

HISTORIC STRUCTURE REPORT

FORT POINT LIGHT

└ FORT POINT NATIONAL HISTORIC SITE

PRESIDIO

SAN FRANCISCO, CALIFORNIA

Prepared by
A. Lewis Koue, Architect
F. Ross Holland, Historian

DENVER SERVICE CENTER
HISTORIC PRESERVATION TEAM
NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR
DENVER, COLORADO

May, 1972

PREFACE

This report presents the work necessary to restore the historic values of Fort Point Light as they existed during its active historic period after its construction on the roof of Fort Point in 1864; and to correct a present danger to visitors and employees at the fort from deterioration of the structure.

Fort Point Light was not an integral part of the fort defenses, per se, but fulfilled the need for a maritime warning signal on the south shore of the entrance to San Francisco Bay.

Due to neglect since deactivation, the several parts of the structure have corroded and eroded away so badly that pieces of metal plate are loose and dangling, and present an unsightly hazard.

It should be noted that the Historical Data Section in scope goes beyond that of the Architectural Data Section. In compiling the architectural information Historical Architect Koue properly addressed himself solely to the problem now being faced: the restoration of the light tower.

On the other hand, Historian Holland decided to treat the whole Fort Point Light Station; consequently, some of his information is extraneous to the immediate problem. He took this approach for several reasons: (1) He felt that in the interest of efficiency it would be more economical to extract all the information in the National Archives on the light station at one fell swoop rather than having to make several trips there if, as is a probability, the Park Service should decide to restore the old bridge on the fort and the fog bell. (2) Just as important is the fact that it has been Historian Holland's experience that information on the dates of construction of various structures of the light station are a great aid in dating the plentitude of undated pictures of Fort Point that are floating about.

TABLE OF CONTENTS

	<u>PAGE</u>
ADMINISTRATIVE DATA	1
a. Identification and Proposed Treatment	
b. Proposed Use of the Structures	
HISTORICAL DATA	2
ARCHITECTURAL DATA	31
a. Record Drawings of Existing Conditions	
b. Existing Conditions	
c. Description of Fabric, Materials, Construction and Conditions	
d. Description of Proposed Construction and Preliminary Drawings	
e. Estimated Cost of Proposed Construction Activity and P.C.P.	
APPENDIX A	41
APPENDIX B	50
ILLUSTRATIONS - Nos. 1-22	53
Preliminary Drawing Fort Point Light at end	

I. ADMINISTRATIVE DATA

a. Identification and Proposed Treatment:

Fort Point is classified as "First Order of Significance". Fort Point Light, while not a function of the military defenses for which purpose the fort was constructed, did replace a light that had previously occupied the promontory, and had been constructed in 1864 on the roof of the fort as an adjunct to the structure.

Fort Point is recorded with the Historic American Building Survey under file number CAL 1239. The Congressional bill establishing Fort Point as a National Historic Site and authorized its restoration was signed by President Richard M. Nixon on October 19, 1970.

It is proposed by this report that the structure, only, for Fort Point Light shall be partially restored to the extent that it will preserve a prominent visual and historic feature in connection with Fort Point, and eliminate a present danger of falling parts from the deteriorating structure.

b. Proposed Use of the Structure:

The Fort Point Light shall constitute a major exhibit at Fort Point National Historic Site by virtue of the prominence of its location above a winding stone staircase projecting into the parade of the fort, and its importance to early navigation in and out of San Francisco Bay. It shall not be restored to active operation, and access to the enclosed spaces and the lantern shall be by special permission, only.

II HISTORICAL DATA

THE BEGINNING OF LIGHTHOUSES ON THE WEST COAST

In 1848 Congress passed its first act calling for lighthouses on this country's recently acquired west coast. The act created the territorial government for Oregon and in part designated lighthouses to be established at Cape Disappointment and New Dungeness, as well as buoys to mark the channel into the Columbia River.

The Secretary of the Treasury then instructed the Coast Survey to send a party in early 1849 to the west coast to select sites for these lighthouses congress desired. The up-shot was that once the survey party was on the west coast the Secretary of the Treasury, with the concurrence of Congress, decided to keep them there to select sites for other lighthouses.

The survey party was transported along the coast in the schooner Ewing, commanded by Lt. Washington A. Bartlett, who had achieved some fame, or perhaps notoriety, on the U.S.S. Portsmouth on its journey to the west coast in 1846, and subsequently, but briefly, as alcalde of San Francisco. During his tour of duty transporting the survey party, Bartlett wrote a letter to Washington recommending the placing of lighthouses on Farallon Islands, on Alcatraz Island, and at Fort, or Battery, Point.

In the meanwhile, agitation, mostly from politicians, seamen, and commercial interests, was building up to place lighthouses on the west coast, for none existed there at that time. Congress responded to this pressure in 1850 with bills to erect nine lighthouses on this country's Pacific verge; among them was a lighthouse for Fort Point. Subsequently Congress passed other bills to erect lighthouses, but despite these appropriations, little tangible action resulted to get the aids to navigation built. The principle reason for the holdup, it later turned out, was a brewing scandal.

The scandal involved a high career official in the Treasury Department who took unto himself, with the connivance, he later testified to a Congressional Committee, of the Secretary of the Treasury, the contract to build eight lighthouses on the west coast, including the one at Fort Point. The official, John McGinnis took the contract for \$136,000, but he knew nothing about construction. He hoped, he said, to subcontract the building of the lighthouse to experienced builders for \$121,000, thus realizing a tidy profit of \$15,000 on the contract.

He did manage to subcontract to two Baltimoreans, Francis A. Gibbons and Francis X. Kelley, who paid McGinnis \$15,000. The contract called for seven of the lighthouses, including the one at Fort Point, to be Cape Cod dwellings with a light tower rising through the center of each. The lighthouses at Cabrillo National Monument and at Point Pinos in Monterey are two of the lighthouses still standing that were built under this contract, and both are of this design.

About this time Congress learned of the scandal, called for a congressional investigation, and aired the whole miserable thing. The committee, headed by Senator Sam Houston of Texas, heard testimony from several of the principals, including McGinnis, and concluded the charges were true, with the Secretary of the Treasury having full knowledge of what had been transpiring. Gibbons and Kelley, however, were cleared of any wrong-doing.

If the Secretary was bothered by the results of the Committee hearing, he didn't show it, for he remained in office and did not leave until President Millard Fillmore's term expired in 1853.

WEST COAST LIGHTHOUSE CONSTRUCTION BEGINS

Despite this venality on the part of Treasury officials, Gibbons and Kelley went ahead with plans to build the lighthouses their contract called for. Chartering a bark, the Oriole, they loaded workers and all the material they needed to build the lighthouses and left Baltimore, headed for the west coast. Pausing at Panama for a small group of workmen to get off and take the shorter isthmus route to California, the ship headed southward to round Cape Horn and then upward to California.

In the meantime the isthmus party journeyed on to San Francisco where they hired additional workmen and, in December 1852, began erecting the Alcatraz Island lighthouse and the one at Fort Point.

Work continued on these two structures, and in late January 1853 the Oriole arrived in San Francisco. With augmented work force, all efforts centered on completing the two lighthouses. By the middle of March work had progressed far enough to permit a group of the workmen to leave and journey to Monterey to build the Point Pinos lighthouse.

Just when the Fort Point lighthouse was completed is not known, but by the end of July, 1853, Gibbons and Kelley had been paid two-thirds of the contract price of the structure, which indicates it was finished by then. The contract called for the builders to erect only the dwellings and towers; the lighting apparatus was to be supplied by the government.¹ The simple Cape Cod structure with a tower rising through the center was built within the horseshoe-shaped Mexican fort located near the end of Fort Point.^{1a}

1. The foregoing discussion is a synopsis of a portion of a manuscript entitled "Lighting the West Coast: The Story of the Building of the Pacific Coast's First Sixteen Lighthouses," which was written by me and is in my possession.

1a. Map, entitled "Sketch of Fort Point at the Entrance to San Francisco Bay, Oct. 11, 1853," Drawing 94-8, R.G. 26, National Archives.

In the meantime, Washington Bartlett had been dispatched to France to buy eight fresnel lenses for the west coast lighthouse; he purchased a third order lens for Fort Point. The lighthouse, however, was destined not to receive this lens, for the Army had decided to place batteries at Fort Point, and the lighthouse was in the way.

THE END OF THE FIRST FORT POINT LIGHTHOUSE

In September, 1853 the Army tore down the brand new, unlighted Fort Point lighthouse.² The Engineering Officer for the construction of the fortification at Fort Point felt the lighthouse was in the way, and, as we are very much aware today, defense matters take precedence over everything, even a navigational aid that might contribute to the saving of life. It would seem that the Lighthouse Board was not aware of this intended action until after the lighthouse was removed, at which time Gen. J. G. Totten, Chief Engineer, forwarded notification to the Board.³

2. Holland, "Lighting the West Coast." The lens ordered for this lighthouse was later used at the lighthouse at Point Pinos.

3. Wm. H. C. Whiting to J. G. Totter, San Francisco, September 30, 1853, in Clipping File, Fort Point, R. G. 26, National Archives.

THE SECOND FORT POINT LIGHTHOUSE

The Lighthouse Board's first reaction was to have the Army rebuild the Lighthouse at Fort Point, but Henry W. Halleck, then District Lighthouse Inspector, dissuaded the Board from this action, saying that it would be too expensive. The Board, he felt, should rebuild the lighthouse at Point Lobos. The Board, however, wanted a light at Fort Point, and selected a site outside and in front of the fortifications. When construction on this light tower began is not known, but the light on the tower was exhibited on March 21, 1855.⁴

4. Holland, "Lighting the West Coast."

Little is known about this light tower. An early-day picture shows it to have been four-sided and truncated and perhaps of frame construction. The 1859 Light List says that the focal plane of the light was 36 feet above the base of the white tower and 52 feet above the water. The lantern contained a fifth order lens which displayed a fixed white light.⁵

THE THIRD FORT POINT LIGHTHOUSE

This light remained in service until 1863 when additions to the fortifications required that the light be moved. The construction that necessitated removal of the tower was a sea wall, and the tower, being "at the extreme verge of the point," was in the way.⁶

5. Lighthouse Board, List of Lighthouses, Lighted Beacons, and Floating Lights of the United States, 1859 (Washington: William A. Harris, 1859); and Illustration 15. The only picture I have seen of this Fort Point Light and fog signal is in R. R. Olmstead, ed., Scenes of Wonder and Curiosity from Hutchins California magazine, 1856-1861 (Berkeley: Howell North, 1962), p. 77. It is not a good picture, but it does show the location of the two structures in relation to the fort. In this book, p. 84, can be found the following description of the second Fort Point Light Station: "The Lighthouse adjoining the fort can be seen for from 10 to 12 miles, and is an important addition to the mercantile interests of California, although we regret to say, it is only of the fifth order, and known as the 'Fresnel Light,' and is the smallest on the coast; the lantern is 52 feet above [sea] level. Two men are employed to attend it. Connected with this is a Fog Bell, weighing 1,100 pounds, and worked by machinery, that strikes every ten seconds, for five taps; then has an intermission of thirty-four seconds, and recommences the ten-second strike. This is kept constantly running during foggy weather."

6. Lighthouse Board Journal, July 26, 1862 - April 25, 1867, v.2, p. 94-96, R.G. 26, National Archives.

In July, 1863 the Board, with the approval of the Army,⁷ decided to place the light over a stairway at the fort. "The stairway selected," the Site Committee said, "is 90 feet from the crest of the work at the nearest bastion elevated 71 feet above low water. The light to be seen at the 12 fathom curve which runs close to the point must be elevated 36 feet above the stairway, itself six feet below the crest of the work, but as a reduction of 7 feet in elevation will reduce the illuminated water but 16 feet horizontally, the reduced height is recommended. To obtain the elevation a boiler plate conical frustrum of 12 feet base, 24 feet in height to receive the lantern is recommended and will cost about \$3,000, to which should be added \$1,000 to put it in position and to transfer the present lantern and lens."⁸

The District Engineer, R. S. Williamson, did not like the idea of using the old lantern, saying that it was made partly of wood, it was too small inside, and the panes of the lantern needed

7. The Army had given its approval to move the light to the top of the fort the previous April. See Totten to DeRussey, April 6, 1863, Letters sent to Engineering Officers, 1812-69, v. 35, p. 145, R.G. 77, National Archives. Interestingly enough, the Army had anticipated the Lighthouse Board, because the Board was not notified by the District Engineer of the need to move the light until June, 1863. See Lighthouse Board Journal, July 26, 1862-April 25, 1867, v.2, p.83, R.G. 26.

8. Ibid. Lighthouse Board Journal, July 26, 1862-April 25, 1867, v.2, p.94-96.

to be larger and thicker. The Board concurred with Williamson and ordered that a nine-sided lantern be taken out of storage in Philadelphia and shipped to San Francisco.

Williamson further recommended that the light tower be constructed of metal because "it may be perforated by balls without materially injuring it, unless a ball should strike the lens."

The Board felt this recommendation was reasonable, and the members voted to give Williamson "carte blanche" to construct the light tower as he saw fit. Apparently the only instructions given to him was the committee recommendation that the tower be "a pile structure of 9 sides for the light (corresponding to the 9 sides of the lantern and of the capstones of the stairway) having a watchroom of boiler iron."⁹

Little else is known of the construction of this tower. It cost slightly less than the \$4,000, the Board figured.¹⁰ The light in its new position was apparently exhibited in January, 1864.

The lantern atop the tower was of the fourth order, but the lens remained of the fifth order.¹¹

9. Ibid. pp. 97-98.

10. R. S. Williamson to W. B. Schubrick, San Francisco, Feb. 12, 1864, Correspondence received from Engineers, 12th & 13th District, July 1870-Jan. 1871; Clipping File, Fort Point, R. G. 26.

11. Peter C. Hains to R. S. Williamson, Jan. 5, 1878, L.H. Board, Letters to 12th Dist. Eng., July 7, 1874-June 1880, R. G. 26.

Situated on the northwest bastion of the fort the white tower exhibited a light that had its focal plane 36 feet above the base of the tower and 166 feet above the water. The light shone around the entire horizon.¹²

It would appear little change, other than routine scraping and painting, occurred to the light tower over the years. Even the 1906 earthquake did little damage to it, the Inspector reporting that all rivets were sound and there was no distortion of metal members. This light, last listed in the 1934 Light List, went out of service on September 1, 1934.¹³

LANTERN AND LENS

As mentioned earlier, the new light tower on Fort Point had a fourth order lantern and a fifth order fixed lens. The lantern through the years has apparently remained, sustaining but minor injuries. The india rubber seal was exposed to salt air in the transit of the lantern from the east coast to the west coast

12. Lighthouse Board, List of Light-Houses, Lighted Beacons, and Floating Lights of the Atlantic, Gulf, and Pacific Coasts of the United States, 1871 (Washington: G.P.O., 1871).

13. Letter of May 1, 1906 in Fort Point File No. 1, Box 6, 12th L.H. District, R.G. 26; U.S. Lighthouse Service, Light List, Pacific Coast, 1934 (Washington: G.P.O., 1934).

with the result that within five years the lantern leaked, necessitating the resetting of all the glass in it. In April 1908 the firing of the guns at either Battery Lancaster or Battery Cranston caused small cracks to appear in the lantern's glass.¹⁴ But these were minor damages quickly repaired.

The color of the lantern changed over the years. Until 1888 the lantern was white with a red dome. In that year the lantern and dome were painted black,^{14a} and apparently remained that way until the light went out of service in 1934.

The lens in the lantern had a more complex history. The fifth order lens continued in use until the late 1870s when the Lighthouse Board felt that Fort Point should have a more distinctive light for it to be most effective to the mariner. It accordingly ordered the main supply depot to ship a fourth order fixed lens that exhibited a white light varied by red

14. Clipping File, Fort Point; R. S. Williamson to W. B. Schulrick, San Francisco, July 9, 1868, in Lighthouse Board, Engineer 12th and 13th Districts, July 1868-May 1869; Fort Point, File No. 2, Box 12th L. H. Dist., all in R. G. 26.

14a. Lighthouse Board, List of Beacon, Buoys, Stakes and Other Day-Marks in the Twelfth Light-House District...1882 (Washington: G.P.O., 1882), and Sane, 1888, and Lighthouse Board, List of Lighthouses, Lighted Beacons, and Floating Lights on the Atlantic, Gulf, and Pacific Coasts of the United States (Washington: G. P. O. 1886.)

flashes every 15 seconds.¹⁵ This new lens went into service around April 1878 and its light was officially described as "a fixed white light for one minute followed during the succeeding minute by four consecutive red flashes."¹⁶

Within three years this lens exhibited problems. The red shields rotated irregularly because of defects that appeared in the pedestal. The pedestal and table were replaced with new ones in June 1881, and the light began once again to function normally.¹⁷

There was talk of installing a second order lens in the lantern in 1889, but nothing came of this and the fourth order lens continued to serve until 1902. In 1901 the District Engineer requested a new lens apparatus for the Fort Point lighthouse. Upon recommendation of the Committee on Lighting,

15. Pete C. Hains to R. S. Williamson, Dec. 14, 1877, Jan. 5, 1878, Lighthouse Board, Letters to 12th Dist. Eng., July 7, 1874-June 19, 1880. R. G. 26. The lens was a typical fixed fresnel lens of the fourth order. The flashing red effect was achieved by rotating a red panel or panels around the outside of the lens. The rotation was done by a clockwork system, using weights. For a drawing of such a lens see F. R. Holland, Jr., America's Lighthouses: Their Illustrated History since 1716 (Brattleboro, Vt.: The Stephen Green Press, 1972), p. 20.

16. Hains to Williamson, March 22, 1878, in Lighthouse Board, Letters to 12th Dist. Eng., July 7, 1874-June 19, 1880.

17. F. U. Farquhar to R. S. Williamson, Feb. 11, 1881, in Lighthouse Board, Letters to Engineer 12th Dist., July 1, 1880-June 30, 1885; Clipping File, Fort Point, both in R. G. 26.

the Board ordered the main supply depot to furnish "one 4th order flashing lens, 6 panels, made by Chance Bros. One pedestal, clock and ball bearings complete, to be made at the Lamp Shop with three additional red panels, the lens to give alternate red and white flashes at intervals of 5 seconds." But there was a problem: that particular lens was on display at the Pan American Exposition. There was a similar lens in stock, made by a French company, and the supply depot offered this one. But apparently the Board or some one was set on the Chance Bros. lens; so, it was decided to delay installing a new lens for over a year. In late August 1902 the lens was shipped to San Francisco. In December 1902 a Notice to Mariners was issued stating that the Fort Point light would be extinguished on January 17, 1903, and two lens lanterns, a red one above a white one, would be put into service. These lights would serve until Jan. 22, 1903 when the new flashing light would be established.¹⁸ This light flashed "alternately white and red, with interval between flashes of 5 seconds."¹⁹

18. Engineer Secretary to C.E.L.B. Davis, Washington, May 1, June 10, June 14, 1901, in Lighthouse Board, Letters to Engineer 12th Dist., Jan. 1, 1901-June 30, 1902; Engineer Secretary to Thomas H. Handbury, Washington, Aug. 15, 1902, and Naval Secretary to Thomas H. Handbury, Washington, Dec. 10, 1902, both in Lighthouse Board, Letters to Engineer 12th Dist., July 1, 1902-June 30, 1904; Fort Point File No. 1, Box 6, 12th L.H. Dist., R.G. 26.

19. Clipping File, Fort Point.

Over the years the lenses had various lamps. The lamp in the lighthouse built below the fort at the water's edge was probably a Cornelius lamp adjusted to use lard oil. Sometime later, possibly at the building of the light tower on the fort, a Funck float lamp, designed also to use lard oil, was in service until 1880 when the light station began using mineral oil and acquired a Hains lamp. This lamp was replaced in 1890 by a Funck-Heap lamp.

Mineral oil lamps, even with the changes in lenses, continued in use until July 1910 when an incandescent oil vapor lamp system was installed.²⁰

FOG SIGNALS

The first fog signal installed at Fort Point was a fog bell which the Lighthouse Board had placed there in the spring of 1856. Located in the front of the fort, the signal and its machinery was on a framework structure. The machinery appears to have been thirty feet above the ground and the fog bell another ten or so

20. Clipping File, Fort Point; James F. Gregory to W. H. Heuer, Washington, Dec. 31, 1889, in Lighthouse Board, Letters to Engineer 12th Dist., July 1, 1888 to Dec. 31, 1889; Fort Point File No. 3, Box 6, 12 Dist., all in R. G. 26.

feet above that. The machinery was enclosed to keep moisture out, but the bell, except for a roof over it, was open.²¹

This signal, typical of the period, was actuated by a falling weight that tripped a hammer that struck the bell at regular intervals.

By 1859 a foghorn had also been added, and both apparently were sounded during periods of fog.²² This practice seems unusual since the normal procedure at most light stations was to use one of the signals as back-up in case of failure of the principal one.

As with the light tower, it became necessary to move the fog signal structure in 1863 when the approaching sea wall began impinging upon the site of both towers which were "at the extreme verge of the point."

21. J. D. Custer to G. Castor Smith, Morristown, Pa., Feb. 1856, Lighthouse Board, Engineer and Inspector, 12th District, Feb. 1856-June 1856; clipping File Fort Point. Although installed in 1856, there is some indication that the fog bell did not go into service until the following year. See Hartman Bache to J. C. Fruchey, April 10, 1857, in Treasury Department No. 5.

22. Lighthouse Board, List of Lighthouses, Lighted Beacons, and Floating Lights of the United States, 1859 (Washington: William A. Harris, 1859).

The Lighthouse Board, after some deliberation, decided to "hang the bell outside the walls of the Fort -- the striking machinery being placed inside within a reasonable distance where there is sufficient drop for the motive weight."²³ A drawing of the period shows the fog signal house located on the exterior wall of the northwest bastion and the machinery house situated also on the outer wall, but around the corner from the bell.²⁴

The bell in its new location went into service in 1867 and during that year saw nearly 600 hours of use.²⁵

Despite the fact the fog bell received some damage because of the firing of guns immediately over it in 1869, no effort was made to move the signal. Many, however, felt the signal was inadequate, and in 1877 San Francisco shipping agents and others connected with the maritime trade petitioned the Lighthouse Board to

23. Lighthouse Board Journal, July 26, 1862-April 25, 1867, v.2, pp. 83, 94-96, 98.

24. See Illustration 20.

25. Clipping File, Fort Point; R.S. Williamson to W.B. Schubrick, San Francisco, Dec. 16, 1870, Letters received from Engineer, 12th & 13th District, July 1870-Jan. 1871.

install a fog whistle at Fort Point. The Board obtained permission to erect a fog whistle at Fort Point, but after due consideration the Board decided a fog whistle there would compete with the fog signal at Point Bonita and cause confusion to the navigator. To solve the problem, District Engineer Williamson recommended that a larger fog bell be installed at Fort Point to replace the small one (1090 pounds) already there. Accordingly, and disregarding subsequent pressure from the maritime interests, the Board ordered the large auxiliary bell at Yerba Buena Island to be swapped with the one at Fort Point.²⁶ In 1880 the bells were exchanged, and at the same time the machinery to operate it was moved to a structure above the bell.²⁷

26. Lighthouse Board, List of Light-house, Lighted Beacons, and Floating Lights of the Atlantic, Gulf and Pacific Coasts of the United States, 1871 (Washington: Govt. Printing Office, 1871); R.S. Williamson to Joseph Henry, San Francisco, Nov. 5, 1873, Lighthouse Board, 12th District Engineer, 1873-1874; Peter C. Hains to R.S. Williamson, Dec. 22, 1877, F.U. Farquhar to R.S. Williamson, Sept. 30, 1879, and Jan. 8, 1880, Lighthouse Board, Letters to 12th District Engineer, July 7, 1874 to June 19, 1880; Secretary of War to Secretary of Treasury, Washington, Feb. 28, 1878, Clipping File, Fort Point.

27. Clipping File, Fort Point. In 1910 the fog bell and house was described "The size of fog bell at Fort Point is 4'7-1/2" diameter at the bottom, 2'5-1/2" diameter at the top and 3'5" high. Estimated weight 3000 lbs..... Floor of the fog signal room is about 2'2" below outer edge of parapet, 3' below top of earth fill next [to] the house and 3'10" below top of window stool. Distance from wall of signal house to W[.] edge of parapet is about 13 feet. From floor of room to under side of cornice 10'6", cornice 8" high." See Fort Point File No. 3, Box 6, 12th District.

The new bell did not solve the problem, and the Lighthouse Board received numerous complaints. At first the Board decided to move the bell "to the terreplein or superior slope of Fort Point, in the hope that its range of sound may be improved." But within six months the Board reversed itself and ruled that the fog bell should be left in place. Apparently this decision was brought about because of the refusal of the Army to permit the fog bell to be relocated. Williamson, although District Lighthouse Engineer, recommended, in his role of post engineer of Fort Point, against removal of the fog signal. It was an unfortunate decision, for in the spring of 1882 the Columbia ran up on the rocks in San Francisco Bay. The District Inspector suggested that the accident might not have occurred had a steam whistle been in service at Fort Point.²⁸

But in spite of this shipwreck, over 20 years and another disaster were to pass before Fort Point received a new fog signal. In 1889 the Board attempted to improve the signal by installing a new striking apparatus, but the problem was not solved, and in 1899 the Board bowed to public pressure and recommended that

28. F. U. Farquhar to C. J. McDougal, Feb. 10, 1881, Farquhar to G. W. Coffin, June 7, 1881, and George Dewey to Coffin, April 11, 1882, Lighthouse Board, Letters to 12th District Inspector, July 9, 1878 to June 29, 1882; Farquhar to R. S. Williamson, Feb. 15, March 17, June 7, 1881, Lighthouse Board, Letters to Engineer 12th District July 1, 1880-June 30, 1885.

Congress appropriate money for "a second class Daboll trumpet, blown by compressed air" for the Fort Point station. Congress did not respond immediately; but the wreck of the Rio de Janiero on Fort Point Shoals with a loss of over 100 lives prodded Congress into action, and in June 1902 it appropriated the necessary \$7,000.00 for the fog whistle.²⁹

The site the Board selected for the new fog signal was on the northwest bastion, directly over the bell. But construction proved a hang-up. The fog signal house was to be of brick of a type to correspond with the fort. When put out to bid the lowest one received was \$3,100.00, which the District Engineer felt was too high and would not leave enough money for the whistle and its machinery. Consequently, the District Engineer requested the Board to reject all bids and let him build the structure with day labor, using hard burned brick instead of pressed brick. The Board concurred, and the District Engineer built the structure

29. Clipping File, Fort Point.

(of concrete, not brick), and installed the Daboll trumpet, which was powered by two 5-horse power Hornsby-Akroyd engines. The new fog signal was first used on October 1, 1904, and it was situated 85 feet northwest of the light tower.³⁰

The Board had originally intended to remove the fog bell after the new signal was installed, but later changed its mind and left the bell as the back-up signal. In 1910 the keeper found the fog bell had been vandalized. Someone had cut the starting cord, damaged the machinery, and taken away the clockwork system. Apparently this vandalism prodded the Lighthouse Board into thinking about the location of the fog bell, for at this time it decided to move the fog bell to the top of the fort "to the north side of the fog signal room, where its sounds could be heard inside the

30. Fort Point File No. 1, Box 6, 12th Lighthouse District: Thomas Perry to C.E.L.B. Davis, Oct. 21, Nov. 9, 1899, Lighthouse Board, Letters to Engineer, 12th District, Jan. 1, 1899-Dec. 31, 1900; Engineer Secretary to Thomas H. Handbury, Jan. 7, March 23, Aug. 10, 1903, Lighthouse Board, Letters to Engineer 12th District, July 1, 1902-June 30, 1904; U.S. Lighthouse Board, List of Lights, Buoys and Daymarks on the Pacific Coast of the United States, 1908 (Washington: G.P.O., 1908).

In 1908 a vestibule was added to the fog signal house. See Fort Point File No. 2, Box 6, 12th Lighthouse District.

Golden Gate better than its present position, and that the striking machine be placed inside the engine room." In October 1910 the bell was moved to that location,³¹ ready for use should the steam whistle break down.

The fog whistle continued in service until March 11, 1911 when a second class compressed air siren took its place.³²

31. Fort Point File No. 3, Box 6, 12th District.

32. Ibid; U.S. Lighthouse Service, Light List, Pacific Coast, 1912 (Washington: G.P.O., 1912)

THE BRIDGE

To give the keepers direct access between the lighthouse on the summit of the fort and their dwelling on the plateau behind the fort, the Lighthouse Board authorized a wooden foot-bridge to span the gap between the fort and the bluff. The keeper had to descend steep stairs down the bluff and then climb up through the fort to the light. The wooden bridge, built in 1874, was a considerable convenience to the keepers.

Repaired from time to time, the bridge by 1899 had become unsafe and had to be replaced. A contract was let to Robert McCann in the fall of 1899 to erect a steel bridge, and he completed it in the early part of 1900.³³

33. Clipping File, Fort Point; Naval Secretary to L.H. Engineer, 12th Dist., Oct. 10, 1899, Engineer Secretary to C.E.L.B. Davis, Jan. 12, 1900, Lighthouse Board, Letter to Engineer 12th District, Jan. 1, 1899 to Dec. 31, 1900.

During the earthquake of 1906 the movement of the south wall of the fort pulled the 92-foot bridge southward, knocking the bridge off its south concrete foundation. The inspection report said:

"The N. end of this bridge is anchored to the S (false) wall of the fort and the S. end of the bridge rests on a plate, with rollers, to allow for movement. The S. wall of the Fort has moved, at the top, about 15" + outward causing a like movement of the bridge which carries the S. end nearly off its supports. As the S. wall of the Fort will, doubtless, have to come down, it would appear that the best repair would consist of resetting the bridge adding about 13'-14' to its N. end (so as to bring the anchored support on the arch work of the Fort, which is injured) and giving the other members of the bridge such reinforcement as this additional length will demand."

The Lighthouse Board apparently had a new bridge built and extended it fourteen feet northward.³⁴

34. Fort Point File No. 1, Box 6, 12th L.H. District. The Board may not have had a new bridge built; there is some indication that the old bridge may have been used and extended the necessary 14 feet. See Engineer Secretary to Engineer, 12th L.H. District, Washington, Sept. 8, 1906. L.H. Board, Letters to Engineer 12th District, Jan. 1, 1906-Dec. 31, 1906.

KEEPERS' DWELLINGS

It is not known when the first keeper's dwelling was erected for the Fort Point Station, but by 1867 there was one, apparently on the bluff behind the fort. This dwelling served until 1884 when the Lighthouse Board constructed two dwellings closer to the fort, but still on the bluff. These two houses were variously described through the years in the Light List as drab or buff with green shutters. In 1888 they were painted white, and in 1899 the roofs were painted red.³⁵

In 1899 a fence enclosing the two dwellings was built, and in 1897 the keepers built concrete walks around the dwellings. In the same year construction was begun on a tramway from the road at the base of the hill to the top where the dwellings were. "It consists," said a contemporary description "of stringers supported on trestles and extends from a platform built at the side of the road up the hill to the front of the keepers' dwellings. This is an assistance to the keepers, as before its construction all supplies had to be carried up the

35. Site File, Fort Point; Clipping File, Fort Point; Lighthouse Board, List of Beacons Buoys, Staker and Other Day-marks in the Twelfth Lighthouse District.... 1882; 1884; 1888; List of Light-houses, Lighted Beacons, and Floating Lights on the Atlantic, Gulf, and Pacific Coasts of the United States, 1885; 1886; 1889. List of Beacons...1884 described the cottages as being of Eastlake style.

steep trail on the shoulders of men." A further convenience was added in 1904 when a "board walk was built from the roadway at the base of the brick fort to the top of the hill on which the keepers' cottages are situated."³⁶

In 1908 a third dwelling was built at the light station. It was located near the road at the base of the hill on which the other two dwellings resided. At the same time the two older cottages were put into good condition.³⁷

36. Clipping File, Fort Point.

37. Fort Point File No. 2, Box 6, 12th L.H. District. The principal damage the 1906 earthquake did to the two dwellings was to the chimneys. The chimneys of both structures had to be rebuilt. See clipping File, Fort Point.

MISCELLANEOUS STRUCTURES

Over the years the Lighthouse Board added other structures to the light station. In 1895 a 25,000 gallon water tank was installed near the dwellings, and because of the unreliability of the previous source of water, the Army reservoir, the Board had a catch basin of concrete laid. Completed in 1896, the basin poured water into the station cistern. Also during that year another 25,000 gallon tank was erected. It was placed on a hill behind the dwellings and a pipe from it ran to the cottages to supply water in case of fire.³⁸

The light station had an oil house, but where it was located is uncertain. Possibly the station's oil was stored in one of the rooms of the fort. In late 1908 and early 1909 the Board erected a concrete oil house, measuring 6' x 9' on the inside, was built on the fort; its exact location, however, is not known.

38. Clipping File, Fort Point. At a later date the light keepers hooked once again into the Army reservoir, a condition the Army did not discover until 1908. The Army began in that year to charge the Lighthouse Service. See Fort Point File No. 1, Box 6, 12th Lighthouse District.

There may have been other lesser structures at the station, such as a shed for a cow. It is known that in 1908 one of the keepers had a cow, for the Army complained that the bovine was trampling the slopes of the fortifications.³⁹

One structure of the Lighthouse Service not associated with the Fort Point Light Station, but situated near it was the District buoy shed. Probably located at the water's edge south and east of the fort, this shed was built in 1856 by Major Hartman Bache when he was District Inspector. The building was 41 feet long, 20 feet wide, and nine feet high, but its peaked roof gave the shed a total height of 15 feet.

The shed was situated "500 feet above the upper wharf and 100 feet from high water," just four feet above the highest tide. The iron buoys rested on planks and sticks of wood. The object was to keep the buoys out of the weather.⁴⁰ This shed seems to have served until about 1878 when the District Depot was moved.⁴¹

39. Fort Point File No. 2, Box 6, 12th L.H. District; Engineer Secretary to Engineer, 12th L.H. District, April 28, 1908, Sept. 8, 1908, Letters to Engineer, 12th District, Jan. 1, 1908-March 31, 1909.

40. Hartman Bache to Thornton A. Jenkins, San Francisco, May 3, 1856, Lighthouse Board, Engineer and Inspector 12th District, Feb. 1853-June 1856.

41. Peter C. Hains to S.W. Casey, Jan. 10, 1878, Lighthouse Board, Letters to Inspector 12th District, July 17, 1874 to June 28, 1878.

RECOMMENDATIONS

Accomplishment Immediately:

Since the lighthouse was for many decades a part of the historic scene at Fort Point it is recommended that the old structure there be restored to its appearance during its active years and that a fourth order lens be placed in the lantern. The color of the tower and lantern and the style of the lens should conform to the period or year to which the fort is to be restored.

Accomplishment in the Future:

In view of the fact that the fog signal was an important part of this light station during the active years of the fort, it is further recommended that the fog signal house be restored and the appropriate signalling device placed in it. It is most likely that the restoration date of the fort will be prior to 1904; hence, it would be in keeping with the historic scene to rebuild the fog bell house, machinery house, and access steps on the outer wall of the northwest bastion as shown in Illustration No. 20.

It is further recommended that consideration be given to reconstructing the bridge connecting the area of the keepers' cottages with the light tower on the fort.

IV ARCHITECTURAL DATA

a. Record Drawings of Existing Conditions:

No original construction drawings have been located. As noted in the Historical Data, the structure, probably, was fabricated in San Francisco under the direction of District Engineer, Robert S. Williamson. The attached drawing is from field measurements by A. Lewis Koue, taken in March 1972, and though not complete in all structural details, does indicate the principal dimensions of the structure and the structural system and elements employed.

b. Existing Conditions:

Through neglect and exposure to the elements on the fog drenched shores of the entrance to San Francisco harbor - the Golden Gate - much of the exposed iron has been badly corroded and the sheet metal work in particular is in bad condition. Also, some damage appears to have resulted from bolts and other missiles falling during construction and maintenance operations overhead on the Golden Gate Bridge. The spiral iron stairs, gallery, glass and lightweight enclosing metal have weathered badly. The sheet metal siding is in hazardous condition and portions of it can be blown off by high winds and plane down into the parade of the fort.

However, the structural frame of heavy iron bars appears very sound and by proper maintenance can survive indefinitely.

c. Description of Fabric, Materials, Construction and Conditions:

The basic structure is unique in that it is a nine-sided structure conforming to the projected nine-sided masonry structure around the spiral stone stairway over which it is constructed.

The stairwell is 12 ft. in diameter. The base for the structure is 1 1/2" thick cast iron resting on a 3" high granite curb. The base was cast in three sections - circular on the inside and nine-sided on the outside, with a 9 1/2" fascia extending into the stairwell on the inside. Nine very large anchor bolts secure the base to the masonry walls. Nine cups approximately 6" in outside diameter and 9 1/2" high, equally spaced around the base, were cast into the base.

The main structural legs which form the basic frame of the tapered tower are 1" x 3" iron bars that were inserted into the cups described above. They are not bolted to the cups so must have been anchored by molten lead or some other such method. The structural legs are braced with 1" x 3" "X" bracing, forged or cast to conform to the taper of the tower.

At approximately 12 feet above the base an iron plate, over which is constructed a T&G wood floor, is supported by 4" T bars framed into a central ring. The space above to the gallery level, about 8 feet, is enclosed with iron plate on the exterior; and the interior is lined with beaded 1" x 4" T&G. This enclosed space was the Watch Room, and was reached by a spiral cast iron stairway and a trap door. Trapezoidal windows, of iron frame and 5/16" thick plate glass, fit between the "X" bracing in three panels below the gallery. The windows are rusted beyond salvage.

The lantern level above is reached by a ladder through a hatch. The deck of the lantern level is approximately 20 feet above the base. The lower part of the lantern story, or parapet, about 4 feet high, is a round drum and was faced on the exterior with iron plate secured to nine 1" x 3" iron bars which are the extensions of the tower legs. An access door, 22" wide opens to the nine-sided gallery which surrounds the lantern. A railing made of iron bars with "X" panels provides protection around the gallery. Four-inch T bars and curved brackets support the gallery which has a deck of checkered plate. All of the iron plate, brackets, railing, etc. are badly corroded and will have to be replaced.

At the four-foot level of the lantern a sloping cast iron shelf 14" wide reduces the lantern proper to a nine-sided element 6'-5" across. This nine-sided element is rotated

20 degrees or just one half of the 40 degree angles of the tower. At the angles are bronze stantions which support the bronze ribs and copper roof. A sheetmetal lining was secured to the underside of the ribs. At the apex is a 14" diameter ring and a 12" high vent stack. Old photographs indicate that a domed hood covered the vent stack. The copper roofing is perforated with many holes and shall be repaired or replaced.

Presently wood sash, minus glass, occupy the nine sides between the bronze stantions. Early photograph, Illustration 2, indicates that the panels between the bronze stantions were all glass, and that the wood sash were nonhistoric installations made after the light ceased to function as such. The bronze stantions, etc. are sound and it is proposed to restore the original glazing.

In the center of the lantern floor is a circular wood floor 6' 4" in diameter. In the center was a 4" pipe post, which apparently supported the light. Hooks appear at the head of the windows in the lantern on the sides, only, that face southerly, which indicates that a shade of some kind was placed at the windows in that landward direction. The shield can be seen in photograph, Illustration 2.

A nine-inch diameter hole is framed through the deck of the watchroom, and as can be seen in photograph, Illustration 2, a pipe appears at that location.

All structural connections are bolted, and metal plate siding appears to have been riveted.

The overall height of the tower and lantern is approximately 28' 8" which places the top of Fort Point Light approximately 74 feet above the parade.

The tower was painted white. The papapet was painted white at first, and later black. (See Historic Data section.) The nonferrous elements of the lantern were unpainted.

As seen by Illustration 2, other structures that pertained to the Fort Point Light occupied the roof of the fort.

See appendix for photographic views and details of construction.

d. Description of Proposed Construction and Preliminary

Drawings:

It is the architect's conclusion that the basic structural frame retains sufficient structural integrity so that with proper maintenance it will serve its purpose for many more years. Therefore, it is recommended and proposed by this report that the structure shall be restored in situ, in order to preserve the historic values. In order to accomplish the necessary work at

the site and protect the visiting public, it will be necessary to scaffold the structure from the ground up on the parade side and from the roof of the fort. When the unsound elements are removed the remaining structural elements should be sandblasted and given two coats of rust inhibitive paint before new work is applied.

The scope of the proposed work is described by the following outline specifications, which are referenced to the attached drawings:

1. Install metal safety scaffolding around the structure.
2. Remove all metal parts and other work that obviously are beyond structural or usable value.
3. Sandblast all remaining metal and replace that which proves unsound.
4. All replacement parts shall match original as to size, shape and material, unless otherwise specified.
5. All work shall be applied in place at the site, though parts may be prefabricated elsewhere.
6. Replace exterior sheet metal panels at level "B" with 3/16" thick boiler plate or equal, panels, with preformed corners covers of same material.

7. Install new curved 3/16" boiler plate and access door to form parapet element of lantern at level "C".
8. Install new metal fixed type windows with plate glass to match original trapezoidal windows at level "B".
9. Replace spiral iron stairway and railing at level "A" and ladder at level "B" with new to match original.
10. Replace gallery including railing and exterior brackets that support it with like material.
11. Repair copper roof at level "D".
12. Install new dome cap over vent stack at roof at level "D".
13. Remove wood sash at lantern and install 1/2" thick laminated safety glass or plastic such as Lexan with neoprene gaskets or recommended sealant and bronze stops.
14. Repair interior T&G wall lining and decking and construct new hinged trap door at level "B".
15. Repair T&G decking at level "C".
16. Enclosed spaces shall be made weather-tight.
17. All connections shall be made sturdy and in similar manner to original work.
18. All bolts and other fasteners shall be stainless steel.
19. All metal, except bronze and copper, shall be prime coated with a rust inhibitive paint of recommended formulation such as Rust-Oleum. Sandblasted surfaces shall be primed

as soon as possible after cleaning; and shop work shall be primed at the shop.

20. In addition to the prime coats, all exterior and interior surfaces, except bronze and copper, shall receive two or more coats of heavy duty paint of colors as selected.
21. Install four 10" x 8" brass air registers with sliding shutters in the metal wall of the parapet.

e. Estimated Cost of Proposed Construction Activity and P.C.P.:

Scaffolding - rental, erection and removal		LS	1,600.
Removal of unsound material	240 hrs.	10.00	2,400.
Sandblasting and equipment rental	1,200 sq.ft.	.50	800.
Prime painting iron work in place	80 hrs.	12.50	1,000.
New C. I. spiral stairs and railing	18 threads	250.00	4,500.
Exterior siding at watchroom	300 sq.ft.	5.00	1,500.
Iron plate lantern parapet & door	110 sq.ft.	10.00	1,100.
Brass air registers in parapet	3	30.00	90.
Iron gallery and railing	80 sq.ft.	25.00	2,000.
Special iron windows at watchroom	3	150.00	450.
Copper roof	50 sq.ft.	4.00	200.
Dome and finail		LS	60.
Glazing		LS	550.
Bronze stops and gaskets	100 Lin.ft.	1.00	100.
Iron ladder		LS	100.
Iron trap door		LS	300.
Miscel. iron work, welding, etc.		LS	2,000.
Carpentry work - walls and floors		LS	600.
Painting - 2 coats	120 hrs.	12.50	1,500.
Crane rental		LS	900.
Cartage		LS	<u>1,050.</u>
	Sub-total		22,800.
	Contractor's overhead and profit 25%		<u>5,700.</u>
	Net construction cost		28,500.
	P. S. & S.		7,700.
	Contingency		<u>5,400.</u>
	Total project cost		41,600.

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

PACKAGE ESTIMATING DETAIL

REGION Western	PARK Fort Point
PACKAGE NUMBER	PACKAGE TITLE Restoration of Light Tower

(If more space is needed, use plain paper and attach)

ITEM	QUANTITY	COST
Rehabilitate and Restore Light tower	1	\$28,500

REMAINING PORTION FOR DEVELOPMENT PROJECTS ONLY:

SUMMARY OF CONSTRUCTION ESTIMATES		CLASS OF ESTIMATE		
STANDARD PERCENTAGE (<u>46</u> %)	% OF NET	<input type="checkbox"/> A Working Drawings	<input type="checkbox"/> B Preliminary Plans	<input checked="" type="checkbox"/> C Similar Facilities
NPS Layout and Supervision		TOTALS FROM ABOVE		
FHA Layout and Supervision			B & U	R & T
Follow-through maintenance and as built drawings ..				
Contingencies				
Other				
TOTAL ADD ON (if other than standard percentage)		Net Construction	\$28,500	
		Working Drawings and Specifications (PP)	4,300	
ESTIMATES APPROVED (Signature)		(title)	(date)	

APPENDIX A

Specifications for an Iron Lantern for
4th, 5th, and 6th Order Lenses*

*Bound in "Specifications for Lighthouse
structures E to L", in Record Group 26,
National Archives

U. S. LIGHT-HOUSE ESTABLISHMENT.

SPECIFICATION

For

A N I R O N L A N T E R N ,

For

4TH, 5TH, AND 6TH ORDER LENSES.

PREPARED AT THE OFFICE OF THE LIGHT-HOUSE BOARD,
REAR ADMIRAL W. B. SHUBRICK, CHAIRMAN.

WASHINGTON:
Government Printing Office.
1864.

SPECIFICATION

For

A N I R O N L A N T E R N ,

For

4TH, 5TH, AND 6TH ORDER LENSES.

The elevation and plan of this lantern are shown on "revised plate 28" of the U.S. Light-house Portfolio. The arrangement there delineated includes somewhat more than the lantern proper, the deck and parapet being strictly portions of the metal-work of the tower. These parts, however, are connected with the lantern so as to form a complete construction, which may be placed on any ordinary tower, whether it be of wood, stone, or brick, requiring only for its erection the raising of the parts and the bolting of them together. This arrangement, forming so important a part of the light-house, is made complete at the workshop of the manufacturer, whence it may be shipped to places where skilled labor is scarce, thereby ensuring good results with small means.

When a cheap lantern is sought, without reference to the labor or expenditure required in suiting the tower to it, or when the tower is already fitted with a good deck and parapet of the proper size, then these parts may be omitted from the plan shown on revised plate 28. In this case, if the parapet be of masonry, it will be necessary to increase the outer diameter of the lower ring on which the lantern posts are placed to 8' 2", instead of 7' 9-1/2", its present size.

If the parapet be of wood, no change will be required in said ring, and the air registers will be the same as for the iron parapet. For the brick parapet, the air registers shown by figs. 12 and 13 on revised plate 24 will be used.

When the contractor is ordered to make the lantern without parapet or deck, he will be required to furnish the following parts:

- 1 lower ring, made in segments.
 - 10 sash bars or lantern posts.
 - 4 air registers.
 - [p. 4] 10 roof segments.
 - 1 ventilator pipe.
 - 1 globe.
 - 1 pinnacle of wrought iron tipped with platinum.
- All the necessary bolts, nuts, and washers for connecting the work together permanently.

We proceed now to describe the construction shown on revised plate 28, which the contractor must furnish complete, unless otherwise ordered.

The deck plate will be of cast iron, made in either 4 or 8 segments, as the engineer in charge may direct; (8 segments are preferred, on account of the facility afforded for hoisting.)

The extreme diameter is 13 feet; the depth at the parapet 9", at the outer edge 8", giving a fall on the upper side of one inch. The thickness of metal inside of the parapet must not be less than 3/4"; outside, the least thickness must be 5/8"; and upon this, diamond-shaped projections, giving a checkered surface, are raised 1/8", making the thickness from the underside of the plate to the crest of the projections 3/4".

The outer circular flange is 5/8" thick; on its upper edge a beaded moulding is formed having a projection of 1-3/4" and a depth of 2-3/4".

The sockets for the railing standards are 2-1/2" diameter and 4-1/2" long between the collar on the rod and the washer under the nut; the radial flanges for bolting the segments together must be 7/8" thick and 4" deep; the flange on the upper side of the deck, to which the boiler-iron parapet is bolted, must also be 7/8" thick and 2-1/2" high; this flange must be faced.

Plane all the radial joints, and secure the segments together at each joint with 4 wrought-iron tool-finished bolts 3/4" diameter, hexagon heads and nuts.

The trap-door in the deck is to be of boiler plate, 3/16" thick, let in flush, a rebate of 1/2" being formed for it all around. It must be hung with brass hinges of the size shown on the detail drawing, said hinges to be secured with brass screws. Handles, made of 5/8" round iron, must be securely riveted to the door, for opening and closing.

Railing standards. The railing standards, 8 in number, are to be of wrought iron, 1-1/4" diameter at the base and 1" at the top. The upper ends where they pass through and secure the railing are reduced to 3/4" diameter, and must be furnished with tool-finished brass nuts having closed ends. The lower ends are secured in the sockets with hexagon nuts, and washers of suitable size.

The railing will be of bar iron 2" X 1", made in 4 segments, with scarf joints, the scarfs to come over the standards.

[p. 5] The parapet will be of boiler iron, 1/4" thick, made in Parapet. 3 segments, with flush joints, the joints being covered on the inside with battens 3" wide X 1/4" thick. One-half of each batten must be secured to its segment at the workshop with 12 rivets 9/16" diameter, and the other half to be fitted with 10 button-head bolts. The parapet must be secured to the flange on the deck and to the lantern ring with button-head bolts of the same diameter as above, and placed not exceeding 10" apart from centre to centre.

The parapet door will be of boiler plate 1/4" thick, and will be fitted flush with the outer surface of parapet, as shown on the detail drawing.

It will be hung with brass hinges of the same size as those used for the trap-door. The door catch, or bolt, must be of strong brass, of the size and shape shown on the drawing; it is made so that it may be opened either from within or without the lantern, and is furnished with a spiral spring of brass wire 1/16" diameter, coiled around the tail of the bolt, which is 5/16" diameter X 2-3/4" long, and slides in brass sockets. The sockets for the bolt are secured to the door with 6 wrought-iron screws 1/4" diameter.

The air registers for the iron parapet, 4 in number, are to be of brass, of the form and dimensions shown on the detail drawing. Each one will be secured in place with 4 brass screws 3/8" diameter. The slide and seat must be neatly finished and fitted.

The ring on which the lantern posts are erected is of cast iron, 7' 9-1/2" external diameter, and 6' 8" internal diameter. It is made in two segments, secured together at each joint with two wrought-iron tool-finished bolts 5/8" diameter. The thickness of metal must not be less than 1/2" for the horizontal table and the lap; flanges at the joints 3/4" thick. On the upper side there is a raised ledge for the glass 1/2" X 1/2"; also a seat for the glass stops, which, when planed, makes the thickness at that place 9/16"; the thickness through the ledge and through the seats for the lantern posts is 1".

The glass stops or strips must be of wrought iron 1" X 7/16"; each one must be secured with 3 brass screws 3/8" diameter. The seats for the lantern posts must be of the same size as the flanges for said post. Plane the joints of ring, the entire rebate in the neighborhood of the glass stops, the seats for the lantern posts, and the under and inner surfaces of the glass stops.

There are 10 cast-iron lantern posts, whose extreme
Lantern posts. length is 3 feet; the depth from the back edge to the front of the square ridge (see fig. A, revised plate 28) is 3"; thickness 1-1/8"; thickness of ridge 1/2", but this had better be
[p. 6] reduced to 3/8", to give more room for the glass; thickness of glass stop 9/16"; width of rebate between the glass stop and the post 3/8".

Each glass stop must be secured with 3 brass screws 3/8" diameter penetrating the post 1".

The end flanges are to project 4" on both sides of the centre of post; they must be 2-3/4" wide and 7/8" thick. Each end of each lantern post must be secured in place with 4 wrought-iron tool-finished bolts 1/2" diameter. The rebates for the glass must be planed, and the end flanges faced.

Roof. The roof will consist of 10 cast-iron segments, of the form the dimensions shown on the detail drawing. The general thickness of the top is $3/8$ "; the side flanges are $1/2$ ". The joints and all other surfaces of contact must be faced.

The glass stops must be of wrought iron $7/8$ " x $3/8$ ", each one to be secured with 3 brass screws $3/8$ " diameter.

Each joint of the roof will be secured with 3 wrought-iron bolts $5/8$ " diameter.

Ventilator pipe. The ventilator pipe and scotia moulding immediately above the roof will be of cast iron; the general thickness is $3/8$ ", but where the globe fits on the pipe this is increased to $1/2$ ". The joints at the roof and globe must be faced. The lower flange is secured to each roof segment with one wrought-iron bolt $1/2$ " diameter.

Globe. The cast-iron globe has an external diameter of 15"; general thickness $3/8$ ". The lower part must be bored to fit the ventilator pipe. There are 14 circular openings near the base, which are $1-1/2$ " diameter.

Pinnacle. The pinnacle will be of wrought iron, 12" long, 1" diameter at the base, and $1/2$ " at the upper part.

The lower end will be screwed into the globe; the upper end must be fitted with a platinum point worth \$6.

Lining of roof. The interior of the lantern roof must be lined with sheet zinc $1/32$ " thick, secured to the segment flanges with screws $1/4$ " diameter placed not over 6" apart.

This lining must extend from the opening in the top of the roof to the flange which rests on the posts, in order to enclose a stratum of air, which shall serve as a nonconductor of heat, and thereby prevent to some extent the condensation of moisture.

Lining of parapet. For a similar purpose, the interior or parapet must be lined with wood-work, the internal diameter of which will be 7' 2". The ribs to which the vertical planking is nailed will be built up of segments, and must be secured to the parapet with wood screws 2" long, placed not over 3 feet apart. The planking will consist of sound and well-seasoned boards, 3/4" thick, not over 3-1/2" wide, tongued, grooved and dressed on the exposed side. The contractor must provide and fit all the materials together at the workshop, and give them two coats of white lead paint.

[p. 7] All of the iron-work, except the parapet, the door which is in it, and the trap-door in the deck, must have three coats of paint; black being used outside of the lantern, and white inside, except the floor, which must be chrome green. The bolts, screws, and glass stops must be immersed in hot linseed oil.

The parapet and the two plate-iron doors must be heated in the core oven of the foundry, and, while hot, must be well coated with mineral coal tar. The screw threads of the bolts and nuts must be well smeared with a mixture of white lead and tallow, to prevent rusting.

All of the above painting, &c., must be executed by the contractor before the work is exposed to the weather.

Marking. All parts of the work must be properly marked with letter or figure punches, when the material will bear it; when otherwise, the marking must be done with paint.

A detailed statement must be sent to the office of the Lighthouse Board, showing the actual weight of each individual piece composing the lantern, (bolts and screws may be weighed in bulk.) and also the total weight of each kind of material--the cast iron, wrought iron, brass, and zinc.

The lantern posts, pinnacle, glass stops, hinges, air registers, railing standards, plate-iron doors, globe, ventilator pipe, and all bolts, nuts screws, and washers, must be substantially packed in wooden boxes, strapped with hoop iron.

All castings must be perfectly sound and true, or they *will be rejected.*

The entire work must be erected and fitted together at the workshop, and executed in the best manner, to the satisfaction of an authorized agent of the Light-house Board.

MAY 2, 1864.

APPENDIX B

Keepers and Assistant Keepers at the Fort Point
Light Station, 1855-1880.

KEEPERS AND ASSISTANT KEEPERS

FORT POINT - 1855-1880*

<u>Keepers</u>	<u>Salary</u>	<u>Date of Appointment</u>	<u>Date Vacated</u>	<u>Why Vacated</u>
B. F. Deane	\$1,000	July 24, 1855		
J. C. Frachey	1,000			
George D. Wise	600	Jan. 31, 1860	July 24, 1860	Resigned
Henry Hickson	600	July 24, 1860		
John D. Jenkins	600		Aug. 13, 1863	Resigned
George W. Omev	750	Aug. 13, 1863		Removed
Scott Blanchard	750	Sept. 1, 1864		
R. S. Martin	750	Oct. 6, 1866	Jan. 29, 1869	Removed
Frank Thompson	750	Jan. 29, 1869		
J. T. Huie	1,000	Nov. 3, 1871	Aug. 7, 1878	Transferred
James Rankin	750	Aug. 7, 1878		

Assistant Keepers

Ephrain Sohn		April 1, 1856		
Return J. Hunter	650	Aug. 17, 1857	March 16, 1858	Resigned
A. M. Hunter	650	March 16, 1858	Nov. 2, 1859	Resigned
George D. Wise	500	Nov. 2, 1859	Jan. 31, 1860	Promoted
D. Dennison	500	Jan. 31, 1860	July 16, 1860	Resigned
G. W. Thomas	500	July 16, 1860	Aug. 1, 1860	Resigned
James Gormley	500	Aug. 1, 1860		
James Jenkins	500	Dec. 27, 1860		
James Heron	500	Dec. 27, 1860		Resigned

*Compiled from personnel records of the Lighthouse Service in Record Group 26, National Archives.

FORT POINT--Continued

<u>Assistant Keepers</u>	<u>Salary</u>	<u>Date of Appointment</u>	<u>Date Vacated</u>	<u>Why Vacated</u>
C. H. Warren	\$ 500			Resigned
G. W. Omev	500		Aug. 19, 1863	Promoted
G. A. Braley	625	Aug. 19, 1863	Nov. 13, 1863	Resigned
J. J. Wickersham	625	Nov. 13, 1863	June 5, 1865	Resigned
Ann Blanchard	625	June 5, 1865	Oct. 6, 1866	Resigned
William Ferry	625	Oct. 6, 1866	May 22, 1867	Resigned
Mrs. Rachel L. Jones	625	May 22, 1867	May 19, 1868	Resigned
Theresa Welch	625	May 19, 1868	July 7, 1868	Resigned
F. B. Morehouse	625	July 7, 1868	Feb. 11, 1869	Resigned
Mrs. Mary Thompson	625	Feb. 11, 1869	Nov. 3, 1871	Office Abolished
Sophie Huie	200	Dec. 8, 1874	Aug. 7, 1878	Transferred
John Riley	575	Aug. 7, 1878	Jan. 6, 1879	Resigned
H. P. McKeever	575	Jan. 6, 1879	Aug. 19, 1879	Removed
Frank P. Stanyan	500	Aug. 19, 1879		

ILLUSTRATIONS

Unless otherwise noted, the photographs were taken

March 1, 1972 by A. Lewis Koue.

ILLUSTRATION NO. 1

View of Fort Point and light keeper's complex as it was during historic period of Fort Point Light.



Illustration 1

ILLUSTRATION NO. 2

View of Fort Point Light during historic period. Note the painting scheme, the light shield on the landward side of the lantern, and the dome over the roof vent. Also, note the large pipe extending from level "B" through level "A", and other structures over the westerly bastion.

Photo: Courtesy of United States Coast Guard.



Illustration 2

ILLUSTRATION NO. 3

Fort Point Light, March 1, 1972.

ILLUSTRATION NO. 4

Detail of anchorage at base. Note cups cast with cast iron base plate and anchor bolts securing base to masonry wall.



Illustration 3.



Illustration 4.

ILLUSTRATION NO. 5

Detail of framing at level "B". Note T&G decking and wall lining at level "B". Also, note that the iron forming the structural frame is in sound condition.

ILLUSTRATION NO. 6

Detail of lantern and gallery.

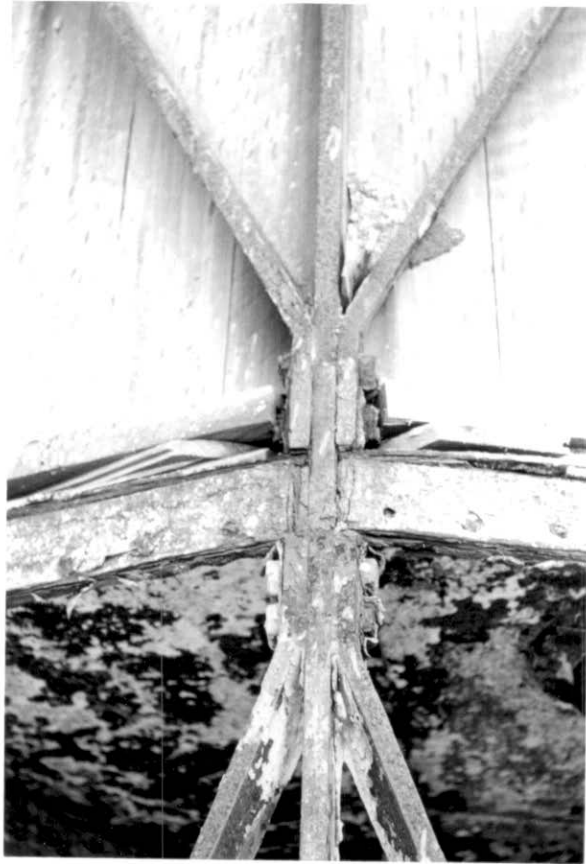


Illustration 5



Illustration 6

ILLUSTRATION NO. 7

Detail of cast iron spiral stairs. Note deterioration of iron beyond salvaging.

ILLUSTRATION NO. 8

Detail of underside of deck at level "B" and at gallery.



Illustration 7



Illustration 8

ILLUSTRATION NO. 9

Detail of underside of deck and hatch at level "C".

ILLUSTRATION NO. 10

Detail of windows and interior T&G wall lining at level "B".
Note iron knee bracing.

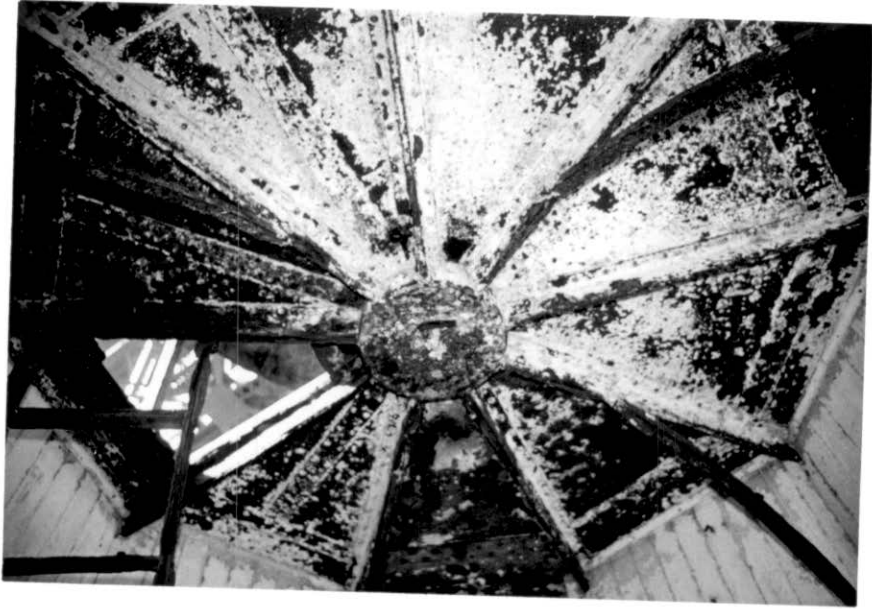


Illustration 9



Illustration 10

ILLUSTRATION NO. 11

Detail of copper roof and vent at lantern. Note nonhistoric wood sash and original bronze stantions.

ILLUSTRATION NO. 12

Detail of framing and assemblage of access door at parapet, level "C".



Illustration 11



Illustration 12

ILLUSTRATION NO. 13

Upper keepers' dwellings about 1893. National Archives photo no. 26-LG-64-33.

ILLUSTRATION NO. 14

Fort Point about 1893. Note bridge connecting the light tower and the keepers' dwellings. The tramway is also visible to left of photograph. National Archives photo no. 26-LG-64-36.



Illustration 13

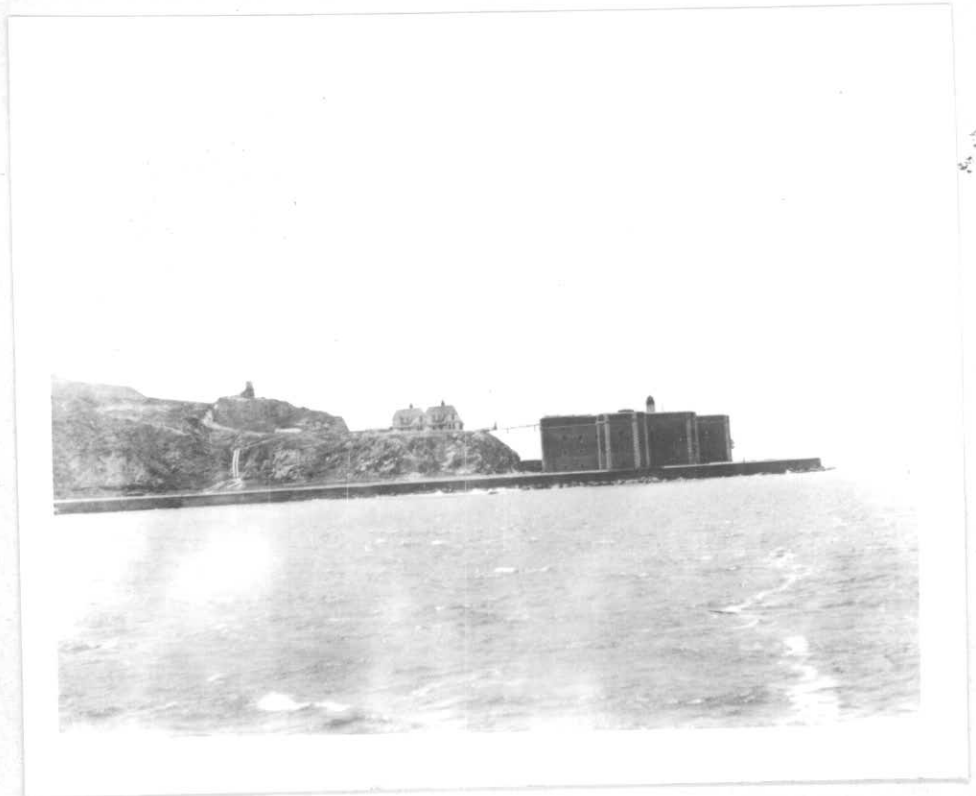


Illustration 14

ILLUSTRATION NO. 15

Illustration No. 15. The second Fort Point lighthouse about 1855.

ILLUSTRATION NO. 16

Light tower and the Lighthouse Service bridge that gave easy access between the light tower and the keepers' dwellings. Picture taken about 1893. National Archives photo no. 26-LG-64-42B.



Illustration 15

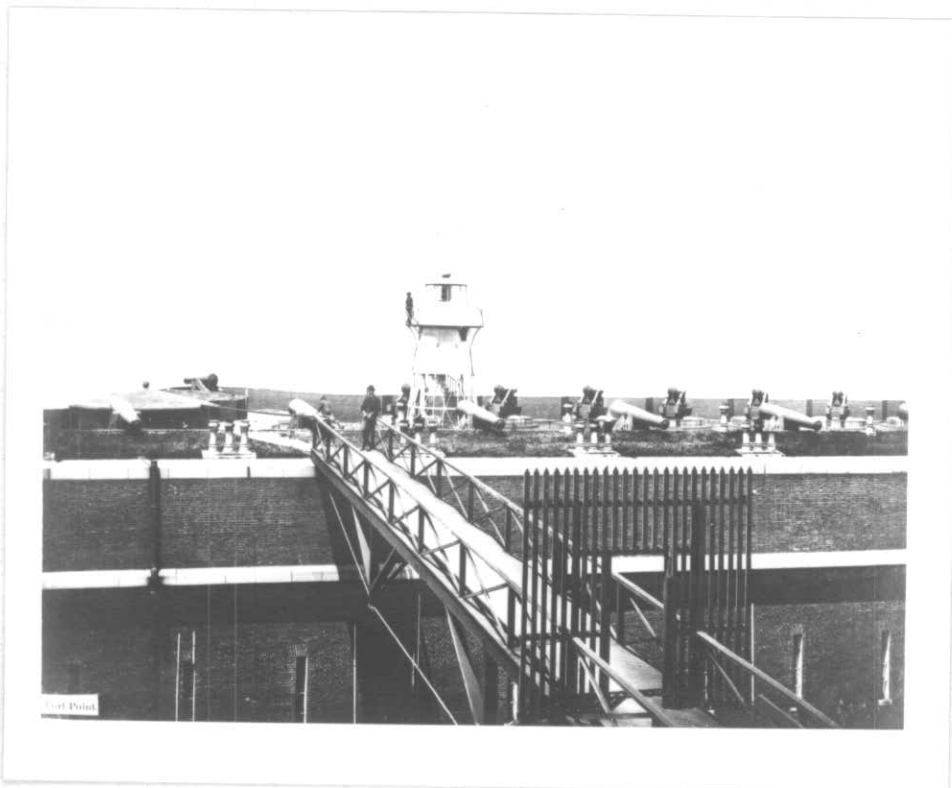


Illustration 16

ILLUSTRATION NO. 17

Bridge connecting light tower and the keepers' dwellings
around 1893. National Archives photo no. 26-LG-64-42A.

ILLUSTRATION NO. 18

Lower keeper's dwelling built in 1908. Note the tramway to
right of picture. National Archives photo no. 26-LG-64-29.

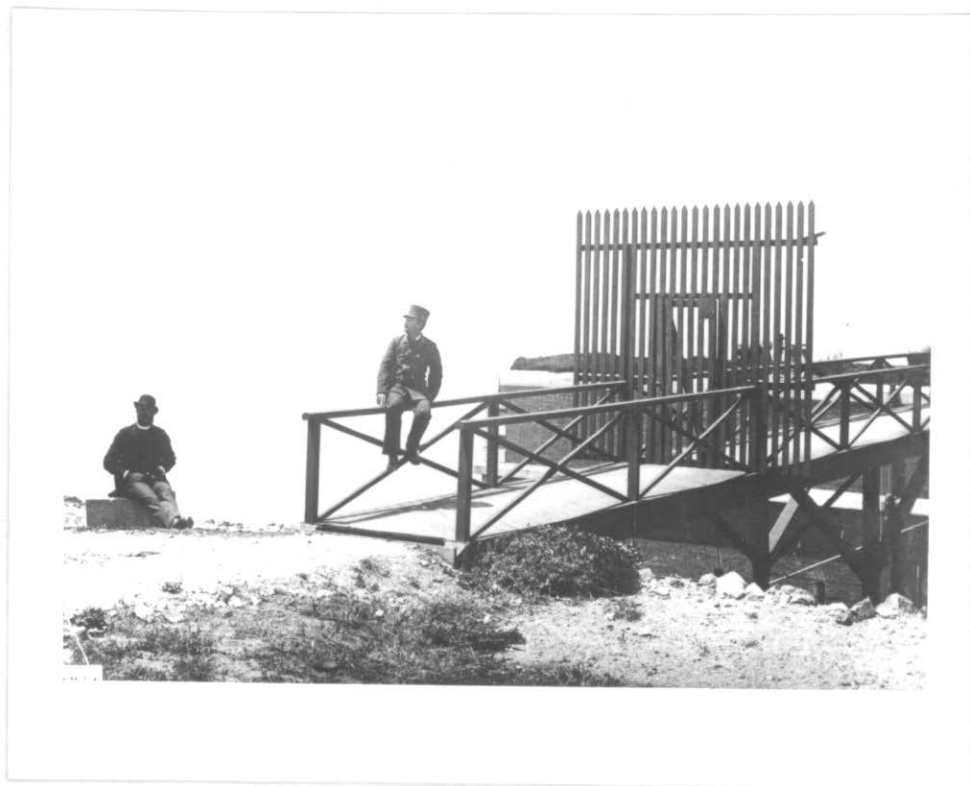
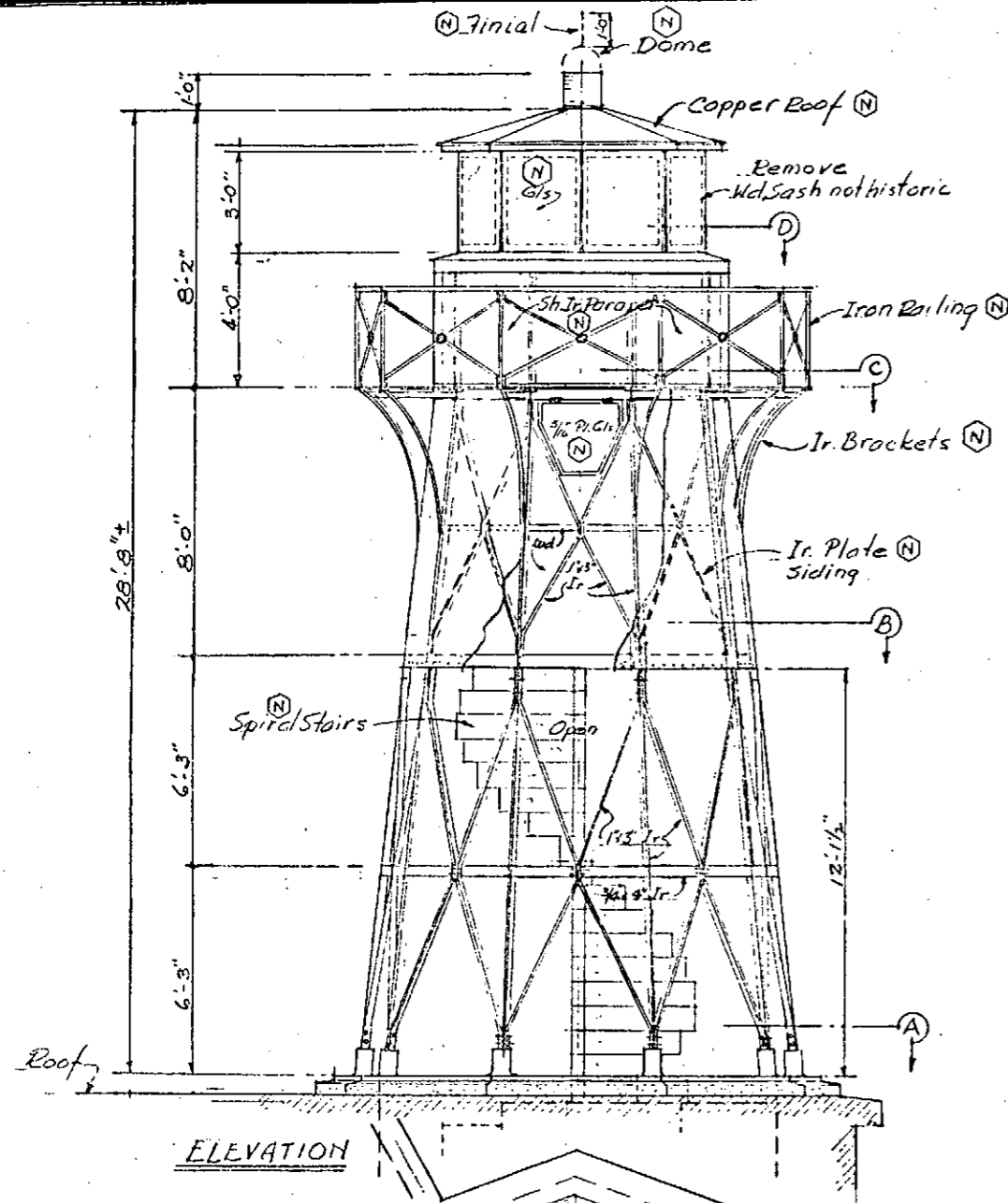


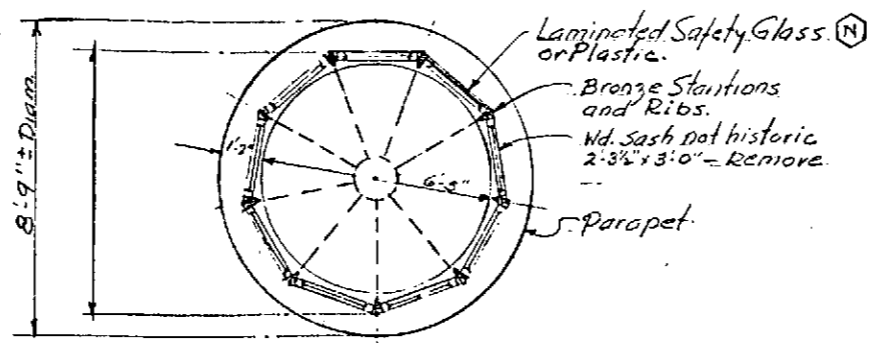
Illustration 17



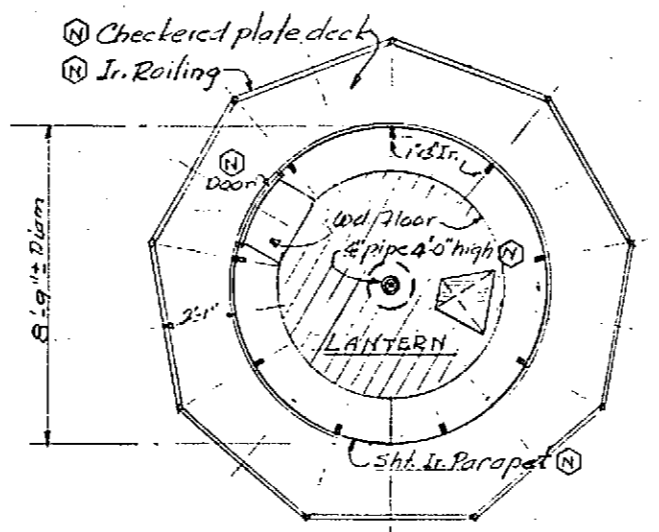
Illustration 18



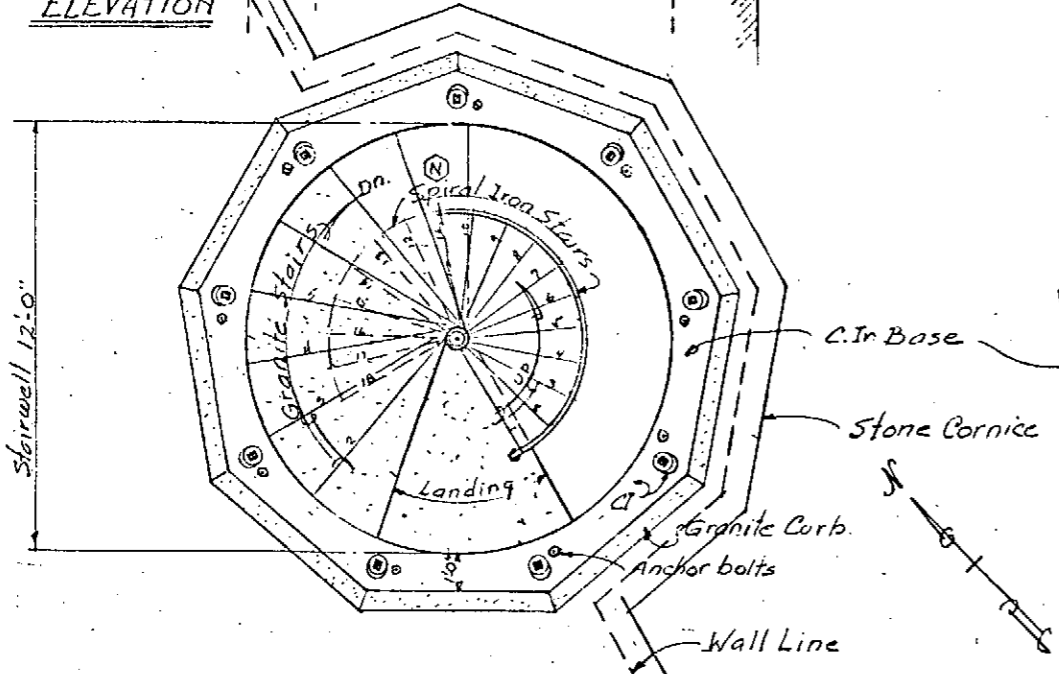
ELEVATION



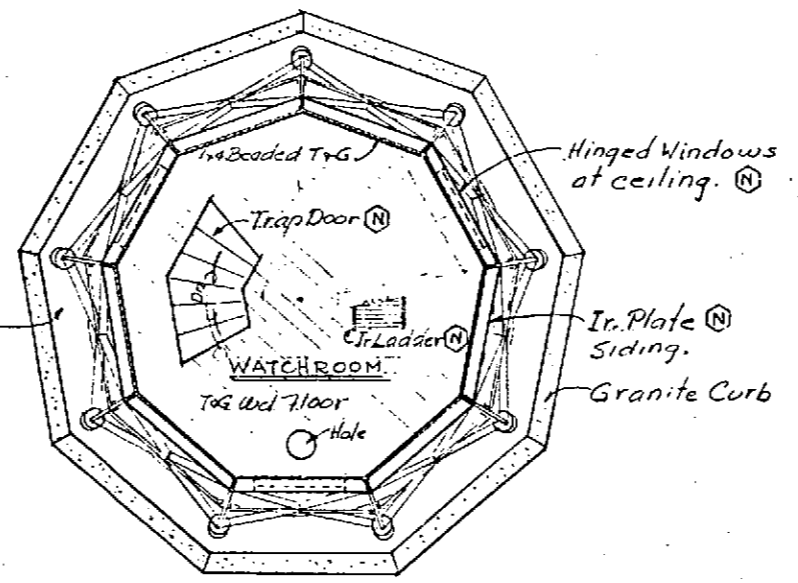
PLAN AT "D"



PLAN AT "C"



PLAN AT "A"



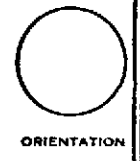
PLAN AT "B"

Scale: 3/8" = 1'-0"

(N) = New work or work to be replaced.

SCOPE OF WORK

1. Install metal safety scaffolding around the structure.
2. Remove all metal parts and other work that obviously are beyond structural or usable value.
3. Sandblast all remaining metal and replace that which proves unsound.
4. All replacement parts shall match original as to size, shape and material unless otherwise specified.
5. All work shall be applied in place of the site, though parts may be prefabricated elsewhere.
6. Replace exterior sheet metal panels of level "B" with 3/16" thick Boiler Plate, or equal, panels with preformed corner covers of same material.
7. Install new curved 3/16 boiler plate and access door to form parapet element of lantern at level "C".
8. Install new awning type windows with plate glass to match original trapezoidal windows of level "B".
9. Replace spiral iron stairway and railing of level "A" and ladder at level "B" with new to match original.
10. Replace gallery including railing and exterior brackets that support it with like material.
11. Repair copper roof at level "D".
12. Install new dome cap over vent stack of roof of level "D".
13. Remove wood sash of lantern and install 1/2" thick laminated safety glass or plastic, such as Lexan, with neoprene gaskets or recommended sealant, and bronze stop.
14. Repair interior T&G wall lining and decking, and construct new hinged trap door at level "B".
15. Repair T&G decking at level "C".
16. Enclosed spaces shall be made weather tight.
17. All connections shall be made sturdy and in similar manner to original work.
18. All bolts and other fasteners shall be stainless steel.
19. All metal, except bronze and copper, shall be prime coated with a rust inhibitive paint of recommended formulation such as Rust-Oleum. Sandblasted surfaces shall be primed as soon as possible after cleaning; and shop work shall be primed at the shop.
20. In addition to prime coats, all exterior and interior surfaces, except bronze and copper, shall receive two coats of heavy duty paint of colors as selected.
21. Install four 10"x8" brass air registers with sliding shutters equally spaced in metal wall of parapet.



ORIENTATION

PREPARED	DESIGNED
DRAWN Kove	CHECKED
ARCH	ELEC
MECH	STRAUC
REVISION	DATE INITIAL

ON MICROFILM

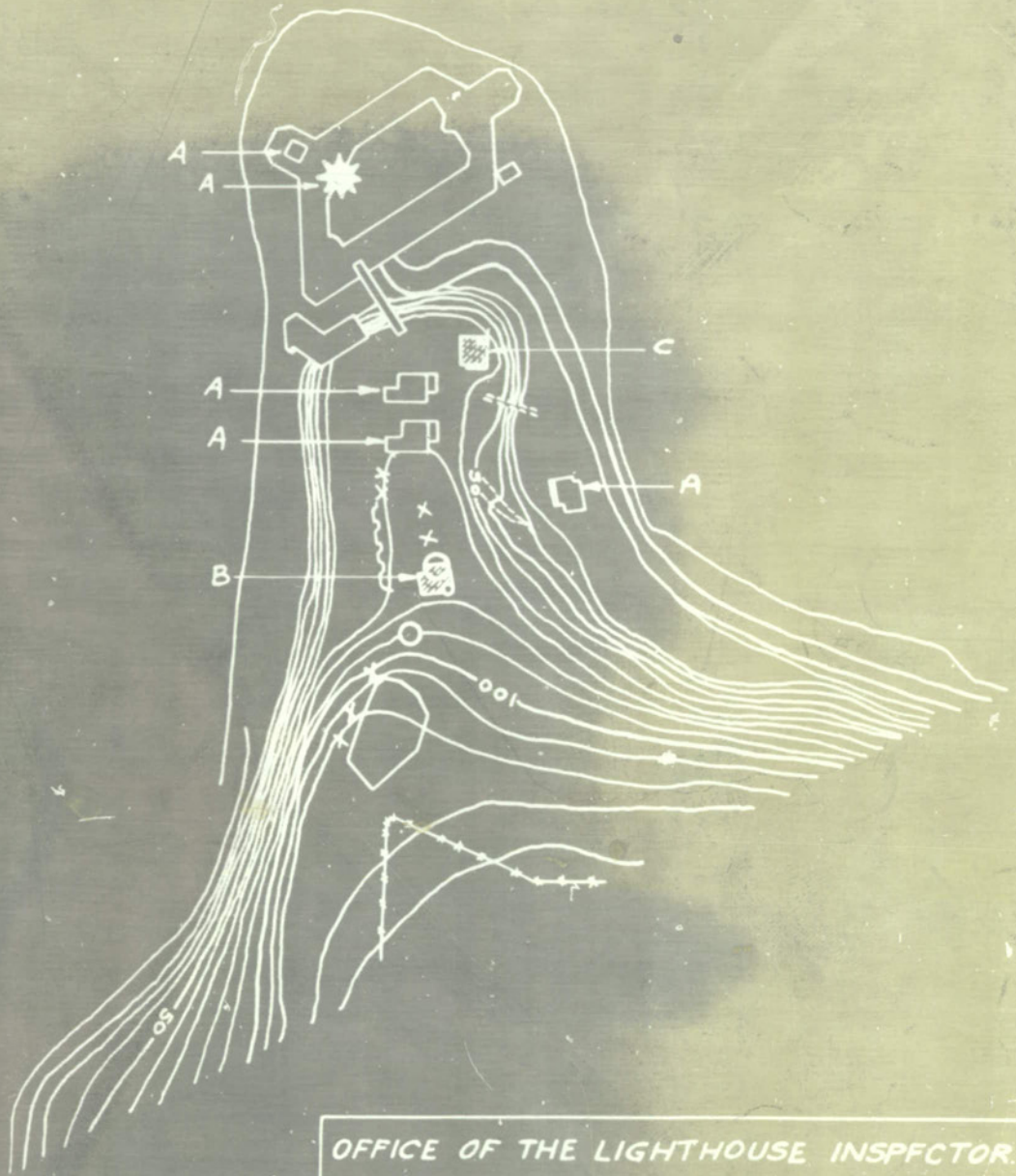
PRELIMINARY DWG.

HALF-SIZE REPRODUCTION

RECOMMENDED	DATE	REGION
CONCURRED	DATE	PCP NO.
APPROVED	DATE	SHEET / OF 1
UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE HISTORIC PRESERVATION PREPARED BY DENVER SERVICE CENTER OFFICE		DRAWING NO. 400
FORT POINT LIGHT FORT POINT FORT POINT N. H. S.		DATE 4-10-72

BASIC DATA

- Illus. 19 - Map of Fort Point showing the Spanish fort and the location of the first lighthouse, 1853. From Record Group 77, National Archives.
- Illus. 20 - Drawing of Fort Point Fog Bell, 1866. From Record Group 26, National Archives.
- Illus. 21 - "Tracing of Fort Point Light Station and Vicinity Showing its Topography and the Proposed Positions for Two New Cottages for Keepers, 1863." From Record Group 26, National Archives.
- Illus. 22 - "Map of Reservation, Fort Point Light Station, 1914." From Record Group 26, National Archives.



NOTE.
 PRESENT LIGHTHOUSE STRUCTURES
 MARKED "A".
 NEW SITES TO BE CONSIDERED
 FOR DWELLING MARKED "B" AND "C".

OFFICE OF THE LIGHTHOUSE INSPECTOR.
 EIGHTEENTH DISTRICT, SAN FRANCISCO, CAL.

MAP OF RESERVATION
 FORT POINT LIGHTSTATION, CAL.
 SCALE: 1" = 200'

APPROVED NOV. 25, 1914.

A.C. Ingham
 SUPERINTENDENT

H.W. Rhodes
 INSPECTOR.

DRAWN D.W.D.
 TRACED D.W.D.
 CHECKED D.W.D.

FORT POINT A.B.

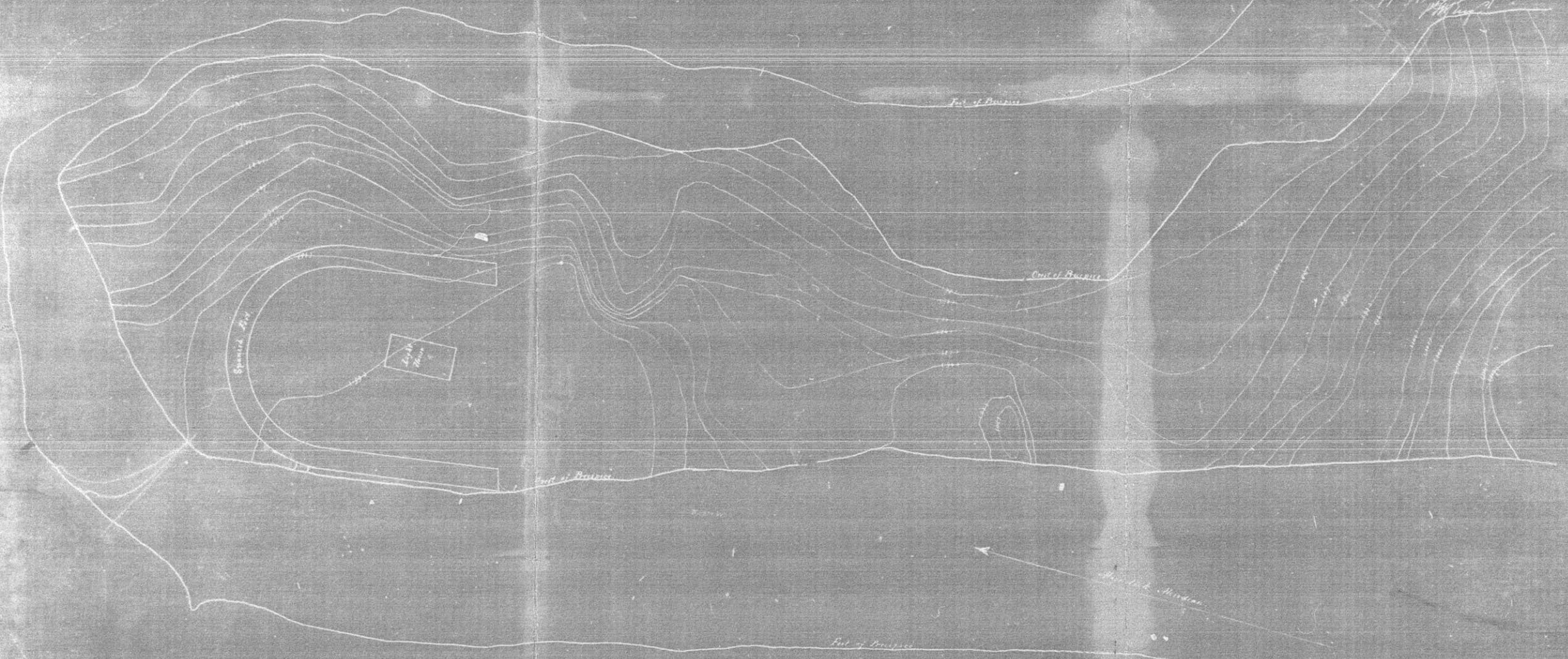
*Calif. Titles # 25.
 Filed 1-18-15*

*Recd. with 18th Insps's
 letter dated 11/25/14, # 626E*

Drawer 94.
Sheet 8.

Sketch of Fort Point
at the Entrance to San Francisco Bay
Surveyed by
Lieut. Wm. C. Whiting, U.S.A.
June 1853

Legend
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]



94-8

Map of Fort Point showing the Spanish fort and the first lighthouse, 1853. Em. Dr. 94-8, R. G. 77, Nat'l Archives.



Labrum planum...

Details

A.A.A. Outline of building showing operation of machinery with bell

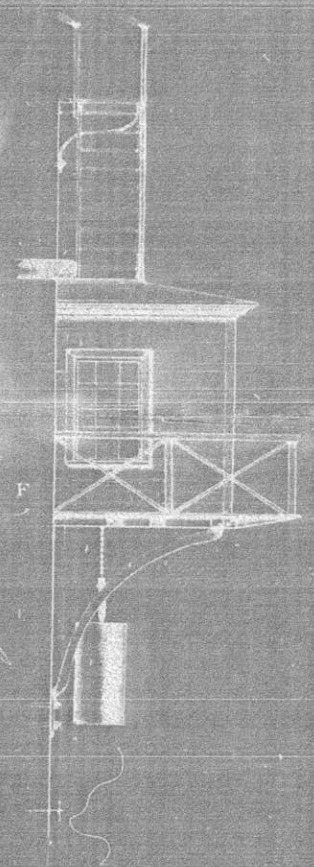
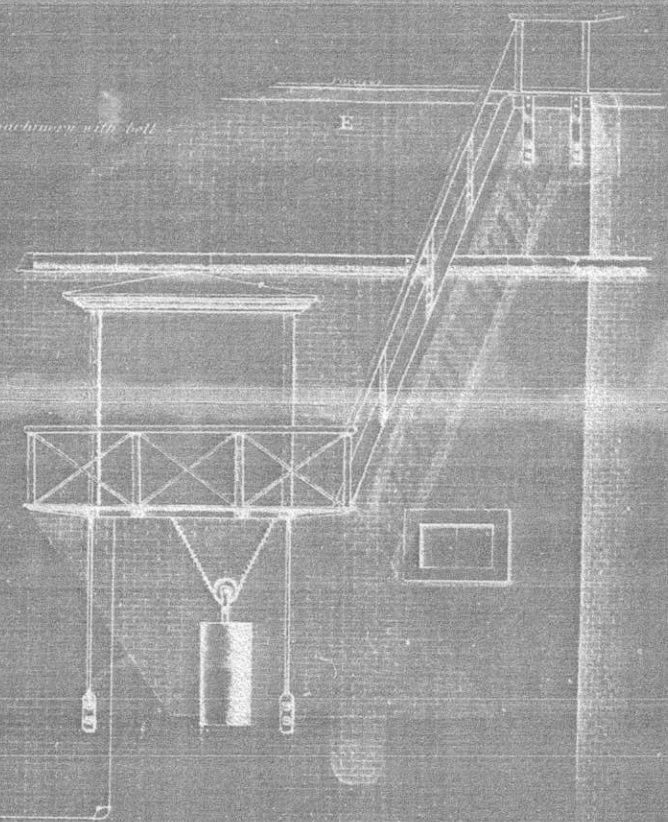
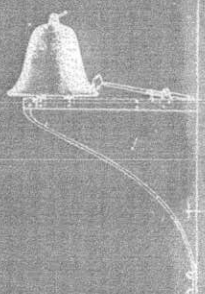
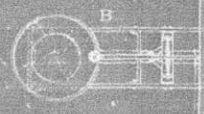
B. Plan of bell and frame

C. " " " " " "

D. Elevation of bell and frame

E. " " " " " "

F. " " " " " "



12th LIGHTHOUSE DISTRICT
 FORT POINT FOG BELL,
 AT THE
 ENTRANCE TO SAN FRANCISCO HARBOR
 CALIFORNIA
 1866

Scale 1/4 inch = 1 ft.

R. S. Williamson
 Lt. Comdr. U.S.A.
 Majr. of Engineers
 Engineer 12th L.H. Dist.

DRAWN BY WM. B. HYDE C.E.

2th Dist.
2 F.

*with Engr's letter, p. 47, of 21 Feb. '67 -
filed 28 Mar -*

35F-36

Drawing for Fort Point Fog Bell, 1866.
From R. G. 26, National Archives.

FORT POINT

Authority granted by Secy of War Sept. 26th 1883 to elect two dwellings for Light Keepers north of yellow line

Signed: D. P. Heap
Eng. Secy.

Note: Contours are 6 feet apart, but slightly incorrect on account of recent changes.



Tracing

Fort Point Light Station and vicinity.
Showing its topography and the proposed positions
for
Two new collages for Keepers.

Scale: 1 in = 200 ft.

Forwarded with Letter to the Light House Board on the 8th day of August 1883.

Signed: M. Payson
Capt. of Engs.
Engr 12th Light Hs. Dist.

Copy of blueprint forwarded with 12th Eng's letter of 8th Aug 1883 in 12th Dist files # 2 F