P.O. No.: M-604-90

PROJECT: Job No. C-1885-90

SUBJECT: LABORATORY TEST RESULTS

SAMPLE: Six (6) 3" diameter concrete cores submitted to our laboratory by your representative on May 31, 1990 and tested in accordance with ASTM C 42 including the forty (40) hour soaking period.

### SUMMARY OF TEST RESULTS

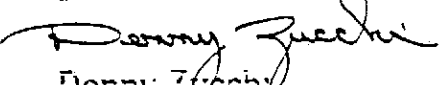
#### COMPRESSIVE STRENGTH - ASTM C 42

| <u>Sample Number</u> | <u>Height Inches</u> | <u>Diameter Inches</u> | <u>Area Sq. In.</u> | <u>Load in Pounds</u> | <u>Corrected Compressive Strength p.s.i.</u> |
|----------------------|----------------------|------------------------|---------------------|-----------------------|--|
| B                    | 4.60                 | 3.00                   | 7.07                | 20,000                | 2,720  |
| D                    | 3.90                 | 3.00                   | 7.07                | 25,800                | 3,420  |
| G                    | 3.70                 | 3.00                   | 7.07                | 10,600                | 1,390  |
| H                    | 4.05                 | 3.00                   | 7.07                | 21,500                | 2,870  |
| I                    | 4.10                 | 3.00                   | 7.07                | 16,500                | 2,210  |
| L                    | 4.75                 | 3.00                   | 7.07                | 29,400                | 4,020  |

Note: Since the ratio of length to diameter on the above samples was less than 2:1, a strength correction factor established by ASTM C42 has been applied.

Respectfully submitted,

DYNAMIC CONSULTANTS, INC.

  
Denny Zucchi  
Laboratory Supervisor  
tc

Core Sample DesignationLocation\*

|     |   |
|-----|---|
| A   | Building 319 west elevation, center portion, approx. 12' above pier deck                              |
| B   | Building 319 west elevation, center portion   |
| B.1 | Building 319 west elevation, center portion, adjacent to spalled concrete and exposed reinforcing bar |
| C   | Building 321 west elevation, south end  |
| D   | Building 321 west elevation, north end  |
| E   | Building 315 west elevation, north end  |
| F   | Building 314 east elevation, north end  |
| G   | Building 315 east elevation, south end  |
| H   | Building 314 west elevation, south end  |
| I   | Building 312 east elevation, north end  |
| J   | Building 310 west elevation, south end  |
| K   | Building 317 east elevation, south end adjacent to spalled concrete and exposed reinforcing bar       |
| L   | Building 317 north elevation, east end  |

\* Unless otherwise noted, core height is approximately 4'-5' above pier deck.







## APPENDIX C - ENGINEERING REPORTS



MEMORANDUM

Date: June 1, 1990

Subject: Fort Mason Center, Mechanical Review

RIA Job No.: 90024

From: Bryan Brauer

To: File

On 30 May at approximately 2:00 p.m., I met David P. Wessel and Gordon O. White of Architectural Resources Group at Fort Mason Center, San Francisco, CA. It was our purpose to tour the buildings at Fort Mason Center to obtain a general impression of the mechanical and fire protection systems. The tour was limited to a brief walk through the buildings. We were escorted by Mr. Wilson Ng from plant engineering.

With the exception of Pier 3, all buildings at Fort Mason Center are provided with some form of space conditioning. Building B, Building C, Building D and Pier 1 have fan powered and gravity steam heated space conditioners located throughout the habitable spaces. In most cases, the space heaters appear to be quite old, probably dating from before 1940. Some of the space heaters have circulating fans to blow air across the steam tubes to increase heat transfer and capacity. Many of the heaters do not have these fans probably because the fans became inoperative and were removed. The steam for the heaters is supplied by gas fired steam boilers located in each building. The boiler in Building B has a capacity of 1150 MBH. Boiler in Building D has a capacity of 1050 MBH. In both Buildings B and D provision for combustion air for the gas burners was marginal or inadequate. Boilers for Building C and Pier 1 were not examined.

Building E has a relatively new HVAC system, probably less than 20 years old. The system consists of a fan coil air handler and ducted circulation system for each of the three floors with a hot water package boiler of 650 MBH installed on the 3rd floor. The equipment appears to be in satisfactory operating condition.

Pier Building 2 has a new (within the last year) system of gas fired radiant heaters mounted on the underside of the building trusses. According to Mr. Ng these units have a total installed capacity of 1500 MBH. Building F is installed with electric perimeter baseboard radiant heating in each of the occupiable rooms. The gate house has a residential gas fired gravity heater which is estimated to be 20 - 30 years of age; condition undetermined. Pier Building 3 has no comfort conditioning.

Memorandum  
Fort Mason Center  
June 1, 1990  
Page Two

Most of Building A is heated by gas fired fan powered space heaters suspended from the building trusses or by ducted force air heating delivered from truss hung gas fired furnaces. The restaurant at the north end of Building A is conditioned by a forced air heating system ducted beneath the floor with supply grills located along the perimeter of the space. Heat is supplied by gas fired furnaces located at the northwest of the building. This system appears to be relatively new, probably less than 10 years old.

Automatic fire sprinkler systems are installed in Pier 1, Pier 2, Pier 3, Buildings B, C, D & E. The discharge density and area of application were not determined. Most areas of the buildings are covered. However, in some cases, occupants have constructed mezzanines or other space modifications which leave portions of the buildings unprotected. Building A, Building F and the Gate House are not fire sprinklered.

### ELECTRICAL DESCRIPTION:

The lower Ft. Mason complex of the concern of this report is served with Primary voltage from Ft. Mason proper. The entire system was rehabilitated by construction drawings dated 1984. Drawing identification is as follows:

Drawing No: 641/80045A

Package No: 503

Sheets: 1 of 11 thru 11 of 11

The drawings are believed to be NPS documents.

Information received on site is that the Primary System (with transformers) became the property of PG&E in 1987. Determination of PG&E responsibility past the transformer secondaries is beyond the scope of this assignment.

Transformers are all three phase. The total primary transformer capacity on site is tabulated in Table 1 as follows:

| PROJECT<br>DESIGNATION | PG&E<br>T # | KVA  | SECONDARY<br>VOLTS |
|------------------------|-------------|------|--------------------|
| T1                     | 2843        | 300  | 277/480            |
| T2                     | 2842        | 225  | 120/208            |
| T3                     | 2841        | 225  | 277/480            |
| T4                     | 2840        | 225  | 120/208            |
| T5                     | 2839        | 500  | 277/480            |
| TOTAL KVA              |             | 1475 |                    |

TABLE 1

### BUILDING SERVICES:

This addresses the electrical service capability based on the service conductors size from the transformers to the meters. The sizes and voltages are taken from the previous mentioned NPS documents and are shown in Table 2.





## APPENDIX D - CODE ANALYSIS



## **BUILDING CODE ANALYSIS**

### **Introduction**

The purpose of the following building code analysis is to assess the general levels of safety and building code compliance currently existing in the structures at Lower Fort Mason. It is not intended to address every building code defect for each specific structure, but rather to identify general areas of compliance or hazard in each of the different building types in Lower Fort Mason.

### **Applicable Codes**

As an agency of the United States Government, the National Park Service is exempt from the requirements of state and local governments. As a basis for this study, the structures have been analyzed based on the provisions of several generally applicable standards.

1. Uniform Building Code 1988 edition
2. California State Historic Building Code (a state code used throughout California to provide alternative safety standards to the UBC where historic buildings are involved).
3. Federal Accessibility Standards (April 1, 1988 edition).

### **General**

Existing buildings which were built under the requirements of earlier building codes are generally not required retroactively to be brought up to current code requirements unless:

1. additions or alterations are made to the buildings - in which case the affected areas of the building must comply.
2. the occupancy or use of the building is changed from that which it was originally designed to serve.

At Lower Fort Mason, with the exception of the minor outbuildings and Pier One, the other buildings have had a change of occupancy and technically should be required to meet code standard for their current use.

## STOREHOUSE BUILDINGS - Buildings 310, 312, 314, 315, (Buildings B,C,D,E)

### Description:

Construction type: The buildings are constructed as (reinforced concrete) Type I non-combustible structures. In recent years many non-fire rated, non-load bearing partitions have been added.

Height: 3 Story

Floor Area: Gross Area each floor  $60 \times 200 = 12,000\text{sf}$   
Total gross Area =  $3 \times 12,000 = 36,000\text{sf}$

#### Fire Protection Systems:

The buildings all have automatic sprinkler systems, although remodeling in some areas may have created areas which are unprotected.

#### Current Use and Occupant Loads:

The majority of the spaces in the storehouse buildings are office use (B-2). The exceptions to this include the Magic Theater (A-3), the Maritime Museum Library (A-3) and the Mexican Museum (A-3).

Occupant loads for the upper floors with B-2 use are 120/floor. Occupant load for upper floor of building 314 (D) exceeds this because of the Magic Theater - its occupant load is approximately 250. Occupant load for the upper floor of 315 (E), exceeds this due to the Maritime Museum Library. Based on 50sf/person in the library portion, and 100 sf/person in the office and stack areas, the occupant load of this floor is approximately 200.

### Analysis:

Construction Type: Type I fire proof construction for the basic structure complies with the code for the use of these buildings. However, construction of all corridor walls should be one-hour fire resistive construction with fire-rated doors. Many corridors recently constructed in the buildings do not comply. The existing freight elevator shafts are not fire rated as required by code.

Height: Three stories of B-2 or A-3 occupancy in a Type I building complies with the code. The mezzanine added above the 3rd floor of Building 315 (Maritime Museum Library), has been added without sprinkler protection below.

Building Area: The buildings are in compliance with the code for maximum building area.

Exiting: In addition to the non-fire-rated construction of many corridor walls, the storehouse buildings present a number of other very serious code violations in terms of exiting. Building 315 is the most serious in this area. While the other buildings have had exterior egress stairways added, Building 315 has only one centrally located exit stair, creating dead end corridors on both second and third floors and only one means of egress from the second and third floors.

Although the other storehouse buildings have adequate means of egress from the upper floors, all the buildings suffer from inadequate exit signage, frequently a complex floor plan, and in some cases the exterior stairway is not connected to the corridor, but leads off of a tenant space. Some large tenant areas, such as the Mexican Museum space have only one exit. Two are required.

Due to the number of occupants in each building, exit doors into stairways and out of the building must swing in the direction of travel and must have panic hardware. These violations exist in some locations throughout the buildings.

Less significant violations of code exist in the original stairwells (guardrail height and openness do not comply) and on the raised floor podiums which surround the buildings (no guardrails).

Toilet Facilities: Based on the occupant loads, storehouse building #315 (Building E) is deficient in the number of toilets required by the Uniform Plumbing Code. The other buildings are in the range of compliance.

Handicapped Accessibility:

The ground floor of each of the storehouse building is served by an access ramp. The upper floors are served by the existing freight elevators, (These do not meet current elevator or handicapped standards). Toilet facilities are generally not accessible (except Building 315, E). Door widths vary throughout the storehouse buildings with many doors not complying with required handicapped access widths.



## PIER BUILDINGS - Buildings, 317, 319, 321 (Piers 1, 2 and 3)

### Description:

Construction Type: Type IV, reinforced concrete exterior walls, steel truss roof structure, heavy timber roof systems.

Height: 1 Story. (Pier One has second story open to main space below). (Pier Two and Three have limited second story spaces at their entries.

Floor Area: Pier One - 48,000 sf  
Pier Two - 52,528 sf  
Pier Three - 64,512 sf

Fire Protection Systems:  
The buildings all have automatic sprinkler systems.

### Current Use and Occupant Loads:

Pier One: Warehouse/Shop Space

500 sf/occupant  
occupant load = 96

Pier Two: Exhibit/Theater

SpacExhibit: 15 sf/occupant = 2517  
Theater: 7 sf/occupant = 2108  
occupant load = 4625

Pier Three: Exhibit Space

515 sf/occupant  
occupant load = 4300

### Analysis:

Pier One: Due to the fact that this building has not changed its occupancy since its original construction, it can be considered to be in code compliance (although not actually conforming to all current code provisions.)

Piers Two and Three:

These piers currently used for assembly occupancies have been recently developed, and with apparent concern to current code provisions. They appear to generally be in compliance with current code standards. Since the buildings are essentially long dead end corridors, consideration has been given to creating means of egress along the side of each pier building. Guardrails have been added along the pier edges. (These guardrails actually do not meet current UBC requirements for openness.) The buildings also have had recently installed toilet facilities and are handicapped accessible.

## MARINE REPAIR SHOP - Building 308 (Building A)

### Description:

Construction Type: Type I (reinforced concrete)

Height: 1 story

Floor Area: Gross area = 18,340 sf

#### Fire Protection Systems:

The building has an automatic fire-sprinkler system.

#### Current use and Occupant load:

The building is currently mixed use including:

Meeting/Conference Rooms: A-3

7 sf/occupant = 832

Offices: B-2

100 sf/occupant = 14

Exhibit Spaces: B-1

15 sf/occupant = 427

Restaurant: A-3

15 sf/occupant = 316

Total 1,589

### Analysis:

This building does not appear to present any major life-safety code problems. However, both the office space and the exhibit area have only one exit while both spaces' occupant loads should require a second exit. The restaurant space has two exits and provides adequate egress. Handicapped access to the restaurant is provided by means of an interior ramp, which does not have handrails and is of a marginal width.

## **BATTERY CHARGING STATION - Building 322 (Building F)**

### **Description:**

Construction type: Type IV Heavy Timber

Height: One Story

Floor Area: 2,460 sf

Fire Protection systems:

The building has an automatic fire sprinkler system.

Current use and Occupant Load:

The building is currently used for meetings and conferences

Meeting/Conference Rooms A-3 :

$7\text{sf/occupancy} = 351$

### **Analysis:**

The Battery Charging Station is seriously deficient in exiting requirements. These deficiencies include number and arrangement of exits. Although there are two exits, one door does not meet minimum code dimensions, while neither has panic hardware. There are also no exit signs in the building. Toilet facilities are also deficient for the occupant load and are not accessible to the handicapped.

## APPENDIX E - COST ANALYSIS





## LOWER FORT MASON

## BUILDING 248

## 2. TILE ROOFS

## Stabilization and Maintenance

2a. Replace cracked tiles

\$ 120.<sup>00</sup> per location plus \$ 18.<sup>00</sup>/SF

2b. Replace broken tiles. Repair damaged roofing felt and nailers

\$ 190 per location plus \$ 28.<sup>00</sup>/SF

2c. Reset displaced roofing tiles

\$ 100. per location plus \$ 18.<sup>00</sup>/SF

2d. Allowance for replacement of cracked or broken tiles due to items 2.a.b.c.

\$ 200. Allowance

2e. Repair or replace broken gutters with copper of same configuration and soldered joints.

\$ 120. for each location plus \$ 14.<sup>00</sup>/Lin Ft.

2f. Repair or replace broken leaders with copper of same configuration and soldered joints. Prime &amp; paint to match existing

\$ 100. for each location plus \$ 18.<sup>00</sup>/Lin Ft.

2g. Obtain mortar samples

\$ 250. Lump Sum

2h. Chemical Analysis of mortar samples

\$ 300. L.S.

2i. Check all roof drains and clear obstructed roof drains.

\$ 100. L.S.

## LOWER FORT MASON

SHEET 248.02

## BUILDING 248

## 5. EXTERIOR STUCCO WALLS

## Stabilization

## 5.1 Hairline cracks

Clean out cracks incl. access

Patch with knife grade compound

Coat patches with emulsion coating

\$ 50.00

per location plus \$7.50/Lin Ft

## LOWER FORT MASON

SHEET 248.03

## BUILDING 248

## 6. WINDOWS

## Stabilization and Maintenance - Double Hung

6.a Make windows operable, adjust weather-  
stripping, sash cord & weights\$ 140.<sup>00</sup> per window

6.b Remove plywood panels

\$ 60.<sup>00</sup> per window

6.d Fill all holes and defects in wood

\$ 80.<sup>00</sup> per sash

6.e NA

6.f Repair deteriorated areas of wood  
with dachman, glued in place\$ 180.<sup>00</sup> per sash

6.g NA

6.h Replace broken glass

\$ 120.<sup>00</sup> per light

6.i NA

6.k Remove loose paint &amp; repaint inside &amp; outside

\$ 90 per window

6.l NA

## LOWER FORT MASON

SHEET 248.04

## BUILDING 248

## 9. WOOD ENTRANCE DOORS

## Stabilization &amp; Maintenance

|   |           |                     |           |
|---|-----------|---------------------|-----------|
| 9.a Replace missing hardware                      | \$ 120.00 | Allow               |           |
| 9.b Fill all holes and detach in wood             | \$ 130.00 | per opening         |           |
| 9.c Repair large deteriorated with detach in wood | \$ 140.00 | per opening plus \$ | 1/4" inch |
| 9.d Replace broken glass                          | \$ 120.00 | per light           |           |
| 9.e Replace deteriorated glazing compound         | \$ 90.00  | per light           |           |
| 9.f Remove loose paint & repaint w/ 3 coats       | \$ 120.00 | per opening         |           |

## LOWER FORT MASON

## BUILDING 302

## 2. TILE ROOFS

## Stabilization and Maintenance

- |  |           |   |
|--|-----------|---|
| 2a. Replace cracked tiles  | \$ 120.00 | per location plus \$ 18.00/SF             |
| 2b. Replace broken tiles. Repair damaged roofing felt and nailers  | \$ 190    | per location plus \$ 28.00/SF             |
| 2c. Reset displaced roofing tiles  | \$ 100.   | per location plus \$ 18.00/SF             |
| 2d. Allowance for replacement of cracked or broken tiles due to items 2.a.b.c.   | \$ 200.   | Allowance                                 |
| 2e. Repair or replace broken gutters with copper of same configuration and soldered joints.                                  | \$ 120.   | for each location plus \$ 14.00 /lin. Ft. |
| 2f. Repair or replace broken leaders with copper of same configuration and soldered joints. Prime & paint to match existing. | \$ 100.   | for each location plus \$ 18.00 /lin. Ft. |
| 2g. Obtain mortar samples  | \$ 250.   | Lump Sum                                  |
| 2h. Chemical Analysis of mortar samples  | \$ 900.   | L.S.                                      |
| 2i. Check all roof drains and clear obstructed roof drains.  | \$ 100.   | L.S.                                      |

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## LOWER FORT MASON

SHEET 302.2

## BUILDING 302

## 5. EXTERIOR STUCCO WALLS

## Stabilization

## 5.1 Hairline cracks

Clean out cracks incl. access

Patch with knife grade compound

Coat patches with emulsion coating

\$ 50.00

per location plus \$ 7.50 / Lin Ft



## LOWER FORT MASON

## BUILDING 302.

## 6. WINDOWS

## Stabilization and Maintenance - Double Hung

6.a Make windows operable, adjust weather-stripping, sash cord &amp; weights

\$ 140.00

per window

6.b Remove plywood panels

\$ 60.00

per window

6.c Fill all holes and defects in wood

\$ 80.00

per sash

6.e NA

6.f Repair deteriorated areas of wood with dutchman, glued in place

\$ 180.00

per sash

6.g NA

6.h Replace broken glass

\$ 120.00

per light

6.i NA

6.k Remove loose paint &amp; repaint inside &amp; outside

\$ 90.00

per window

6.l NA

## LOWER FORT MASON

## BUILDING 302

## 9. WOOD ENTRANCE DOORS

## Stabilization &amp; Maintenance

9.a Replace missing hardware

\$ 120.00

Allow

9.b Fill all holes and detail in wood

\$ 130.00

per opening

9.c Repair large deteriorated with detchman

\$ 140.00

per opening plus \$ /sq. in

9.d Replace broken glass

\$ 120.00

per light

9.e Replace deteriorated glazing compound

\$ 90.00

per light

9.f Remove loose paint &amp; repaint w/ 3 coats

\$ 120.00

per opening

## LOWER FORT MASON

## BUILDING 303

## 2. TILE ROOF

## Stabilization and Maintenance

2a. Replace cracked tiles

\$ 120.<sup>00</sup> per location plus \$ 18.<sup>00</sup>/SF

2b. Replace broken tiles. Repair damaged roofing felt and nailers

\$ 190 per location plus \$ 28./SF

2c. Reset displaced roofing tiles

\$ 100. per location plus \$ 18.<sup>00</sup>/SF

2d. Allowance for replacement of cracked or broken tiles due to items 2.a.b.c

\$ 200. Allowance

2e. Repair or replace broken gutters with copper of same configuration and soldered joints.

\$ 120. for each location plus \$ 14.<sup>00</sup>/Lin. Ft.

2f. Repair or replace broken leaders with copper of same configuration and soldered joints. Prime &amp; paint to match existing

\$ 100. for each location plus \$ 18.<sup>00</sup>/Lin. Ft.

2g. Obtain mortar samples

\$ 250. Lump Sum

2h. Chemical Analysis of mortar samples

\$ 900. L.S.

2i. Check all roof drains and clear obstructed roof drains.

\$ 100. L.S.

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LOWER FORT MASON

SHEET 303.02

BUILDING 303

5. EXTERIOR STUCCO WALLS

Stabilization

5.1 Hairline cracks

Clean out cracks incl. access

Patch with knife grade compound

Coat patches with emulsion coating

50.00

per location plus \$7.50/Lin Ft

## LOWER FORT MASON

SHEET 303.03

## BUILDING 303

## 6. WINDOWS

## Stabilization and Maintenance - Double Hung

6.a Make windows operable, adjust weather-stripping, sash cords &amp; weights

\$ 140.<sup>00</sup> per window

6.b Remove plywood panels

\$ 60.<sup>00</sup> per window

6.c Fill all holes and defects in wood

\$ 80.<sup>00</sup> per sash

6.e NA

6.f Repair deteriorated areas of wood with dutchman, glued in place

\$ 180.<sup>00</sup> per sash

6.g NA

6.h Replace broken glass

\$ 120.<sup>00</sup> per light

6.i NA

6.k Remove loose paint &amp; repaint inside &amp; outside

\$ 90.<sup>00</sup> per window

6.l NA

## LOWER FORT MASON

## BUILDING 303

## 9. WOOD ENTRANCE DOORS

## Stabilization &amp; Maintenance

|   |           |                     |          |
|---|-----------|---------------------|----------|
| 9.a Replace missing hardware                | \$ 120.00 | Allow               |          |
| 9.b Fill all holes and details in wood      | \$ 130.00 | per opening         |          |
| 9.c Repair large deteriorated with dutchman | \$ 140.00 | per opening plus \$ | /sq. in. |
| 9.d Replace broken glass                    | \$ 120.00 | per light           |          |
| 9.e Replace deteriorated glazing compound   | \$ 90.00  | per light           |          |
| 9.f Remove loose paint & repaint w/ 3 coats | \$ 120.00 | per opening         |          |

## LOWER FORT MASON

SHEET 308.1

## BUILDING 308

## 2. TILE ROOF

## Stabilization and Maintenance

2a. Replace cracked tiles

\$150. per location plus \$18.00/SF

2b. Replace broken tiles. Repair damaged roofing felt and nailers

\$230. per location plus \$28.00/SF

2c. Resat displaced roofing tiles

\$130. per location plus \$10.00/SF

2d. Allowance for replacement of cracked or broken tiles due to items 2.a.b.c.

\$1000. Allowance

2e. Repair or replace broken gutters with copper of same configuration and soldered joints.

\$190. for each location plus \$14.00/Lin.  
\$500. " " " " 19.00/Ft.

2f. Repair or replace broken leaders with copper of same configuration and soldered joints. Prime &amp; paint to match existing on sea side.

\$150. for each location plus \$10.00/Lin.  
\$500. " " " " 24.00/Ft.

2g. Obtain mortar samples

\$300 Lump Sum

2h. Chemical Analysis of mortar samples

\$400. LS

2i. Check all roof drains and clear obstructed roof drains.

\$500 LS



## LOWER FORT MASON

## BUILDING 300

## 5. EXTERIOR STUCCO WALLS

## Stabilization

## Start hairline cracks

Clean out cracks incl. access

Patch with knife grade compound

Coat patches with emulsion coating

\$ 80.00

per location plus \$9.00/Lin Ft

On 3 sides

\$ 250.

per location plus \$15.00/LF

## LOWER FORT MASON

SHEET 308, 03

## BUILDING 308

## G. WINDOWS

## Stabilization and Maintenance - Factory Sash

## Second Floor

G.A Make windows operable

\$ 120.<sup>00</sup>

per window

G.B Replace missing hardware

\$ 80.<sup>00</sup>

per window

G.C Remove loose paint &amp; repaint inside &amp; outside

\$ 210.<sup>00</sup>

per window

G.D Premium for work on west side of bldg

\$ 460.

per window add to G.C

## First Floor

G.E Make windows operable

\$ 120.<sup>00</sup>

per window

G.F Replace missing hardware

\$ 80.<sup>00</sup>

per window

G.G Remove loose paint &amp; repaint in &amp; out side

\$ 180.<sup>00</sup>

per window

G.H Premium for work on west side of bldg

\$ 240.<sup>00</sup>

per window add to G.G

## Miscellaneous

G.I Repair small corrosion per Item 1.b

\$ 100.<sup>00</sup>

Each Location

G.J Premium for work on west side of bldg

\$ 160.<sup>00</sup>

Each Location add to G.I

G.K Repair large corrosion per Item 1.c

\$ 180.<sup>00</sup>

Each plus \$ 13.50 per sq. in.

G.L Premium for work on west side of bldg

\$ 290.

Each location add to G.K

G.M Replace broken glass

\$ 135.<sup>00</sup>

Each Light

G.N Premium for work on west side of bldg

\$ 190.<sup>00</sup>

Each Light add to G.M

G.P Replace deteriorated glazing compound

\$ 105.<sup>00</sup>

Each Light

G.R Premium for work on west side of bldg

\$ 150.<sup>00</sup>

Each light add to G.P

G.S Aluminum frame etch and paint

\$ 180.<sup>00</sup>

Each window

G.T Premium for work on west side

\$ 240.<sup>00</sup>

Each window add to G.S

## LOWER FORT MASON

## BUILDING 308

## B. ROLL UP DOORS

## Stabilization and Maintenance

|  |           |                                 |
|--|-----------|---------------------------------|
| 8.0 Blast corroded surfaces  | \$ 120.00 | each opening plus \$2.80/sq ft  |
| 8.1 Repair small corrosion per Item 1.b                                    | \$ 100.00 | Each location                   |
| 8.2 Repair large corrosion per Item 1.c                                    | \$ 180.00 | Each " plus \$13.50/sq in       |
| 8.3 Structural steel corrosion per Item 7.m                                | \$ 280.00 | Each " plus \$12.00/sq in       |
|  |           | or fraction thereof             |
| 8.4 Prime blasted area w/ 2 coat epoxy                                     | \$ 90.00  | per opening plus \$4.20/sq inch |
| 8.5 Prepare balance of surfaces and apply 2 coat polyurethane finish coats | \$ 240.00 | per opening                     |

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LOWER FORT MASON

SHEET 308.05

BUILDINGS 308

10. METAL ENTRANCE DOORS

Stabilization and Maintenance

10.i Blast Corroded Surface

\$ 120.<sup>00</sup>

Each op'g plus \$ 2.80 /sq ft

10.b Repair - small corrosion per Item 1.b

\$ 100.<sup>00</sup>

Each location

10.c Repair - large corrosion per Item 1.c

\$ 180.<sup>00</sup>

Each location plus \$ 3.50 /sq. in

10.d Replace broken glass

\$ 135.<sup>00</sup>

per light

10.e Scrape paint off w/ glass

\$ 80.<sup>00</sup>

per light

10.f Replace deteriorated glazing compound

\$ 105.<sup>00</sup>

per light

10.g Remove hardware

\$ 120.<sup>00</sup>

per door

10.h Prime blasted areas w/ 2 coat epoxy

\$ 70.<sup>00</sup>

Each op'g plus \$ 4.20 /sf

10.j Remove loose paint & paint inside & outside

\$ 160.<sup>00</sup>

per opening

10.k Fill all holes and defects in wood

\$ 100.<sup>00</sup>

per opening

10.l Paint red exist. doors w/ metallic finisher

\$

per opening

## LOWER FORT MASON

SHEET 310.01

## BUILDING 310

## I. BUILDING INTERIORS

## Stabilization and Maintenance

## Interior Doors

1a. Scrape off loose paint and  
prime paint affected area

\$65.00

Each plus \$2.90 per sq  
or fraction  
thereof1b. Repair small areas of corrosion  
by cutting back affected  
materials to sound material  
and patch with epoxy compound.  
Prime paint affected areas.

\$95.00

Each plus \$3.50 per sq  
or fraction  
thereof1c. Repair areas larger than one  
inch square with new G.I.M.  
soldered in place

\$120.00

Each plus \$18.00 per inch  
or fraction  
thereof1d. Replace broken glass with wire  
glass. Prime paint the  
glazing compound

\$135.00

Each

1e. Replace deteriorated glazing compound  
Prime paint the glazing compound

\$105.00

Each

1f. Obtain samples of (E) Paint Materials

\$300.00

Lump Sum

1g. Chemical Analysis of (E) Paints

\$1000.

L.S.

Note: Unit prices should be subject to review after quantities have  
been established. Small quantities for a trade could  
raise the costs of labor due to lack of repetition.

Note: Costs do not include special handling of surfaces coated w/ leaded paints.

## LOWER FORT MASON

SHEET 310.02

## BUILDING 310

## 2. TILE ROOFS

## Stabilization and Maintenance

2a. Replace cracked tiles

\$ 190.

per location plus \$ 18.<sup>00</sup>/SF2b. Replace broken tiles. Repair  
damaged roofing felt and nailers

\$ 280

per location plus \$ 28.<sup>00</sup>/SF

2c. Reset displaced roofing tiles

\$ 180.

per location plus \$ 12.<sup>00</sup>/SF2d. Allowance for replacement of cracked  
or broken tiles due to items 2.a.b.c. \$ 1000.

Allowance

2e. Repair or replace broken gutters  
with copper of same configuration  
and soldered joints.

\$ 250

for each location plus \$ 14.<sup>00</sup>/Lin  
Ft.2f. Repair or replace broken leaders  
with copper of same config-  
uration and soldered joints. Prime  
a paint to match existing

\$ 210.

for each location plus \$ 18.<sup>00</sup>/Lin  
Ft.

2g. Obtain mortar samples

\$ 300.

Lump Sum

2h. Chemical Analysis of mortar samples

\$ 400.

" "

2i. Check all roof drains and clear  
obstructed roof drains.

\$ 500.

" "

## LOWER FORT MASON

SHEET 310.03

## BUILDING 310

## 3. BITUMINOUS ROOFS - Bridges

## Stabilization and Maintenance

3a. Check all roof drains and clear  
obstructed roof drains\$ 30.<sup>00</sup> Each

3b. Install new drain screens

\$ 35 Each

3c. Remove and replace deteriorated flashing

\$ 22.<sup>00</sup> per Lin Ft.



## LOWER FORT MASON

## BUILDING 310

## 1. EXTERIOR CONCRETE WALLS AND ELEMENTS

## Emergency Stabilization

4.g. Remove spalling concrete  
from rafter ends

\$600. ea. plus \$9.50 /SF

## Stabilization

4.b Deleted

4.c Deleted

## 4.d Cracks

Sawcut each side of crack & chip  
out conc. for shoulder or keySandblast exposed reinforcing steel  
(See 4.f. If there is corrosion  
on the steel) Paint R/F  
steel w/ 2 coats of epoxyPatch crack to match adjacent  
surfaces and paint to match.

\$500. for each location plus \$22.00/Lin ft

## 4.e Incipient Spalls &amp; Spalls

Chip down to sound concrete  
Sawcut all around spall and  
out conc. for shoulder or key.Sandblast R/F steel per item 4.d  
Patch spall to match adjacent  
surfaces and paint to match\$600. for each location plus \$23.00/sq ft  
or fraction thereof

## LOWER FORT MASON

## BUILDING 310

## A. EXTERIOR CONCRETE WALLS AND ELEMENTS

## Stabilization (Continuing)

## 4.f. Corroded Reinforcing Steel

Sawcut each side of bar and chip out to provide a minimum of  $\frac{3}{4}$ " clearance under bar.

Blast bar to bright metal. Wire brush under side of bar (See Item 4g if bar has lost more than 25% of its area)

Paint R/F steel all around with 2 coats of epoxy mastic. Firmly fill cavity with the patching compound

\$ 600.

per location

## 4.g Reinforcing Steel with 25% or more of its cross sectional area corroded away.

Lengthen sawcut each side of bar and chip out concrete and chip out to allow for a R/F steel splice bar

Weld on splice bar, clean off to bright metal and apply 2 coats of epoxy mastic.

Firmly fill cavity with the patching compound

\$ 500.

per location, this is additive to 4f

## LOWER FORT MASON

SHEET 310.06

## BUILDING 310

4. EXTERIOR CONCRETE WALLS AND ELEMENTS  
Stabilization (continuing)

## 4.h Corroding attachments to walls

Remove non-functioning attachments  
and patch per item 4.c

\$ 150.

per element

4.i. Remove all corrosion on existing  
functional attachments  
and apply two coats of an  
epoxy mastic.

\$ 250.

per element

4.j. Replace functional corroding  
attachments with non-  
corrosive attachments

\$ 100.

per element

## 4.k. Window Sills

Flash with lead coated copper  
new raglets with sealant joint

\$ 300.

per location plus \$ 22.<sup>00</sup>/L.Ft

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SHEET 310.07

## LOWER FORT MASON

## BUILDING 310

4. EXTERIOR CONCRETE WALLS AND ELEMENTS  
Stabilization (Continuing)

## 4.1 Rafter Tails

Chip down to sound concrete  
Saw cut all around defect and  
cut out concrete for shoulder repair

Sandblast R/F steel per item 4d  
Install drilled concrete  
anchors for support of R/F  
steel and formwork  
Alignments for new R/F steel  
Install for and drypack setting  
Patch side faces and paint

\$ 1100.00

per location

## Corbel

4m Sides and tops patch per item 4e \$ 400  
4m Bottom patch per item 4i \$ 200  
4o Flash per item 4k \$ 250

per location

per location

per location

## LOWER FORT MASON

SHEET 310.08

## BUILDING 310

## 6 WINDOWS

## Stabilization and Maintenance

## Second &amp; Third Floors - Pivoted

6.a Make windows operable and  
correct misalign ment of  
weather stripping\$ 160.<sup>00</sup>

per window

6.b Replace missing hardware

\$ 110.<sup>00</sup>

per window

6.c Salvage existing glass and install  
new clear wire glass\$ 155.<sup>00</sup>

per light

6.d Remove loose paint &amp; repaint, ind outside

\$ 220.<sup>00</sup>

per window

## First Floor - Double Hung

6.e Make windows operable, adjust  
weather stripping, sash cords & weight\$ 140.<sup>00</sup>

per window

6.f Replace missing hardware

\$ 60.<sup>00</sup>

per window

6.g Add new interior storm sash

\$ 370.<sup>00</sup>

per window

6.h Remove loose paint &amp; repaint inside &amp; outside

\$ 240.<sup>00</sup>

per window

## Miscellaneous

6.i Repair small corrosion per Item 1.b

\$ 145.<sup>00</sup>

Each

6.k Repair large corrosion per Item 1.c

\$ 240.<sup>00</sup>

Each plus \$

per sq. inch

6.l Replace broken glass

\$ 170.<sup>00</sup>

Each light

6.m Replace deteriorated glazing compound

\$ 140.<sup>00</sup>

Each light

## LOWER FORT MASON

SHEET 310.09

## BUILDINGS 310

## 7. Warehouse Doors

## Stabilization and Maintenance

7.a Blast corroded surfaces

\$ 100.00

Each Op'g Plus \$ 2.00/sf

7.b Repair small corrosion per Item 1.b

\$ 100.00

Each Location

7.c Repair large corrosion per Item 1.c

\$ 180.00

Each plus \$ 3.50 /sq. in

7.d Replace broken glass

\$ 150.00

per light

7.e Scrape paint off of glass

\$ 70.00

per light

7.f Replace deteriorated glazing compound

\$ 130.00

per light

7.g Repair/Maintain Counterweight

\$ 90.00

per opening

7.h Prime blasted areas w/ 2 coat epoxy

\$ 60.00

per opening plus \$ 2.90/sq. in

7.i Remove loose paint &amp; repaint inside &amp; outside

\$ 280.00

per opening

7.k Fill all holes and defects in wood

\$ 80.00

per opening

7.l Repair areas of wood with dutchman

\$ 170.00

Each Op'g plus \$ 9.50 /sq. in  
or fraction thereof7.m Structural steel members with a loss of  
more than 25% of its thickness,  
weld in new material to meet  
or exceed original size

\$ 280.00

Each plus \$ 12.00/sq. in  
or fraction thereof

7.n Remove infill doors &amp; windows

\$ N/C

per opening

7.o " " " &amp; masonry

\$ N/C

per opening

7.p Install &amp; Paint New Door To Match Existing

\$ N/C

per opening

## LOWER FORT MASON

SHEET 310.10

## BUILDING 310

## II. AWNINGS

## Stabilization

|      |  |                                     |   |
|------|--|-------------------------------------|---|
| IIa  | Blast corroded surfaces  | \$120. <sup>00</sup>                | per bay plus \$3.50/SF                                      |
| IIb  | Repair small corrosion per Item IIb                            | 140. <sup>00</sup>                  | each location   |
| IIc  | Repair large corrosion per Item I.c                            | 200. <sup>00</sup>                  | " " plus \$4.00/SF  |
| IId  | Repair structural " " " 7 in                                   | 280. <sup>00</sup>                  | Each " " \$12. <sup>00</sup> /sq.in.<br>or fraction thereof |
| IIe  | Repair or replace deformed struts                              | \$390. <sup>00</sup>                | Ea.   |
| II.f | Replace bent, deformed or heavily corroded corrugated steel    | \$110.                              | Each location plus \$6.20/SF                                |
| II.g | Replace plastic panels w/ new corrugated metal panels to match | \$50.                               | Each location plus \$3.50                                   |
| II.h | Paint top of awning incl. prep                                 | \$3.20 per sq. ft. plan             | square footage  |
| IIj  | " bottom of awning incl. prep                                  | \$4. <sup>00</sup> per sq. ft. plan | square footage  |



## LOWER FORT MASON

SHEET 310.11

## BUILDING 310

## 12 EXTERIOR STAIRWAYS

## Emergency Stabilization

|     |                               |                       |              |
|-----|-------------------------------|-----------------------|--------------|
| 12a | Install L columns to stringer | \$ 480. <sup>00</sup> | Each column  |
| 12b | " " stiffeners @ treads       | \$ 110.               | Each Tread   |
| 12c | " " " @ landings              | \$ 340.               | Each Landing |

## Stabilization &amp; Maintenance

|     |   |                                 |  |
|-----|---|---------------------------------|--|
| 12d | Remove & Replace stair risers   | \$ 150.                         | Each   |
| 12e | " " " stair treads  | \$ 260.                         | Each   |
| 12f | " " " stair landing   | \$ 980.                         | Each   |
| 12g | Blast Corroded Surfaces   | \$ 150. <sup>00</sup>           | each stair plus \$ 3.40/SF CA.                     |
| 12h | Repair small corrosion per Item I.c                                   | \$ 150.                         | each location                                      |
| 12j | " large " " " " 1.e   | \$ 240.                         | each " plus \$ 12.00/SQ IN,<br>or fraction thereof |
| 12k | Remove Run of stairs and replace<br>w/ new steel and packing stringer | \$ 340.                         | per riser  |
| 12l | Reinforce stair stringer  | \$ 80. <sup>00</sup>            | per linear foot of stringer                        |
| 12m | Blast stain and give 2 coat epoxy paint<br>plus landings              | \$ 21. <sup>00</sup><br>\$ 200. | per riser<br>per landing                           |

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## LOWER FORT MASON

SHEET 12.01

## BUILDING 312

## I. BUILDING INTERIORS

## Stabilization and Maintenance

## Interior Doors

1a. Scrape off loose paint and  
prime paint affected area

\$65.00

Each plus \$2.90 per ft  
or fraction  
thereof1b. Repair small areas of corrosion  
by cutting back affected  
materials to sound material  
and patch with epoxy compound.  
Prime paint affected areas.

\$95.00

Each plus \$3.50 per ft  
or fraction  
thereof1c. Repair areas larger than one  
inch square with new G.S.M.  
soldered in place

\$120.00

Each plus \$18.00 per ft  
or fraction  
thereof1d. Replace broken glass with wire  
glass. Prime paint the  
glazing compound

\$135.00

Each

1e. Replace deteriorated glazing compound  
Prime paint the glazing compound

\$105.00

Each

1f. Obtain samples of (E) Paint Materials

\$300.00

Lump Sum

1g. Chemical Analysis of (E) Paints

\$1000.

L.S.

Note: Unit prices should be subject to review after quantities have  
been established. Small quantities for a trade could  
raise the costs of labor due to lack of repetition.  
existing

Note: Costs do not include special handling of surfaces coated w/ lead based paints.

LOWER FORT MASON

BUILDING 312

2. TILE ROOF

Stabilization and Maintenance

|   |          |                        |                                |
|---|----------|------------------------|--------------------------------|
| 2a. Replace cracked tiles   | \$ 190.  | per location plus      | \$ 18. <sup>00</sup> /SF       |
| 2b. Replace broken tiles. Repair damaged roofing felt and nailers   | \$ 200   | per location plus      | \$ 28. <sup>00</sup> /SF       |
| 2c. Reset displaced roofing tiles   | \$ 180   | per location plus      | \$ 18. <sup>00</sup> /SF       |
| 2d. Allowance for replacement of cracked or broken tiles due to items 2a, b, c  | \$ 1000. | Allowance              |                                |
| 2e. Repair or replace broken gutters with copper of same configuration and soldered joints.                                 | \$ 250   | for each location plus | \$ 14. <sup>00</sup> /Lin. Ft. |
| 2f. Repair or replace broken leaders with copper of same configuration and soldered joints. Prime & paint to match existing | \$ 210.  | for each location plus | \$ 18. <sup>00</sup> /Lin. Ft. |
| 2g. Obtain mortar samples   | \$ 300.  | Lump Sum               |                                |
| 2h. Chemical Analysis of mortar samples   | \$ 400.  | " "                    |                                |
| 2i. Check all roof drains and clear obstructed roof drains.   | \$ 500.  | " "                    |                                |

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LOWER FORT MASON

SHEET 312.03

BUILDING 312

3. BITUMINOUS ROOFS Bridges

Stabilization and Maintenance

3a Check all roof drains and clear obstructed roof drains

\$ 30.<sup>00</sup> Each

3b Install new drain screens

\$ 35 Each

3c Remove and replace deteriorated flashing

\$ 22.<sup>00</sup> per Lin Ft.

## LOWER FORT MASON

## BUILDING 312

## 4. EXTERIOR CONCRETE WALLS AND ELEMENTS

## Emergency Stabilization

4.9. Remove spalling concrete  
from rafter ends

\$600. ea. plus \$9.50 /SF

## Stabilization

4.b Deleted

4.c Deleted

## 4.d Cracks

Sawcut each side of crack & chip  
out conc. for shoulder or key  
Sandblast exposed reinforcing steel  
(See 4.f if there is corrosion  
on the steel) Paint R/F  
steel w/ 2 coats of epoxy  
Patch crack to match adjacent  
surfaces and paint to match.

\$500. for each location plus \$22.00 /L in ft

## 4.e Incipient Spalls &amp; Spalls

Chip down to sound concrete  
Sawcut all around spall and  
out conc. for shoulder or key.Sandblast R/F steel per item 4.d  
Patch spall to match adjacent  
surfaces and paint to match\$600. for each location plus \$23.00 /sq. ft  
or fraction thereof

## LOWER FORT MASON

## BUILDING 312

## 4. EXTERIOR CONCRETE WALLS AND ELEMENTS

## Stabilization (Continuing)

## 4.f. Corroded Reinforcing Steel

Sawcut each side of bar and chip out to provide a minimum of 3/4" clearance under bar.

Blast bar to bright metal. Wire brush under side of bar (See Item 4g if bar has lost more than 25% of its area)

Paint R/F steel all around with 2 coats of epoxy mastic. Firmly fill cavity with the patching compound

\$ 600.

per location

## 4.g Reinforcing Steel with 25% or more of its cross sectional area corroded away.

Lengthen sawcut each side of bar and chip out concrete and chip out to allow for a R/F steel splice bar

Weld on splice bar, clean off to bright metal and apply 2 coats of epoxy mastic.

Firmly fill cavity with the patching compound

\$ 500.

per location, this is additive to 4f

## LOWER FORT MASON

SHEET 312.06

## BUILDING 312

4. EXTERIOR CONCRETE WALLS AND ELEMENTS  
Stabilization (continuing)

## 4.h Corroding attachments to walls

Remove non-functioning attachments  
and patch per item 4.c

\$ 150.

per element

4.i. Remove all corrosion on existing  
functional attachments  
and apply two coats of an  
epoxy mastic.

\$ 250.

per element

4.j. Replace functional corroding  
attachments with non-  
corrosive attachments

\$ 100.

per element

## 4.k. Window Sills

Flash with lead coated copper  
new raglets with sealant joint

\$ 300.

per location plus \$ 22.<sup>00</sup>/LFT



## LOWER FORT MASON

## BUILDING 312

4. EXTERIOR CONCRETE WALLS AND ELEMENTS  
Stabilization (Continuing)

## 4.1. Rafter Tails

Chip down to sound concrete  
Saw cut all around defect and  
cut out concrete for shoulder work.

Sandblast R/F Steel per item 4d)  
Install drilled concrete  
anchors for support of R/F  
steel and formwork  
Allowance for new R/F steel  
Install for and drypack soffitt  
Patch side faces and paint

\$ 1100.<sup>00</sup>

per location

## Corbel

4m Sides and tops patch per item 4e \$ 400  
4m Bottom patch per item 4f \$ 200  
4o Flash per item 4K \$ 250

per location  
per location  
per location

## LOWER FORT MASON

SHEET 3/2.09

## BUILDING 3/2

## 6 WINDOWS

## Stabilization and Maintenance

## Second &amp; Third Floors - Pivoted

6.a Make windows operable and correct misalignment of weather stripping

\$ 160.<sup>00</sup>

per window

6.b Replace missing hardware

\$ 110.<sup>00</sup>

per window

6.c Salvage existing glass and install new clear wire glass

\$ 155.<sup>00</sup>

per light

6.d Remove loose paint &amp; repaint inside &amp; outside

\$ 120.<sup>00</sup>

per window

## First Floor - Double Hung

6.e Make windows operable, adjust weather stripping, sash cords &amp; weight

\$ 140.<sup>00</sup>

per window

6.f Replace missing hardware

\$ 60.<sup>00</sup>

per window

6.g Add new interior storm sash

\$ 370.<sup>00</sup>

per window

6.h Remove loose paint &amp; repaint inside &amp; outside

\$ 240.<sup>00</sup>

per window

## Miscellaneous

6.i Repair small corrosion per Item 1.b

\$ 145.<sup>00</sup>

Each

6.k Repair large corrosion per Item 1.c

\$ 240.<sup>00</sup>

Each plus \$

per sq. inch

6.l Replace broken glass

\$ 170.<sup>00</sup>

Each light

6.m Replace deteriorated glazing compound

\$ 140.<sup>00</sup>

Each light

## LOWER FORT MASON

## BUILDINGS 312

## 7. Warehouse Doors

## Stabilization and Maintenance

7.a Blast corroded surfaces

\$ 100.00

Each Op'g Plus \$ 2.00/sf

7.b Repair small corrosion per Item 1.b

\$ 100.00

Each Location

7.c Repair large corrosion per Item 1.c

\$ 180.00

Each plus \$ 3.50 /sq. in

7.d " " also see Item 7.m

\$ 150.00

per light

7.e Replace broken glass

\$ 70.00

per light

7.f Scrape paint off of glass

\$ 130.00

per light

7.g Replace deteriorated glazing compound

\$ 90.00

per opening

7.h Prime blasted areas w/ zinc spray

\$ 60.00

per opening plus \$ 2.90/sq. in

7.i Remove loose paint &amp; repaint inside &amp; outside

\$ 280.00

per opening

7.j Fill all holes and defects in wood

\$ 80.00

per opening

7.k Repair areas of wood with dutchman

\$ 170.00

Ea. Op'g plus \$ 9.50 /sq. in  
or fraction thereof7.m Structural steel members with a loss of  
more than 25% of its thickness,  
weld in new material to meet  
or exceed original size

\$ 280.00

Each plus \$ 12.00/sq. in  
or fraction thereof

7.n Remove infill doors &amp; windows

\$ N/C

per opening

7.o " " " &amp; masonry

\$ N/C

per opening

7.p Install &amp; Paint New Door To Match Existing

\$ N/C

per opening

## LOWER FORT MASON

SHEET 312, 10

## BUILDING 312

## II. AWNINGS

## Stabilization

|      |   |                      |  |
|------|---|----------------------|--|
| II.a | Blast Corroded Surfaces   | \$120. <sup>00</sup> | per bay plus \$3.50/SF                         |
| II.b | Repair small corrosion per Item I.b                               | 140. <sup>00</sup>   | each location                                  |
| II.c | Repair large corrosion per Item I.c                               | 200. <sup>00</sup>   | " " plus \$4.00/SF                             |
| II.d | Repair struct. steel " " 7 in                                     | 280. <sup>00</sup>   | Each " " \$12.00/sq. in<br>or fraction thereof |
| II.e | Repair or replace deformed struts                                 | \$390. <sup>00</sup> | Ea.  |
| II.f | Replace bent, deformed or heavily<br>corroded corrugated steel    | \$110.               | Each location plus \$6.20/SF                   |
| II.g | Replace plastic panels w/ new<br>corrugated metal panels to match | \$50.                | Each location plus \$3.50                      |
| II.h | Paint top of awning incl prep                                     | \$3.20 per           | sq. ft plan square footage                     |
| II.i | " bottom of awning incl prep                                      | \$4.00 per           | sq. ft plan square footage                     |

## LOWER FORT MASON

SHEET 312.11

## BUILDING 312

## 12 EXTERIOR STAIRWAYS

## Emergency Stabilization

|     |                               |                       |              |
|-----|-------------------------------|-----------------------|--------------|
| 12a | Install L columns to stringer | \$ 480. <sup>00</sup> | Each column  |
| 12b | " " stiffeners @ tread        | \$ 110.               | Each Tread   |
| 12c | " " " @ landings              | \$ 340.               | Each Landing |

## Stabilization &amp; Maintenance

|     |   |                                  |   |
|-----|---|----------------------------------|---|
| 12d | Remove Replace stair risers   | \$ 150.                          | Each  |
| 12e | " " " stair treads  | \$ 240.                          | Each  |
| 12f | " " " stair landing   | \$ 980.                          | Each  |
| 12g | Blast Corroded Surfaces   | \$ 150. <sup>00</sup>            | each stair plus " 3.40/SF CA.                     |
| 12h | Repair small corrosion per Item I.c                                   | \$ 150.                          | each location                                     |
| 12j | " large " " " " 1.e   | \$ 240.                          | each " plus " 12.00/50 IN,<br>or fraction thereof |
| 12k | Remove Run of stairs and replace<br>w/ new steel and railing stringer | \$ 340.                          | per riser   |
| 12l | Reinforce stair stringer  | \$ 80. <sup>00</sup>             | per linear foot of stringer                       |
| 12m | Blast stain and give 2 coats epoxy paint<br>plus landings             | \$ 21. <sup>00</sup><br>\$ 2.00. | per riser<br>per landing                          |

## LOWER FORT MASON

## BUILDING 314

## I. BUILDING INTERIORS

## Stabilization and Maintenance

## Interior Doors

1a. Scrape off loose paint and  
prime paint affected area

\$65.00

Each plus \$2.90 per ft  
or fraction  
thereof1b. Repair small areas of corrosion  
by cutting back affected  
materials to sound material  
and patch with epoxy compound.  
Prime paint affected areas.

\$95.00

Each plus \$3.50 per ft<sup>2</sup>  
or fraction  
thereof1c. Repair areas larger than one  
inch square with new G.S.M.  
soldered in place.

\$120.00

Each plus \$18.00 per ft<sup>2</sup>  
or fraction  
thereof1d. Replace broken glass with wire  
glass. Prime paint the  
glazing compound

\$135.00

Each

1e. Replace deteriorated glazing compound  
Prime paint the glazing compound

\$105.00

Each

1f. Obtain samples of (E) Paint Materials

\$300.00

Lump Sum

1g. Chemical Analysis of (E) Paints

\$1000.

L.S.

Note: Unit prices should be subject to review after quantities have  
been established. Small quantities for a trade could  
raise the costs of labor due to lack of repetition.

Note: Costs do not include special handling of existing surfaces coated w/ lead based paints.

August 17, 1990

## LOWER FORT MASON

SHEET 314.02

## BUILDING 314

## 2. TILE ROOFS

## Stabilization and Maintenance

2a. Replace cracked tiles

\$ 190.

per location plus \$ 18.<sup>00</sup>/SF2b. Replace broken tiles. Repair  
damaged roofing felt and nailers

\$ 200

per location plus \$ 28.<sup>00</sup>/SF

2c. Reset displaced roofing tiles

\$ 180

per location plus \$ 18.<sup>00</sup>/SF2d. Allowance for replacement of cracked  
or broken tiles due to items 2.a.b.c

\$ 1000.

Allowance

2e. Repair or replace broken gutters  
with copper of same configuration  
and soldered joints.

\$ 250

for each location plus \$ 14.<sup>00</sup>/Lin.  
Ft.2f. Repair or replace broken leaders  
with copper of same config-  
uration and soldered joints. Prime  
a paint to match existing

\$ 210.

for each location plus \$ 10.<sup>00</sup>/Lin.  
Ft.

2g. Obtain mortar samples

\$ 300.

Lump Sum

2h. Chemical Analysis of mortar samples

\$ 400.

" "

2i. Check all roof drains and clear  
obstructed roof drains.

\$ 500.

" "



LOWER FORT MASON

SHEET 314.03

BUILDING 314

3. BITUMINOUS ROOFS - Bridges

Stabilization and Maintenance

- 3a Check all roof drains and clear obstructed roof drains \$ 30.<sup>00</sup> Each
- 3b Install new drain screens \$ 35 Each
- 3c Remove and replace deteriorated flashing \$ 22.<sup>00</sup> per Lin Ft.

LOWER FORT MASON

BUILDING 314

1. EXTERIOR CONCRETE WALLS AND ELEMENTS

Emergency Stabilization

4.9. Remove spalling concrete from rafter ends

\$600. ea. plus \$9.50 /SF

Stabilization

4.b Deleted

4.c Deleted

4.d Cracks

Sawcut each side of crack & chip out conc. for shoulder or key  
Sandblast exposed reinforcing steel (See 4.f if there is corrosion on the steel) Paint R/F steel w/ 2 coats of epoxy  
Patch crack to match adjacent surfaces and paint to match.

\$500. for each location plus \$22.00/LinFt

4.e Incipient Spalls & Spalls

Chip down to sound concrete  
Sawcut all around spall and cut conc. for shoulder or key.

Sandblast R/F steel per item 4.d  
Patch spall to match adjacent surfaces and paint to match

\$600. for each location plus \$23.00/sq. ft or fraction thereof

## LOWER FORT MASON

## BUILDING 314

## 4. EXTERIOR CONCRETE WALLS AND ELEMENTS

## Stabilization (Continuing)

## 4.f. Corroded Reinforcing Steel

Saw cut each side of bar and chip out to provide a minimum of  $\frac{3}{4}$ " clearance under bar.

Blast bar to bright metal. Wire brush under side of bar (See Item 4g if bar has lost more than 25% of its area)

Paint R/F steel all around with 2 coats of epoxy mastic. Firmly fill cavity with the patching compound

\$ 600.

per location

## 4.g Reinforcing Steel with 25% or more of its cross sectional area corroded away.

Lengthen saw cut each side of bar and chip out concrete and chip out to allow for a R/F steel splice bar

Weld on splice bar, clean off to bright metal and apply 2 coats of epoxy mastic.

Firmly fill cavity with the patching compound

\$ 500.

per location this is additive to 4f

## LOWER FORT MASON

SHEET 314.06

## BUILDING 314

## 4 EXTERIOR CONCRETE WALLS AND ELEMENTS

## Stabilization (continuing)

## 4h Corroding attachments to walls

Remove non-functioning attachments  
and patch per item 4c

\$ 150.

per element

4i. Remove all corrosion on existg  
functional attachments  
and apply two coats of an  
epoxy mastic

\$ 250.

per element

4j. Replace functional corroding  
attachments with non-  
corrosive attachments

\$ 100.

per element

## 4k. Window Sills

Flash with lead coated copper  
new reglets with sealant joint

\$ 300.

per location plus \$ 22.<sup>00</sup>/LFT

LOWER FORT MASON

BUILDING 314

4. EXTERIOR CONCRETE WALLS AND ELEMENTS  
Stabilization (Continuing)

4.1. Rafter Tails

Chip down to sound concrete  
Saw cut all around defect and  
cut out concrete for shoulder repair

Sandblast R/F Steel per item 4d)  
Install drilled concrete  
anchors for support of R/F  
steel and formwork  
Allowance for new R/F steel  
Install for and drypack soffitt  
Patch side faces and paint

\$ 1100.00

per location

Corbel  
4m Sides and tops patch per item 4e \$ 400  
4m Bottom patch per item 4f \$ 200  
4o Flash per item 4K \$ 250

per location  
per location  
per location

## LOWER FORT MASON

## BUILDING 314

## 6 WINDOWS

## Stabilization and Maintenance

## Second &amp; Third Floors - Pivoted

6.a Make windows operable and correct misalignment of weather stripping

\$ 160.<sup>00</sup>

per window

6.b Replace missing hardware

\$ 110.<sup>00</sup>

per window

6.c Salvage existing glass and install new clear wire glass

\$ 155.<sup>00</sup>

per light

6.d Remove loose paint &amp; repaint, ind outside

\$ 220.<sup>00</sup>

per window

## First Floor - Double Hung

6.e Make windows operable, adjust weatherstripping, sash cords &amp; weights

\$ 140.<sup>00</sup>

per window

6.f Replace missing hardware

\$ 60.<sup>00</sup>

per window

6.g Add new interior storm sash

\$ 370.<sup>00</sup>

per window

6.h Remove loose paint &amp; repaint inside &amp; outside

\$ 240.<sup>00</sup>

per window

## Miscellaneous

6.i Repair small corrosion per Item 1.b

\$ 145.<sup>00</sup>

Each

6.j Repair large corrosion per Item 1.c

\$ 240.<sup>00</sup>

Each plus \$

per sq. inch

6.k Replace broken glass

\$ 170.<sup>00</sup>

Each light

6.m Replace deteriorated glazing compound

\$ 140.<sup>00</sup>

Each light

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SHEET 314.09

## LOWER FORT MASON

## BUILDINGS 314

## 7. Warehouse Doors

## Stabilization and Maintenance

7.a Blast corroded surfaces

\$ 100.<sup>00</sup>

Each Op'g Plus \$2.00/sf

7.b Repair small corrosion per Item 1.b

\$ 100.<sup>00</sup>

Each Location

7.c Repair large corrosion per Item 1.c

\$ 180.<sup>00</sup>

Each plus \$3.50 /sq. in

7.d Replace broken glass

\$ 150.<sup>00</sup>

per light

7.e Scrape paint off of glass

\$ 70.<sup>00</sup>

per light

7.f Replace deteriorated glazing compound

\$ 130.<sup>00</sup>

per light

7.g Repair/Maintain Counterweight

\$ 90.<sup>00</sup>

per opening

7.h Prime blasted areas w/ 2 coat epoxy

\$ 60.<sup>00</sup>

per opening plus \$2.90/sq. in.

7.i Remove loose paint &amp; repaint inside &amp; outside

\$ 280.<sup>00</sup>

per opening

7.k Fill all holes and defects in wood

\$ 80.<sup>00</sup>

per opening

7.l Repair areas of wood with dutchman

\$ 170.<sup>00</sup>Each Op'g plus \$ 9.50 /sq. in  
or fraction thereof7.m Structural steel members with a loss  
more than 25% of its thickness,  
weld in new material to meet  
or exceed original size\$ 280.<sup>00</sup>Each plus \$12.00/sq. in  
or fraction thereof

7.n Remove infill doors &amp; windows

\$ N.I.C

per opening

7.o " " " " &amp; masonry

\$ N.I.C

per opening

7.p Install &amp; Paint New Door To Match Existing

\$ N.I.C

per opening



## LOWER FORT MASON

SHEET 314.10

## BUILDINGS 314

## 10. METAL ENTRANCE DOORS

## Stabilization and Maintenance

10.i Blast Corroded Surface

\$ 120.00

Each op plus \$ 2.80 / sq ft

10.b Repair - small corrosion per Item 1.b

\$ 100.00

Each location

10.c Repair - large corrosion per Item 1.c

\$ 180.00

Each location plus \$ 3.50 / sq. in

10.d Replace broken glass

\$ 135.00

per light

10.e Scrape paint off of glass

\$ 80.00

per light

10.f Replace deteriorated glazing compound

\$ 105.00

per light

10.g Repair hardware

\$ 120.00

per door

10.h Prime blasted areas w/ 2 coat epoxy

\$ 70.00

Each op plus \$ 4.20 / sq ft

10.i Remove loose paint &amp; paint inside &amp; outside

\$ 160.00

per opening

## LOWER FORT MASON

SHEET 314.11

## BUILDING 314

## II. AWNINGS

## Stabilization

|      |  |                                       |   |
|------|--|---------------------------------------|---|
| IIa  | Blast corroded surfaces  | \$120. <sup>00</sup>                  | per bay plus \$3.50/SF                        |
| IIb  | Repair small corrosion per Item I.b                            | 140. <sup>00</sup>                    | each location                                 |
| IIc  | Repair large corrosion per Item I.c                            | 200. <sup>00</sup>                    | " " plus \$4.00/SF                            |
| IId  | Repair structural " " " 7 in                                   | 280. <sup>00</sup>                    | Each " " \$12.00/sq in<br>or fraction thereof |
| IIe  | Repair or replace deformed struts                              | \$390. <sup>00</sup>                  | Ea.   |
| II.f | Replace bent, deformed or heavily corroded corrugated steel    | \$110.                                | Each location plus \$6.20/SF                  |
| II.g | Replace plastic panels w/ new corrugated metal panels to match | \$50.                                 | Each location plus \$3.50                     |
| II.h | Paint top of awning incl prep                                  | \$3.20 per sq. ft plan square footage |   |
| II.j | " bottom of awning incl. prep                                  | \$4.00 per sq. ft plan square footage |   |

8-17-90

LOWER FORT MASON

SHEET 31 4.12

BUILDING 314

|    |                    |
|----|--------------------|
| 12 | EXTERIOR STAIRWAYS |
|----|--------------------|

## Emergency Stabilization

|     |         |                       |                       |              |
|-----|---------|-----------------------|-----------------------|--------------|
| 12a | Install | L columns to stringer | \$ 480. <sup>00</sup> | Each column  |
| 12b | "       | " stiffeners @ tread  | \$ 110.               | Each Tread   |
| 12c | "       | " " @ landings        | \$ 340.               | Each Landing |

## Stabilization & Maintenance

|     |                             |        |      |
|-----|-----------------------------|--------|------|
| 126 | Remove Replace stair risers | \$150. | Each |
| 127 | " " " stair treads          | \$260. | Each |
| 128 | " " " stair landing         | \$980. | Each |

|     |                                     |                      |               |  |
|-----|-------------------------------------|----------------------|---------------|--|
| 12g | Blast Corroded Surfaces             | \$150. <sup>00</sup> | each stair    | plus \$3.40/SF CA.                         |
| 12h | Repair small corrosion per Item I.c | \$150.               | each location |  |
| 12j | " large " " " J.e                   | \$240.               | each "        | plus \$12.00/50 IN,<br>or fraction thereof |

|  |      |          |
|--|------|----------|
| 12K Remove Run of stairs and replace w/ new steel and racking stringer | 340. | per 150' |
|--|------|----------|

|                              |  |
|------------------------------|--|
| 12L Reinforce stair stringer | #30. <sup>00</sup> per linear foot of stringer |
|------------------------------|--|

|  |          |             |
|--|----------|-------------|
| 12m Blast stairs and give 2 coat epoxy paint | \$ 21.00 | per riser   |
| plus landings                                | \$ 2.00. | per landing |

LOWER FORT MASON

BUILDING 35

I. BUILDING INTERIORS

Stabilization and Maintenance

Interior Doors

1a. Scrape off loose paint and prime paint affected area

\$65.00

Each plus \$2.90 per sq ft or fraction thereof

1b. Repair small areas of corrosion by cutting back affected materials to sound material and patch with epoxy compound. Prime paint affected areas.

\$95.00

Each plus \$3.50 per sq ft or fraction thereof

1c. Repair areas larger than one inch square with new G.S.M. soldered in place

\$120.00

Each plus \$18.00 per sq ft or fraction thereof

1d. Replace broken glass with wire glass. Prime paint the glazing compound

\$135.00

Each

1e. Replace deteriorated glazing compound. Prime paint the glazing compound

\$105.00

Each

1f. Obtain samples of (E) Paint Materials

\$300.00

Lump Sum

1g. Chemical Analysis of (E) Paints

\$1000.

L.S.

Note: Unit prices should be subject to review after quantities have been established. Small quantities for a trade could raise the costs of labor due to lack of repetition.

Costs do not include special handling of surfaces coated w/ lead based paints.

## LOWER FORT MASON

## BUILDING 315

## 2. TILE ROOFS

## Stabilization and Maintenance

2a. Replace cracked tiles

\$190.

per location plus \$18.<sup>00</sup>/SF2b. Replace broken tiles. Repair  
damaged roofing felt and nailers

\$200

per location plus \$28.<sup>00</sup>/SF

2c. Reset displaced roofing tiles

\$180

per location plus \$18.<sup>00</sup>/SF2d. Allowance for replacement of cracked  
or broken tiles due to items 2a, b, c

\$1000.

Allowance

2e. Repair or replace broken gutters  
with copper of same configuration  
and soldered joints.

\$250

for each location plus \$14.<sup>00</sup>/Lin.  
Ft.2f. Repair or replace broken leaders  
with copper of same config-  
uration and soldered joints. Prime  
a paint to match existing.

\$210.

for each location plus \$10.<sup>00</sup>/Lin.  
Ft.

2g. Obtain mortar samples

\$300.

Lump Sum

2h. Chemical Analysis of mortar samples

\$400.

" "

2i. Check all roof drains and clear  
obstructed roof drains.

\$500.

" "

BUILDING 315

### 3. BITUMINOUS ROOFS Bridges

#### Stabilization and Maintenance

- |  |          |             |
|--|----------|-------------|
| 3a. Check all roof drains and clear obstructed roof drains | \$ 30.00 | Each        |
| 3b. Install new drain screens                              | \$ 35    | Each        |
| 3c. Remove and replace deteriorated flashing               | \$ 22.00 | per Lin Ft. |

LOWER FORT MASON

BUILDING 315

4. EXTERIOR CONCRETE WALLS AND ELEMENTS

Emergency Stabilization

4.a. Remove spalling concrete from rafter ends

\$600. ea. plus \$9.50 / SF

Stabilization

4.b. Delated

4.c. Delated

4.d Cracks

Sawcut each side of crack & chip out conc. for shoulder or key. Sandblast exposed reinforcing steel (See 4.f. if there is corrosion on the steel) Paint. R/E steel w/ 2 coats of epoxy. Patch crack to match adjacent surfaces and paint to match.

\$500. for each location plus \$22.00 / Lin ft

4.e Incipient Spalls & Spalls

Chip down to sound concrete. Sawcut all around spall and cut conc. for shoulder or key.

Sandblast R/E steel per item 4.d. Patch spall to match adjacent surfaces and paint to match.

\$600. for each location plus \$23.00 / sq ft or fraction thereof



## LOWER FORT MASON

## BUILDING 315

## 4. EXTERIOR CONCRETE WALLS AND ELEMENTS

## Stabilization (Continuing)

## 4.f. Corroded Reinforcing Steel

Sawcut each side of bar and chip out to provide a minimum of 3/4" clearance under bar.

Blast bar to bright metal. Wire brush under side of bar (See Item 4g if bar has lost more than 25% of its area)

Paint R/F steel all around with 2 coats of epoxy mastic. Firmly fill cavity with the patching compound

\$ 600.

per location

## 4.g Reinforcing Steel with 25% or more of its cross sectional area corroded away.

Lengthen sawcut each side of bar and chip out concrete and chip out to allow for a R/F steel splice bar

Weld on splice bar, clean off to bright metal and apply 2 coats of epoxy mastic.

Firmly fill cavity with the patching compound

\$ 500.

per location, this is additive to 4f

## LOWER FORT MASON

## BUILDING 315

4 EXTERIOR CONCRETE WALLS AND ELEMENTS  
Stabilization (continuing)

## 4h Corroding attachments to walls

Remove non-functioning attachments  
and patch per item 4c.

\$ 150.

per element

4i. Remove all corrosion on existing  
functional attachments  
and apply two coats of an  
epoxy mastic.

\$ 250.

per element

4j. Replace functional corroding  
attachments with non-  
corrosive attachments

\$ 100.

per element

## 4k Window Sills

Flash with lead coated copper  
new reglets with sealant joint

\$ 300.

per location plus \$ 22.<sup>00</sup>/L.F.T

LOWER FORT MASON

BUILDING 315

4. EXTERIOR CONCRETE WALLS AND ELEMENTS  
Stabilization (Continuing)

4.1 Rafter Tails

Chip down to sound concrete  
Saw cut all around defect and  
cut out concrete for shoulder.

Sandblast R/F Steel per item 4d  
Install drilled concrete  
anchors for support of R/F  
steel and formwork  
Alignment for new R/F steel  
Install for and drypack soffitt  
Patch side faces and paint

\$ 1100.00

per location

Corbel  
2m Sides and tops patch per item 4e \$ 400  
4m Bottom patch per item 4f \$ 200  
4o Flash per item 4K \$ 250

per location  
per location  
per location

## LOWER FORT MASON

## BUILDING 315.

## 6 WINDOWS

## Stabilization and Maintenance

## Second &amp; Third Floors - Pivoted

6.a Make windows operable and correct misalignment of weather stripping

\$ 160.<sup>00</sup>

per window

6.b Replace missing hardware

\$ 110.<sup>00</sup>

per window

6.c Salvage existing glass and install new clear wire glass

\$ 155.<sup>00</sup>

per light

6.d Remove loose paint &amp; repaint, ind outside

\$ 220.<sup>00</sup>

per window

## First Floor - Double Hung

6.e Make windows operable, adjust weather stripping, sash cords &amp; weight

\$ 140.<sup>00</sup>

per window

6.f Replace missing hardware

\$ 60.<sup>00</sup>

per window

6.g Add new interior storm sash

\$ 370.<sup>00</sup>

per window

6.h Remove loose paint &amp; repaint inside &amp; outside

\$ 240.<sup>00</sup>

per window

## Miscellaneous

6.i Repair small corrosion per Item 1.b

\$ 145.<sup>00</sup>

Each

6.k Repair large corrosion per Item 1.c

\$ 240.<sup>00</sup>

Each plus \$

per sq. inch

6.l Replace broken glass

\$ 170.<sup>00</sup>

Each light

6.m Replace deteriorated glazing compound

\$ 140.<sup>00</sup>

Each light

8-17-90

SHEET 315.19

## LOWER FORT MASON

## BUILDINGS 315

## 7. Warehouse Doors

## Stabilization and Maintenance

7.a Blast corroded surfaces

\$ 100.00

Each Op'g Plus \$ 2.00/sf

7.b Repair small corrosion per Item 1.b

\$ 100.00

Each Location

7.c Repair large corrosion per Item 1.c

\$ 180.00

Each plus \$ 3.50 /sq. in

" " also see Item 7.m

7.d Replace broken glass

\$ 150.00

per light

7.e Scrape paint off of glass

\$ 70.00

per light

7.f Replace deteriorated glazing compound

\$ 130.00

per light

7.g Repair/Maintain Counter weight

\$ 90.00

per opening

7.h Prime blasted areas w/ 2 coat epoxy

\$ 60.00

per opening plus \$ 2.90 /sq. in

7.i Remove loose paint &amp; repaint inside &amp; outside

\$ 280.00

per opening

7.k Fill all holes and defects in wood

\$ 80.00

per opening

7.l Repair areas of wood with dutchman

\$ 170.00

Eq. Op's plus \$ 9.50 /sq. in  
or fraction thereof7.m Structural steel members with a loss of  
more than 25% of its thickness,  
weld in new material to meet  
or exceed original size

\$ 280.00

Each plus \$ 2.00 /sq. in  
or fraction thereof

7.n Remove infill doors &amp; windows

\$ NIC

per opening

7.o " " &amp; masonry

\$ NIC

per opening

7.p Install &amp; Paint New Door To Match Existing

\$ NIC

per opening

## LOWER FORT MASON

## BUILDINGS 315

## 10. METAL ENTRANCE DOORS

## Stabilization and Maintenance

10. a Blast Corroded Surface

\$ 120.<sup>00</sup>

Each op plus \$ 2.80 / sq. ft

10. b Repair - small corrosion per Item 1. b

\$ 100.<sup>00</sup>

Each location

10. c Repair - large corrosion per Item 1. c

\$ 180.<sup>00</sup>

Each location plus \$ 3.50 / sq. in

10. d Replace broken glass

\$ 135.<sup>00</sup>

per light

10. e Scrape paint off of glass

\$ 80.<sup>00</sup>

per light

10. f Replace deteriorated glazing compound

\$ 105.<sup>00</sup>

per light

10. g Repair hardware

\$ 120.<sup>00</sup>

per door

10. h Prime blasted areas w/ 2 coat epoxy

\$ 70.<sup>00</sup>

Each op plus \$ 4.20 / SF

10. j Remove loose paint &amp; paint inside &amp; outside

\$ 160.<sup>00</sup>

per opening

## LOWER FORT MASON

SHEET 315.11

## BUILDING

## II. AWNINGS

## Stabilization

|      |   |                                   |  |
|------|---|-----------------------------------|--|
| IIa  | Blast corroded surfaces   | \$120. <sup>00</sup>              | per bay plus \$3.50/SF                                     |
| IIb  | Repair small corrosion per Item I.b                               | 140. <sup>00</sup>                | each location  |
| IIc  | Repair large corrosion per Item I.c                               | 200. <sup>00</sup>                | " " plus \$4.00/SF   |
| IId  | Repair structural " " " 7 in                                      | 280. <sup>00</sup>                | Each " " \$12. <sup>00</sup> /sq.in<br>or fraction thereof |
| IIe  | Repair or replace deformed struts                                 | \$390. <sup>00</sup>              | Ea.  |
| II.f | Replace bent, deformed or heavily<br>corroded corrugated steel    | \$110.                            | Each location plus \$6.20/SF                               |
| II.g | Replace plastic panels w/ new<br>corrugated metal panels to match | \$50.                             | Each location plus \$3.50                                  |
| II.h | Paint top of awning incl prep                                     | \$3. <sup>20</sup> per sq.ft plan | square footage   |
| II.j | " bottom of awning incl prep                                      | \$4. <sup>80</sup> per sq.ft plan | square footage   |



## LOWER FORT MASON

SHEET 315.12

## BUILDING 315

## 12 EXTERIOR STAIRWAYS

## Emergency Stabilization

|     |                               |                       |              |
|-----|-------------------------------|-----------------------|--------------|
| 12a | Install L columns to stringer | \$ 480. <sup>00</sup> | Each column  |
| 12b | " " stiffeners @ tread        | \$ 110.               | Each Tread   |
| 12c | " " " @ landings              | \$ 340.               | Each Landing |

## Stabilization &amp; Maintenance

|     |   |                                 |  |
|-----|---|---------------------------------|--|
| 12d | Remove Replace stair risers   | \$ 150.                         | Each   |
| 12e | " " " stair treads  | \$ 260.                         | Each   |
| 12f | " " " stair landing   | \$ 980.                         | Each   |
| 12g | Blast Corroded Surfaces   | \$ 150. <sup>00</sup>           | each stair plus \$ 3.40/SF CA.                     |
| 12h | Repair small corrosion per Item I.c                                   | \$ 150.                         | each location                                      |
| 12j | " large " " " " I.e   | \$ 240.                         | each " plus \$ 12.00/50 IN,<br>or fraction thereof |
| 12k | Remove Run of stairs and replace<br>w/ new steel and packing stringer | \$ 340.                         | per riser  |
| 12l | Reinforce stair stringer  | \$ 80. <sup>00</sup>            | per linear foot of stringer                        |
| 12m | Blast stain and give 2 coat epoxy paint<br>plus landings              | \$ 21. <sup>00</sup><br>\$ 200. | per riser<br>per landing                           |

## LOWER FORT MASON

SHEET 317.01

## BUILDING 317

## 3. BITUMINOUS ROOFS

## Stabilization and Maintenance

3a. Check all roof drains and clear  
obstructed roof drains

\$ 30.00

Each

3b. Install new drain screens

\$ 35.00

Each

3c. Remove and replace deteriorated flashing

\$ 22.00

per Lin Ft.

3d. Remove and Replace Existing Roofing

\$ 3.60

per Gross Sq. Ft.

3e. Rehab, Remove, Replace Existing Flashings

\$ 16.00

per Lin Ft.

3f. Replace deteriorated roof sheathing

\$ 100.00

for each location plus \$ 8.00/sq.  
Ft.

## LOWER FORT MASON

## BUILDING 317

## 1. EXTERIOR CONCRETE WALLS AND ELEMENTS

4a Not Applicable

## Stabilization

4.b Deleted

4.c Deleted

## 4.d Cracks

Sawcut each side of crack & chip  
out conc. for shoulder or key.Sandblast exposed reinforcing steel  
(See 4.f if there is corrosion  
on the steel) Paint R/Fsteel w/ 2 coats of epoxy  
Patch crack to match adjacent  
surfaces and paint to match.

4W Premium Work on West Side of Bldg.

## 4.e Incipient Spalls &amp; Spalls

Chip down to sound concrete  
Sawcut all around spall and  
out conc. for shoulder or key.Sandblast R/F steel per item 4d  
Patch spall to match adjacent  
surfaces and paint to match

4v Premium Work on West Side of Bldg.

\$500. for each location plus \$22.00/Lin ft

\$300. Add price to 4d  
for each location \$500/LF\$600.00 for each location plus \$23.00/5 ft  
or fraction  
thereof\$400. Add price to 4e  
for each location \$6.00/LF

## LOWER FORT MASON

## BUILDING 317

## 4. EXTERIOR CONCRETE WALLS AND ELEMENTS

## Stabilization (Continuing)

## 4.f. Corroded Reinforcing Steel

Sawcut each side of bar and chip out to provide a minimum of  $\frac{3}{4}$ " clearance under bar.

Blast bar to bright metal. Wire brush under side of bar (See Item 4g if bar has lost more than 25% of its area)

Paint R/F steel all around with 2 coats of epoxy mastic. Firmly fill cavity with the patching compound

\$600.<sup>00</sup>

per location

## 4Y Premium Work on West Side of Bldg

\$350.<sup>00</sup>

Add price to 4f at each location

## 4.g Reinforcing Steel with 25% or more of its cross sectional area corroded away.

Lengthen sawcut each side of bar and chip out concrete and chip out to allow for a R/F steel splice bar

Weld on splice bar, clean off to bright metal and apply 2 coats of epoxy mastic.

Firmly fill cavity with the patching compound

\$500.<sup>00</sup>

per location, this is additive to 4f

## 4Z Premium Work on West Side of Bldg

\$300.<sup>00</sup>

Add price to 4g at each location

## LOWER FORT MASON

## BUILDING 317

## 4. EXTERIOR CONCRETE WALLS AND ELEMENTS

## Stabilization (continuing)

## 4.h Corroding attachments to walls

Remove non-functioning attachments  
and patch per item 4.c\$ 150.<sup>00</sup> per element

## 4.i.

Remove all corrosion on existing  
functional attachments  
and apply two coats of an  
epoxy mastic.\$ 250.<sup>00</sup> per element

## 4.j.

Replace functional corroding  
attachments with non-  
corrosive attachments\$ 100.<sup>00</sup> per element

## 4.k. Window Sills

Flash with lead coated copper  
new raglets with sealant joint\$ 300.<sup>00</sup> per location plus \$ 22.<sup>00</sup> / L.F.

## LOWER FORT MASON

## BUILDING 317

## G. WINDOWS

## Stabilization and Maintenance - Factory Sash

## Second Floor

G.G Make windows operable

\$ 120.<sup>00</sup>

per window

G.H Replace missing hardware

\$ 80.<sup>00</sup>

per window

G.C Remove loose paint &amp; repaint inside &amp; outside

\$ 210.<sup>00</sup>

per window

G.d Premium for work on west side of bldg

\$ 100.<sup>00</sup>

per window add to G.C

## First Floor

G.g Make window operable

\$ 120.<sup>00</sup>

Each window

G.f Replace missing hardware

\$ 80.<sup>00</sup>

Each window

G.g Remove loose paint &amp; repaint in &amp; out-side

\$ 160.<sup>00</sup>

per window

G.h Premium for work on west side of bldg

\$ 100.<sup>00</sup>

per window add to G.g

## Miscellaneous

G.i Repair small corrosion per Item I-b

\$ 100.<sup>00</sup>

Each location

G.k Premium for work on west side of bldg

\$ 50.<sup>00</sup>

Each location add to G.i

G.l Repair large corrosion per Item I-c

\$ 180.<sup>00</sup>

Each plus \$ 13.50 per sq. in.

G.m Premium for work on west side

\$ 100.<sup>00</sup>

Each location add to G.l

G.m Replace broken glass

\$ 135.<sup>00</sup>

Each Light

G.p Premium for work on west side

\$ 70.<sup>00</sup>

Each Light add to G.m

G.p Replace deteriorated glazing compound

\$ 105.<sup>00</sup>

Each Light

G.r Premium for work on west side

\$ 50.<sup>00</sup>

Each Light add to G.p

G.5 N/A.

## LOWER FORT MASON

SHEET 317.06

## BUILDING 317

## B. ROLL UP DOORS

## Stabilization and Maintenance

B.0 Blast corroded surfaces

\$ 120.00 each opening plus \$ 2.80/sq ft

B.1 Repair small corrosion per Item 1.b

\$ 100.00 Each location

B.2 Repair large corrosion per Item 1.c

\$ 180.00 Each " plus \$ 13.50/sq in

B.3 Structural steel corrosion per Item 7.m

\$ 280.00 Each " plus \$ 12.00/sq in

or fraction thereof

B.4 Prime blasted area w/ 2 coat epoxy

\$ 90.00 per opening plus \$ 4.20/sq inch

B.5 Prepare balance of surfaces and apply  
2 coat polyurethane finish coats

\$ 240.00 per opening

## LOWER FORT MASON

SHEET 319.01

## BUILDING 319

## 3. BITUMINOUS ROOFS

## Stabilization and Maintenance

3a. Check all roof drains and clear  
obstructed roof drains\$ 30.<sup>00</sup>

Each

3b. Install new drain screens

\$ 35.<sup>00</sup>

Each

3c. Remove and replace deteriorated flashing

\$ 22.<sup>00</sup>

per Lin Ft.



## LOWER FORT MASON

## BUILDING 319

## 4. EXTERIOR CONCRETE WALLS AND ELEMENTS

4a Not Applicable

## Stabilization

4.b Deleted

4.c Deleted

## 4.d Cracks

Sawcut each side of crack & chip  
out conc. for shoulder or key.  
Sandblast exposed reinforcing steel  
(See 4.f if there is corrosion  
on the steel) Paint R/P  
steel w/ 2 coats of epoxy  
Patch crack to match adjacent  
surfaces and paint to match.

\$ 500.<sup>00</sup> for each location plus \$ 22.<sup>00</sup>/Linf

## 4.e Incipient Spalls &amp; Spalls

Chip down to sound concrete  
Sawcut all around spall and  
out conc. for shoulder or key.

Sandblast R/P steel per item 4.d  
Patch spall to match adjacent  
surfaces and paint to match

\$ 600.<sup>00</sup>

for each location plus \$ 23.<sup>00</sup>/sq  
or fraction  
thereof

## LOWER FORT MASON

SHEET 319.03

## BUILDING 319

## 4. EXTERIOR CONCRETE WALLS AND ELEMENTS

## Stabilization (Continuing)

## 4.f. Corroded Reinforcing Steel

Sawcut each side of bar and chip out to provide a minimum of  $\frac{3}{4}$ " clearance under bar.

Blast bar to bright metal. Wire brush under side of bar (See Item 4g if bar has lost more than 25% of its area)

Paint R/F steel all around with 2 coats of epoxy mastic. Firmly fill cavity with the patching compound

\$ 600.<sup>00</sup>

per location

## 4.g Reinforcing Steel with 25% or more of its cross sectional area corroded away.

Lengthen saw cut each side of bar and chip out concrete and chip out to allow for a R/F steel splice bar

Weld on splice bar, clean off to bright metal and apply 2 coats of epoxy mastic. Firmly fill cavity with the patching compound

\$ 500.<sup>00</sup>

per location, this is additive to 4.f

## LOWER FORT MASON

SHEET 319.04

## BUILDING 319

4. EXTERIOR CONCRETE WALLS AND ELEMENTS  
Stabilization (continuing)

## 4.h Corroding attachments to walls

Remove non-functioning attachments  
and patch per item 4.e\$ 150.<sup>00</sup>

per element

4.i.

Remove all corrosion on existing  
functional attachments  
and apply two coats of an  
epoxy mastic.\$ 250.<sup>00</sup>

per element

4.j.

Replace functional corroding  
attachments with non-  
corrosive attachments\$ 100.<sup>00</sup>

per element

4.k.

## Window Sills

Flash with lead coated copper  
new reglets with sealant joint\$ 300.<sup>00</sup>per location plus \$ 22.<sup>00</sup>/L.F.T

## LOWER FORT MASON

SHEET 319.05

## BUILDING 319

## G. WINDOWS

## Stabilization and Maintenance - Factory Sash

## Second Floor

G.a Make windows operable

\$ 120.00

per window

G.b Replace missing hardware

\$ 80.00

per window

G.c Remove loose paint &amp; repaint inside &amp; outside

\$ 210.00

per window

G.d N.A.

## First Floor

G.a Make windows operable

\$ 120.00

per window

G.b Replace missing hardware

\$ 80.00

per window

G.c Remove loose paint &amp; repaint in &amp; out side

\$ 160.00

per window

G.d N.A.

## Miscellaneous

G.i Repair small corrosion per Item 1.b

\$ 100.00

Each Location

G.j N.A.

G.k Repair large corrosion per Item 1.c

\$ 180.00

Each plus \$ 13.50 per sq. in.

G.l N.A.

G.m Replace broken glass

\$ 135.00

Each Light

G.n N.A.

G.p Replace deteriorated glazing compound

\$ 105.00

Each Light

G.q N.A.

G.r N.A.

## LOWER FORT MASON

## BUILDING 319

## B. ROLL UP DOORS

## Stabilization and Maintenance

|   |           |  |
|---|-----------|--|
| B.0 Blast Corroded surfaces   | \$ 120.00 | each opening plus \$2.50 / sq ft                   |
| B.1 Repair small corrosion per Item 1.b                                       | \$ 100.00 | Each location                                      |
| B.2 Repair large corrosion per Item 1.c                                       | \$ 180.00 | Each " plus \$13.50 / sq in                        |
| B.3 Structural steel corrosion per Item 7.m                                   | \$ 280.00 | Each " plus \$12.00 / sq in<br>or fraction thereof |
| B.4 Prime blasted area w/ 2 coat epoxy  | \$ 90.00  | per opening plus \$3.50 / sq in                    |
| B.5 Prepare balance of surfaces and apply<br>2 coat polyurethane finish coats | \$ 240.00 | per opening  |

8-17-98

## LOWER FORT MASON

SHEET 321.01

## BUILDING 321

## I. BUILDING INTERIORS

## Stabilization and Maintenance

## Interior Doors

1a. Scrape off loose paint and  
prime paint affected area

\$65.00

Each plus \$2.90 per lb  
or fraction  
thereof1b. Repair small areas of corrosion  
by cutting back affected  
materials to sound material  
and patch with epoxy compound.  
Prime paint affected areas.

\$95.00

Each plus

1c. Repair areas larger than one  
inch square with new G.S.M.  
soldered in place

\$120.00

Each plus

\$18.00 per lb  
or fraction  
thereof1d. Replace broken glass with wire  
glass. Prime paint the  
glazing compound

\$135.00

Each

1e. Replace deteriorated glazing compound  
Prime paint the glazing compound

\$105.00

Each

1f. Obtain samples of (E) Paint Materials

\$300.00

Lump Sum

1g. Chemical Analysis of (E) Paints

\$1000.

L.S.

Note: Unit prices should be subject to review after quantities have  
been established. Small quantities for a trade could  
raise the costs of labor due to lack of repetition.

Note: Costs do not include special handling of surfaces coated w/ leaded paints

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8-17-90

LOWER FORT MASON

SHEET 321.02

BUILDING 321

## 3. BITUMINOUS ROOFS

## Stabilization and Maintenance

3a Check all roof drains and clear  
obstructed roof drains

\$ 30.00 Each

3b Install new drain screens

\$ 35.00 Each

3c Remove and replace deteriorated flashing

\$ 12.00 per Lin Ft.

## LOWER FORT MASON

## BUILDING 321

## 4. EXTERIOR CONCRETE WALLS AND ELEMENTS

4a. Not Applicable

## Stabilization

4.b Deleted

4.c Deleted

## 4.d Cracks

Sawcut each side of crack & chip  
out conc. for shoulder or key.  
Sandblast exposed reinforcing steel  
(See 4.f if there is corrosion on the steel) Paint R/F  
steel w/ 2 coats of epoxy  
Patch crack to match adjacent  
surfaces and paint to match.

\$ 500.00 for each location plus \$ 22.00/Lin ft

## 4.e Incipient Spalls &amp; Spalls

Chip down to sound concrete  
Sawcut all around spall and  
out conc. for shoulder or key.

Sandblast R/F steel per item 4d  
Patch spall to match adjacent  
surfaces and paint to match

\$ 600.00 for each location plus \$ 23.00/sq.  
or fraction thereof



## LOWER FORT MASON

## BUILDING 321

## 4. EXTERIOR CONCRETE WALLS AND ELEMENTS

## Stabilization (Continuing)

## 4.f. Corroded Reinforcing Steel

Sawcut each side of bar and chip out to provide a minimum of  $\frac{3}{4}$ " clearance under bar.

Blast bar to bright metal. Wire brush under side of bar (See Item 4g if bar has lost more than 25% of its area)

Paint R/F steel all around with 2 coats of epoxy mastic. Firmly fill cavity with the patching compound

\$ 600.

per location

## 4.g. Reinforcing Steel with 25% or more of its cross sectional area corroded away.

Lengthen sawcut each side of bar and chip out concrete and chip out to allow for a R/F steel splice bar

Weld on splice bar, clean off to bright metal and apply 2 coats of epoxy mastic. Firmly fill cavity with the patching compound

\$ 500.

per location, this is additive to 4f

## LOWER FORT MASON

SHEET 321.05

## BUILDING 321

4. EXTERIOR CONCRETE WALLS AND ELEMENTS  
Stabilization (continuing)

## 4.h Corroding attachments to walls

Remove non-functioning attachments  
and patch per item 4.c. \$ 150.

per element

4.i. Remove all corrosion on existing  
functional attachments  
and apply two coats of an  
epoxy mastic. \$ 250.

per element

4.j. Replace functional corroding  
attachments with non-  
corrosive attachments \$ 100.

per element

## 4.k. Window Sills

Flash with lead coated copper  
nail reglets with sealant joint \$ 300.per location plus \$ 22.<sup>00</sup> / L.F.

## LOWER FORT MASON

SHEET 321.06

## BUILDING 321

## G. WINDOWS

## Stabilization and Maintenance - Factory Sash

## Second Floor

G.a Make windows operable

\$ 120.<sup>00</sup>

per window

G.b Replace missing hardware

\$ 80.<sup>00</sup>

per window

G.c Remove loose paint &amp; repaint inside &amp; outside

\$ 210.<sup>00</sup>

per window

G.d NA

## First Floor

G.a Make windows operable

\$ 120.<sup>00</sup>

per window

G.b Replace missing hardware

\$ 80.<sup>00</sup>

per window

G.c Remove loose paint &amp; repaint in &amp; out-side

\$ 160.<sup>00</sup>

per window

G.d NA

## Miscellaneous

G.j Repair small corrosion per Item I.b

\$ 100.<sup>00</sup>

Each Location

G.k NA

G.l Repair large corrosion per Item I.c

\$ 180.<sup>00</sup>

Each plus \$ 13.50 per sq. in.

G.m NA

G.n Replace broken glass

\$ 135.<sup>00</sup>

Each Light

G.o NA

G.p Replace deteriorated glazing compound

\$ 105.<sup>00</sup>

Each Light

G.r NA

G.s NA

## LOWER FORT MASON

## BUILDING 321

## B. ROLL UP DOORS

## Stabilization and Maintenance

B.0 Blast corroded surfaces

\$ 120.<sup>00</sup> each opening plus \$ 2.80/sq ft

B.1 Repair small corrosion per Item 1.b

\$ 100.<sup>00</sup> Each location

B.2 Repair large corrosion per Item 1.c

\$ 180.<sup>00</sup> Each " plus \$ 3.50/sq in

B.3 Structural steel corrosion per Item 7.m

\$ Each " plus \$ /sq.in

B.4 Prime blasted area w/ 2 coat epoxy

\$ 90.<sup>00</sup> per opening plus \$ 4.20/sq inchB.5 Prepare balance of surfaces and apply  
2 coat poly urethane finish coats\$ 240.<sup>00</sup> per opening

## LOWER FORT MASON

SHEET 422.01

BUILDING 422 322

## 2. TILE ROOFS

## Stabilization and Maintenance

- |  |                      |  |
|--|----------------------|--|
| 2a. Replace cracked tiles  | \$120. <sup>00</sup> | per location plus \$18. <sup>00</sup> /SF              |
| 2b. Replace broken tiles. Repair damaged roofing felt and nailers  | \$190. <sup>00</sup> | per location plus \$28. <sup>00</sup> /SF              |
| 2c. Reset displaced roofing tiles  | \$100. <sup>00</sup> | per location plus \$18. <sup>00</sup> /SF              |
| 2d. Allowance for replacement of cracked or broken tiles due to items 2.a-b-e  | \$300. <sup>00</sup> | Allowance  |
| 2e. Repair or replace broken gutters with copper of same configuration and soldered joints.                                  | \$120. <sup>00</sup> | for each location plus \$14. <sup>00</sup> /Li.<br>Ft. |
| 2f. Repair or replace broken leaders with copper of same configuration and soldered joints. Prime & paint to match existing. | \$100. <sup>00</sup> | for each location plus \$18. <sup>00</sup> /Li.<br>Ft. |
| 2g. Obtain mortar samples  | \$250.               | Lump Sum   |
| 2h. Chemical Analysis of mortar samples  | \$300.               | L.S.   |
| 2i. Check all roof drains and clear obstructed roof drains.  | \$100                | L.S.   |

## LOWER FORT MASON

BUILDING 422 322

## 3. BITUMINOUS ROOFS

## Stabilization and Maintenance

3a Check all roof drains and clear  
obstructed roof drains\$ 301.<sup>00</sup>

Each

3b Install new drain screens

\$ 351.<sup>00</sup>

Each

3c Remove and replace deteriorated flashing

\$ 22.<sup>00</sup>

per Lin Ft.

## LOWER FORT MASON

SHEET 422.03

## BUILDING 422 322

## G. WINDOWS

## Stabilization and Maintenance - Factory Sash

## Second Floor

G.g Make windows operable

\$ 120.<sup>00</sup>

per window

G.h Replace missing hardware

\$ 80.<sup>00</sup>

per window

G.i Remove loose paint &amp; repaint inside &amp; outside

\$ 210.<sup>00</sup>

per window

G.j

NA

## First Floor

G.g Make windows operable

\$ 120.<sup>00</sup>

per window

G.h Replace missing hardware

\$ 80.<sup>00</sup>

per window

G.i Remove loose paint &amp; repaint in &amp; out-side

\$ 160.<sup>00</sup>

per window

G.j

NA

## Miscellaneous

G.j Repair small corrosion per Item 1.b

\$ 100.<sup>00</sup>

Each

G.k

NA

G.l Repair large corrosion per Item 1.c

\$ 180.<sup>00</sup>

Each plus \$ 13.50 per sq. in.

G.m

NA

G.n Replace broken glass

\$ 135.<sup>00</sup>

Each Light

G.o

NA

G.p Replace deteriorated glazing compound

\$ 105.<sup>00</sup>

Each Light

G.r

NA

G.s

NA

## LOWER FORT MASON

BUILDING ~~422~~ 322

## B. ROLL UP DOORS

## Stabilization and Maintenance

|   |                       |                   |                              |
|---|-----------------------|-------------------|------------------------------|
| B.a Blast corrected surfaces  | \$ 120. <sup>00</sup> | each opening plus | \$ 2. <sup>00</sup> / sq ft  |
| B.b Repair small corrosion per Item 1.b                                       | \$ 100. <sup>00</sup> | Each location     |                              |
| B.c Repair large corrosion per Item 1.c                                       | \$ 180. <sup>00</sup> | Each " plus       | \$ 13.50 / sq in             |
| B.d Structural steel corrosion per Item 7.m                                   | \$ 200. <sup>00</sup> | Each " plus       | \$ 12. <sup>00</sup> / sq in |
| B.e Prime blasted area w/ 2 coat epoxy  | \$ 90. <sup>00</sup>  | per opening plus  | \$ 3.50 / sq in              |
| B.f Prepare balance of surfaces and apply<br>2 coat polyurethane finish coats | \$ 240. <sup>00</sup> | per opening       |                              |



APPENDIX F - GLOSSARY



General Treatment and Use

- °Every reasonable effort shall be made to provide an adaptive and compatible use for a historic structure that requires minimal alteration of the structure and its environment, or to use a historic structure for one or more of its historically intended purposes. Adaptive use of prehistoric structures is prohibited.
- °The use of each structure shall be regulated to minimize both immediate and long range damage to the structure, its environment, and its historic contents.
- °The distinguishing qualities or character of a structure and its environment shall not be destroyed. The removal or alteration of any significant material or distinctive architectural features should be avoided when possible.
- °All structures shall be recognized as products of their own time. Alterations that have no historical basis are prohibited.
- °Changes which have taken place in the course of time are evidence of the history and development of a structure and its environment. These changes may have acquired significance in their own right, and this significance should be recognized and respected.
- °Distinctive architectural features or examples of skilled craftsmanship which characterize a structure shall be treated with sensitivity.
- °Deteriorated architectural features shall be repaired rather than replaced, wherever possible. In the event replacement is necessary, the new material should match the material being replaced in composition, design, color, texture, and other visual qualities. Repair or replacement of missing architectural features shall be based on accurate duplications of features substantiated by archeological, historic, physical, or pictorial evidence rather than on conjectural designs or the availability of different architectural elements from other structures.
- °New or replacement fabric shall be identified, documented or permanently marked in an unobstrusive manner to distinguish it from original fabric. The manner of identification and location of marks shall be recorded in park files and the Historic Structure Preservation Guide (HSPG).
- °The surface cleaning of structures shall be undertaken with the gentlest means possible. Cleaning methods that will damage the structure materials or accelerate deterioration are prohibited.
- °All treatment work that may affect surface or subsurface archeological resources shall be evaluated by an archeologist. Conversely, all proposed

ground-disturbing activity, including archeological work near a structure, shall be evaluated by a historical architect to assess possible impacts on the structure.

°When it is desirable to save examples of architectural elements removed from a structure, these elements shall be accessioned and cataloged into the National Catalog system, providing that they fall within the park's Scope of Collection Statement (See "Management Policies," Ch. V, p. 11).

#### Planning, Programming, and Implementation

°Appropriate structures shall be included in the List of Classified Structures (LCS) ("Management Policies," Ch. V, pp. 5-6).

°An Historic Structure Preservation Guide (HSPG) shall be prepared for structures listed on the LCS ("Management Policies," Ch. V, p. 17).

°An Historic Structure Report (HSR) shall be prepared whenever there is to be major intervention into a structure, or where activities are programmed that affect the qualities and characteristics that make the structure significant for listing on the LCS, containing information consistent with the level of the planned action.

°Architectural and archeological investigations supporting an HSR shall have the least possible impact on the property studied. They shall be described in a task directive, which includes an impact analysis and justification. Such investigations of a property listed on or eligible for listing on the National Register are subject to compliance with Section 106 of the National Historic Preservation Act (amended 1980) prior to initiation.

°Pending ultimate treatment, the structure, its environment, and all related physical evidence shall be maintained and protected.

°A proposed treatment project on a structure shall be initiated by the appropriate programming document and must include scope of work and cost estimates from either the HSPG or the HSR. Such projects include preservation maintenance as well as ultimate treatment. No treatment shall be undertaken without an approved HSPG or HSR documenting the work or, in the case of emergency stabilization and preservation maintenance, approval by the Regional Director on recommendation of the regional cultural resource specialists.

°All proposed projects shall be submitted for review using the Form XXX by the regional cultural resource specialists and other professionals (such as structural, civil, mechanical, and electrical engineers, soil scientists, and geotechnical specialists) before implementation.

- °All fabric-related projects shall be directed by a historical architect and preformed by qualified technicians.

#### Preservation Maintenance

- °Structures shall be maintained by qualified technicians in accordance with an approved HSPG. If such guides are nonexistent or incomplete, an historical architect will provide technical supervision. As needed, the historical architect will consult with other appropriate specialists, such as archeologists, historians, curators, and conservators. A preservation guide shall be prepared.
- °All elements of structures shall be inspected annually or, if appropriate, on a less frequent but predetermined schedule, and reports of their condition prepared for necessary action.
- °All modification or replacement of fabric shall be preceded by recording and studying sufficient to protect inherent research and interpretive values, and ensure the accuracy of the new work.
- °All work must retain the maximum feasible amount of original fabric. When fabric has deteriorated beyond repair, replacement work must match related fabric, and must be identified or permanently marked in an inobtrusive manner to distinguish it from the original fabric.

#### Stabilization

- °Stabilization shall reestablish the structural stability of a structure through the reinforcement of loadbearing members or by arresting deterioration leading to structural failure. Stabilization shall also reestablish weather-resistant conditions for a structure.
- °Stabilization shall be accomplished in such a manner that it detracts as little as possible from the structure's appearance and significance. When reinforcement is required to reestablish structural stability, such work shall be concealed wherever possible so as not to intrude upon or detract from the aesthetic and historical or archeological quality of the property, except where concealment would result in the alteration or destruction of historically or archeologically significant material or spaces. Accurate documentation of stabilization procedures shall be kept and made available for future needs.
- °Stabilization work that will result in ground disturbance shall be preceded by sufficient archeological investigation to determine whether significant subsurface features or artifacts will be affected. Recovery, curation, and documentation of archeological features and specimens shall be undertaken in accordance with appropriate professional methods and techniques.

### Preservation

- ° Preservation shall maintain the existing form, integrity, and materials of a structure. Substantial reconstruction, restoration of lost features, or removal of accretions are not included in a preservation undertaking.
- ° Preservation includes techniques of arresting or retarding deterioration through a program of ongoing maintenance.
- ° Use of destructive techniques such as archeological excavation shall be limited to providing sufficient information for preservation.

### Rehabilitation

Rehabilitation is a treatment that improves the utility or function of a structure and often involves life safety and other code improvements. Rehabilitation does not apply to prehistoric structures, ruins, monuments, statuary, or buildings that serve as historic house museums. Its use should be limited to structures that are being adaptively used and that do not play a primary role in a park's interpretive program. In instances where preservation tax credits may be claimed, the Secretary of the Interior's "Standards for Rehabilitation" will be the minimum requirement.

- ° Contemporary design for alterations and additions to historic structures shall not be discouraged when such alterations and additions do not destroy significant historic, architectural, or cultural material and such design is compatible with the size, scale, color, material, and character of the structure, neighborhood, or environment.
- ° Whenever possible, new additions or alterations to historic structures shall be done in such a manner that if such additions or alterations were removed in the future, the essential form and integrity of the structure would be unimpaired.

### Restoration

Restoration is a major intervention and may include the destruction of later period accretions having some cultural value in themselves. The criteria for "need of restoring for understanding" and "information to restore without conjecture" must be rigorously applied. There should be no restorations of prehistoric or historic ruins ("Management Policies," Ch. V, p. 16).

- ° Restoration may take place only when essential for public understanding and appreciation of the park's historical or cultural associations, and when adequate interpretation cannot be imparted through other means.
- ° Archeological, historical, and architectural data must be sufficient to permit accurate restoration with minimum conjecture.

- °Every restoration shall be preceded by a detailed HSR containing study and documentation of the structure. Changes made during restoration shall be carefully documented.
- °Fabric shall be safeguarded during and after restoration.
- °Important structural and architectural features, samples of paint, mortar, plaster, and other elements of the structure removed during research and restoration and important to a technical understanding of the structure shall be promptly accessioned and preserved.
- °Reinforcement required for structural stability or the installation of protective or code-required mechanical systems (HVAC, electrical, security, fire protection, etc.) shall be concealed whenever possible so as not to intrude or detract from the property's aesthetic and cultural qualities, except where concealment would result in the alteration or destruction of culturally significant materials or spaces.
- °Restoration work such as the demolition of non-contributing additions that will result in ground or structural disturbance shall be preceded by sufficient archeological investigations to determine whether significant subsurface or structural features or artifacts will be affected. Recovery, curation, and documentation of archeological features and specimens shall be undertaken in accordance with appropriate professional methods and techniques.

### Reconstruction

The Service does not endorse, support, or encourage the reconstruction of historic structures, and does not permit reconstruction or replication of prehistoric structures. In those limited circumstances when reconstruction will be considered, the following standards shall apply:

- °All proposed reconstruction projects shall receive formal approval from the Director.
- °Partial or full reconstruction of a historic structure shall be considered only when surface or subsurface remains will not be destroyed; the reconstructed structure must be full scale and on the original site.
- °Reconstructions shall be undertaken only such work is essential for public understanding and only if the subject structure is associated with a site's primary theme. In addition, all prudent and feasible alternatives to reconstruction must be considered; reconstruction also must be demonstrated to be the only alternative permitting appreciation of the historical or cultural association for which the park was established.

- °Archeological, historical, and architectural data must be sufficient to permit accurate reproduction of both the mass and detail with a minimum of conjecture; archeological work must include sufficient field investigation followed by detailed analysis and report preparation.
- °The reproduction of missing elements accomplished with new materials shall duplicate the composition, design, color, texture, and other visual qualities of the missing element. Reconstruction of missing architectural features shall be based upon accurate duplication of original features substantiated by physical or documentary evidence rather than upon conjectural designs or the availability of different architectural features from other structures.
- °Reconstruction to simulate ruined structures is not permitted; neither is reconstruction of prehistoric structures.

#### Historical Ships and Boats

- °Each vessel needs a designation statement showing ownership and authority for operation and maintenance funds expenditure, along with any associated legislative authorities; a vessel acquired or operated without specific legislative authority must have a statement recounting the planning process calling for acquisition of the vessel, and including long-term program requirements and the Director's specific authorization for its acquisition, operation, and maintenance.
- °Preservation and emergency treatment of the hull, superstructure, rigging, and fixed or movable machinery, as well as fixtures and equipment associated with vessel operation, will be carried out at properly equipped yards and docks. Such treatment of moveable machinery, fixtures, equipment, furnishings, and other objects original to the vessel or otherwise historically valuable will conform to curatorial standards.
- °A mooring plan that defines action for normal usage and storm conditions must be prepared. Moorage and docking facilities should be designed and located to minimize sudden damage or long-term deterioration of the vessel or historic berth structures through abrasion, electrolysis, impacts, strain, or storm forces.
- °Each vessel is to be inspected on a cycle sufficient to assure its floating integrity; each time a ship is in drydock, a marine board of survey report must document the vessel's current condition; an emergency plan shall be written, describing how to keep a vessel afloat or remove it from the water, including the preferred actions and describing the necessary equipment and personnel; where insufficient park personnel and equipment exist to carry out the emergency actions, standing contracts to perform the emergency work are to be in force.



## APPENDIX G - BIBLIOGRAPHY

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