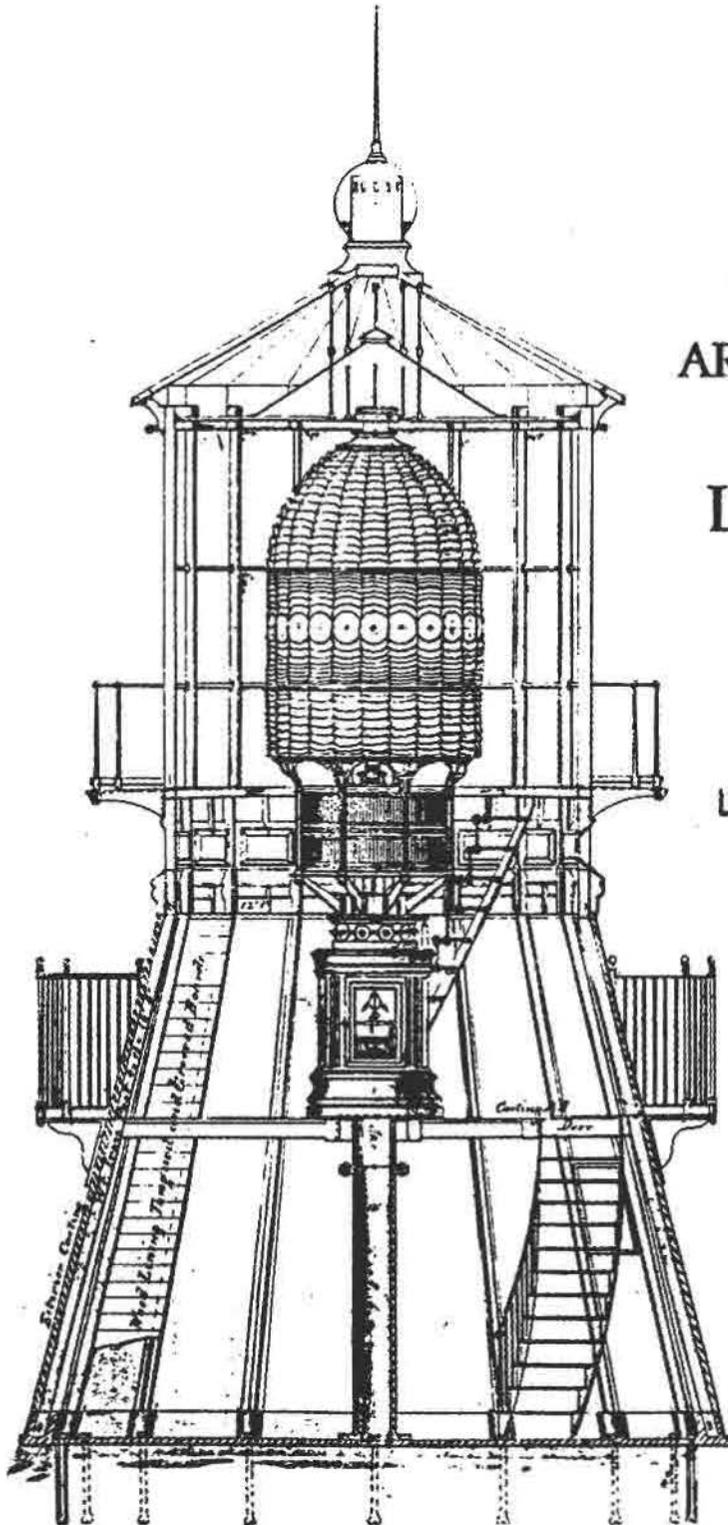


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# THE HISTORY AND ARCHITECTURE OF THE POINT REYES LIGHT STATION

by Dewey Livingston

Historian

Point Reyes National Seashore

and Dave Snow

Historical Architect

Denver Service Center

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Point Reyes National Seashore

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*The History and  
Architecture of the*

**POINT REYES  
LIGHT  
STATION**

BY  
**DEWEY LIVINGSTON**  
HISTORIAN

**DAVE SNOW**  
HISTORICAL ARCHITECT



**Historic Structures Report  
Point Reyes National Seashore**

**POINT REYES  
NATIONAL PARK SERVICE  
1990**

Produced by the Design Group, Point Reyes National Seashore.  
Designed by Dewey Livingston and Don Neubacher.

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I. ADMINISTRATIVE SECTION

## **I. ADMINISTRATIVE SECTION**

### **A. INTRODUCTION**

The Point Reyes Light Station, consisting of nine contributing and four non-contributing structures, is located on the scenic western headlands of the Point Reyes National Seashore, Marin County, California. The earliest structures within the complex were constructed in 1870.

Point Reyes National Seashore was established on September 13, 1962; in 1977 the light station was transferred from the U.S. Coast Guard to the National Park Service. The Coast Guard operates an automated light and fog horn on the headlands under a use agreement with the National Park Service.

The complex was determined eligible for the National Register of Historic Places in 1980. Nomination documents were revised in 1989 and the light station was placed on the National Register in August of 1990. The structures within the Lighthouse District have been placed on the National Park Service List of Classified Structures (LCS).

The historic light station structures are west watershed (PR-009), lower watershed and cistern (PR-014), equipment building (PR-016), multi-purpose building/garage (PR-017), concrete watershed and cistern (PR-019), fuel and paint shed (PR-022), pumphouse (PR-022), transformer building (PR-011), and lighthouse (PR-025). As listed on the LCS, the management category for all structures except the lighthouse is "should be preserved." The lighthouse has been placed in the category "must be preserved." In addition, the LCS states that all structures except the lighthouse will received preservation treatment; the lighthouse is to receive restoration treatment.

### **B. MANAGEMENT AND PROPOSED USE OF THE STRUCTURES**

The National Seashore General Management Plan (1980) calls for the preservation and interpretation of the Lighthouse Complex. The Seashore's Interpretive Prospectus (1989), Statement for Management (1990), and the Cultural Resource Plan (1987) also specifically state that the site should be preserved and interpreted to the public.

At present, the light station is open to the public and is a major visitor attraction within Point Reyes National Seashore. Approximately 300,000 visitors annually are attracted to the historic district with 50,000 visitors entering the historic lighthouse, some 300 stairs down to a lower platform. Exhibits have been added at several locations to augment personal interpretive tours. The multi-purpose building has been adaptively restored to provide a visitor center complete with exhibits. None of the other historic structures have been altered or adapted for another use.

The use of the structures will remain the same in the future. As presented in a variety of park documents, the light station is to be preserved and interpreted to the public without additional adaptive restoration or alteration. The documents do not call for any private or concession use of the structures in the future.

### **C. PURPOSE OF THE REPORT**

This Historic Structures Report (HSR) for the Point Reyes Light Station was funded by a 1989 Bicentennial Lighthouse Grant administered by the California Office of Historic Preservation. Public Law 100-446 earmarked Fiscal Year 1989 funds for the Bicentennial Lighthouse Fund.

Consistent with Seashore management and planning documents, the purpose of this HSR is to provide guidance for management to ensure the long-term preservation and protection of the light station, specifically the lighthouse and equipment building. These two structures are highlighted in the report because they are the dominant buildings within the light station. More specific goals of this report are 1) to provide recommendations for maintenance treatments to ensure preservation maintenance is accomplished; 2) to gather into one document all existing pertinent data for guiding future management actions; 3) to provide guidance for the restoration of specific character-defining features of the structures (specifically, the lighthouse) that enhance the integrity of the complex; and 4) to identify future research needs and additional studies.

This report fulfills the requirements of the National Park Service Management Policies (1988) and will assist in compliance with Section 106 of the National Historic Preservation Act of 1966 and in the associated consultant process with the State Office of Historic Preservation. The report is based on guidelines in NPS-49: National Register Programs, NPS-28: Cultural Resource Management, and the

Secretary of Interior's Standards for Historic Preservation.

**D. SUMMARY OF PROPOSED TREATMENTS AND  
RECOMMENDATIONS FOR FUTURE INVESTIGATIONS**

The overall goal of proposed treatments for the lighthouse and equipment building is to provide preservation maintenance for long-term protection. In summary, the recommended treatments for the lighthouse include repairing leaks at lantern astragals, replacing glazing in first-level windows, restoring weather vane base, restoring astragals to a original contrasting color, restoring painted wood floor on first gallery level, and restoring ground-level entry door.

For the equipment building, the HSR recommends installing solar film on the interior of all windows, mothballing all mechanical equipment, removing non-historic and non-essential electrical equipment, painting mechanical and electrical components, cleaning and painting all interior walls and ceiling, stripping and refinishing all deteriorated clear wall finishes in the machinery room, restoring the rolling door on the east elevation, and restoring the gauge board.

The HSR also recommends that further investigation be performed. A Historic Structure Preservation Guide (HSPG), Historic American Engineering Record documentation (HAER), and paint sampling documentation should be completed when funds are available. These projects are essential to the continued preservation of the light station.

**E. STORAGE OF ARCHIVAL MATERIALS**

All objects, documents, tapes, records, photographs, and negatives obtained in the preparation of this document are now preserved in the museum collection of Point Reyes National Seashore. The collection is housed within the Bear Valley Visitor Center at Park Headquarters.

## **F. ACKNOWLEDGMENTS**

The authors would like to thank all the people and agencies that gave assistance to this project. In particular, Craig Kenkel, Regional Historic Architect at the Western Regional Office, offered his expertise and time, helping to make this a successful document. Gordon Chappell, Regional Historian, read the manuscript and offered many useful suggestions. At Point Reyes National Seashore, Don Neubacher guided the project from its inception and is largely responsible for its creation.

A very special thanks goes to Ralph Shanks, maritime historian and author, who gave close attention to our questions and unselfishly shared his vast knowledge of the Point Reyes Lighthouse and general lighthouse history. Also, we thank Charles Zetterquist, son of the last Lighthouse Service keeper at the light, for spending time at the lighthouse detailing life there in the 1930s and 1940s, and to his sister, Mary Giddings, who shared her memories of growing up at the light station on tape. Fred V. Kreth generously donated significant historic photographs of the light.

The U.S. Coast Guard provided time, facilities and staff during the research period. Bill Meyn, Terry Garvey and Ralph Vaca at Coast Guard Island were especially helpful. Helen Denney of the Aids to Navigation Office, Long Beach, deserves special mention for her work preliminary to a research trip there and for her time during the visit.

The staffs at the many libraries we visited were very helpful, particularly Richard Tooker at the San Francisco Maritime Museum Library and Wayne Wheeler at the U.S. Lighthouse Society in San Francisco. The Jack Mason Museum at Inverness, California provided much valuable material, especially photographs, with the help of the museum's archivist and oral historian Suzanne Baty. Marin County historian Bill Allen continually provided leads and information.

Credit is also due to the staffs at Denver Service Center. At Point Reyes National Seashore Carlin Finke, Jack Williams, Michele Jimenez and Ray Henton added their expertise and support. At the Western Regional Office, help and guidance was received from Tom Mulhern and former lighthouse "keeper" Armando Quintero. Nancy Adess of Inverness edited the text on short notice and performed wonders. Thanks to all.

Finally, we greatly appreciate the guidance and support of the State Historic Preservation Office, especially Joyce Law, who administered this project from that office.

**II. HISTORY OF THE POINT REYES LIGHT STATION**

## II. HISTORY

### A. INTRODUCTION

*From the earliest history the wary mariner, skirting the coast of California to the west of Drake's Bay, has known and shunned a certain bold headland, shrouded for the most part in fog, but in clear weather revealed to him in all the awfulness of its rocks and precipices, and perpetually churning waters. Punta de los Reyes--Point of the Kings--the Spanish navigators named it, after the two royal Infantes, and they did well to fear it. God help the hapless mariner who drifts upon it!<sup>1</sup>*

Point Reyes, historically named Punta de los Reyes, is an odd-shaped peninsula that protrudes into the Pacific Ocean about 35 miles northwest of San Francisco. The peninsula forms a triangle with Tomales Point on the north, Bolinas Point on the south, and the most prominent, Point Reyes, on the west. The peninsula is characterized by rolling hills covered by grass, brush or forest and surrounded by beaches. Point Reyes itself, however, consists of an abrupt headland forming the shape of an inverted "T." It is upon the westernmost tip of this headland that the Point Reyes Light Station has stood for 120 years.

Since the earliest days of marine commerce Point Reyes has been both a significant landmark and a hazard to mariners. Despite its geographic prominence, Point Reyes is often shrouded in dense fog and is considered to be the windiest place on the West Coast and one of the foggiest places in the United States, second to areas on the East Coast. A wickedly heavy surf pounds Point Reyes Beach, directly north of the headland. From the beginning of the Pacific shipping industry, Point Reyes has taken its share of shipwrecks and close calls. Maritime historian Ralph Shanks has provided an eerie description of harrowing conditions at Point Reyes:

Offshore, the ocean currents become confusing, moving in opposite directions. The sea is deep, too, so that the early-day mariner could not use a lead line to determine his depth or position. A breaking beach and rocks often loom without warning. Worse, configurations in the headlands and other causes make it difficult to hear the warning blast of a fog horn when vessels approach from the north. Stranding was a terrible prospect, for Point Reyes Beach may well have the heaviest surf in California. Here, then, is a fitting graveyard for ships.<sup>2</sup>

The long list of Point Reyes shipwrecks begins with perhaps the most famous, that of the Manila galleon *San Agustin* in 1595, considered to be the first recorded shipwreck on the California coast. Some of those that followed were the *Oxford* (1855), *Oregon* (1860), *Sea Nymph* (1861), *Monterey* (1862), *Bengal* (1863), *Norvick* (1863), *Labouchere* (1866), and *S.F. Blunt* (1868), to name a few. As commerce increased along the California Coast, the need for aids to navigation also increased. In response, the United States government overcame numerous obstacles and established a light station at Point Reyes.

## B. THE U.S. LIGHTHOUSE SERVICE TARGETS POINT REYES

The first plans for California lighthouses were drawn in 1849 when President Zachary Taylor authorized the U.S. Coast Survey to recommend lighthouse sites along the coast of the new territory. Of sixteen sites the Survey recommended--with Point Reyes ranked second--the government contracted for construction of only eight, and did not include Point Reyes. In 1852 Congress transferred administration of the country's lighthouses from the Treasury Department to the Lighthouse Board, opening the way to provide much-needed improvements towards the safety of the country's burgeoning maritime industry. Point Reyes was in the West Coast area designated as the Twelfth District.<sup>3</sup>

After construction had begun or been completed on the eight other California sites. Congress appropriated \$25,000 on August 3, 1854 for a light station at Point Reyes. Of the appropriation, \$10,000 was for illuminating apparatus and \$15,000 for construction. The next month Point Reyes appeared on a map of the coast near San Francisco Bay, where the government reserved the tract of land "for Light House purposes." Inspector of the Twelfth District, Captain Campbell Graham, was informed in the following February that a lighthouse at Point Reyes was to receive priority for construction and that he should proceed with plans to erect the station as soon as possible. A letter from the Lighthouse Board explains where some of the pressure was coming from:

This light is asked for by the navigating interests, & it has been represented to be of great importance--which is not so readily understood when it is remembered that the point is so very near the Farallones, 1st order--Point Bonita 2nd order and the Point Lobos,

which will be 2nd or 3rd order apparatus. The site has been selected--land reserved and the Inspector instructed to use all diligence in arranging for the commencement of the work.<sup>4</sup>

By June of 1855 Captain Graham had arranged a contract for the construction under the supervision of Major Hartman Bache of the Corps of Topographical Engineers. The contractor, William Nagle, was to build a second order flashing signal in a tower like that at the Farallones and a keeper's dwelling similar to one at Point Bonita for the sum of \$10,500.

One detail remained unresolved: the United States did not have title to the land. This detail turned into a major obstacle that resulted in a fifteen-year delay in construction of the lighthouse, at the probable expense of almost a million dollars in maritime losses at Point Reyes.

### **C. TITLE LITIGATION AT POINT REYES, 1855-1869**

Most of the Point Reyes peninsula was unclaimed in 1840 when Antonio Osio applied to the Mexican governor for the 48,000-acre "Rancho Punta de los Reyes, Sobrante." The land had been under the distant stewardship of the Mission San Rafael from the time of its establishment in 1817 to 1834, when Mexican authorities disbanded the mission. The governor approved Osio's grant on November 20, 1843. Nine years later Osio sold the ranch to Andrew Randall, a prominent San Francisco doctor, politician and investor, for \$25,000. Randall occupied the land with his family for a short time but often left it in the hands of a superintendent named Josiah Swain. Although the United States Land Commission confirmed Randall's title to the land in 1855, his reckless land investments around the state aroused trouble with creditors, many of whom had moved to foreclose on the property.

One creditor took the extreme step: on July 23, 1856, in a rage over a debt, Joseph Hetherington approached Randall in a San Francisco hotel and killed him with a revolver. Vigilantes subsequently hanged Hetherington in front of a huge crowd. Randall's widow was left with a \$237,000 debt and land that was "hopelessly mired in litigation."<sup>5</sup>

At the height of the battle over Point Reyes during 1856 and 1857, at least three different parties claimed to own the property due to the fraudulent settlement of liens against the property. One, Dr. Robert McMillan, had the financial resources

to hire one of the premier law firms in San Francisco, Shafter, Shafter, Park and Heydenfeldt, and to pay off the liens on the land. McMillan won the property title in court in 1858 and the Shafter law firm took over the ranch after paying McMillan \$70,000 and Randall's widow \$14,700.

Brothers Oscar and James Shafter, natives of Vermont, bought out their partners Park and Heydenfeldt in 1858 and undertook to establish a series of dairy ranches at Point Reyes. The Shafter brothers were instrumental in the long delay in getting the lighthouse built at Point Reyes.

#### **D. ESTABLISHMENT OF THE POINT REYES LIGHTHOUSE**

While the land title was in dispute, the Lighthouse Board could only sit and wait. Design work had commenced but on October 24, 1855, the Board ordered all work suspended until the U.S. government officially acquired the land. Bache tried to clear up the disputes and secure title during the winter of 1855-56. On March 18, 1856 a deed was drawn up for an 83-acre parcel for sale to the government by Thomas G. Richards of San Francisco, one of the claimants who at that time had appeared to have gained legal title. Then, according to historian Anna Coxe Toogood:

On March 19 Bache wrote to [Lighthouse Board] Secretary Jenkins to explain that Richards had first offered to sell for \$2000. Considering \$1500 an ample price for the land and a right of way from Drakes Bay, Bache had counter-offered \$1000, which Richards had declined to accept. The two parties reached an agreement the next month, however, and on May 2 Bache forwarded the deed to the United States Attorney General for approval.<sup>6</sup>

Unfortunately, the transaction did not work out. While the District Attorney for Northern California and the U.S. Attorney General worked out details, the land changed hands again, ending up with the Shafter.

Meanwhile, Bache pressed ahead on design and construction details. In September 1855 the Lighthouse Board shipped twenty-nine cases of second-order illuminating apparatus from the East Coast, which arrived on the West Coast the following spring. The lighthouse lantern was to be completed by Hayward, Bartell and Company of Baltimore, Maryland, but Nagle's construction bid for the house and tower had to be put on hold pending confirmation of title. In late 1859 the Lighthouse

Board's engineer submitted plans for a California Cottage-type house with the tower enclosed on the west side, facing the ocean. These plans were eventually abandoned as years passed with no title being transferred to the United States.<sup>7</sup>

Oscar and James Shafter were both knowledgeable and crafty in their land dealings. After they gained title in 1858 they asked what the Lighthouse Board considered an exorbitant amount of money for the land and right-of-way for the lighthouse. Although the California legislature passed an act in 1859 providing "for the relinquishment to the United States, in certain cases, to title in lands, for sites of lighthouses and for other purposes," the government took no action against the Shafers for a decade, perhaps due to their stature in state politics: besides being powerful lawyers, Oscar held a seat on the state supreme court and James had been elected a state senator. The Shafers' stubbornness enraged California Senator William Gwin, who spoke before the U.S. Senate on April 19, 1860 to plead the Point Reyes case:

There is a lighthouse that ought to have been built at Point Reyes years ago. We had an appropriation of \$25,000. The parties owning the ground, knowing the necessity of having a lighthouse there, asked \$25,000 for three and two-thirds acres, the amount of the entire appropriation, when it was not, in fact, worth twenty-five cents an acre. The Lighthouse Board would not give it; and the appropriation lapsed back into the Treasury. The commerce between California and Oregon is suffering constantly for want of that lighthouse.<sup>8</sup>

As if heeding Gwin's advice, Congress appropriated an additional \$40,000 for the lighthouse and \$2,500 for a fog signal in 1860, and another \$15,000 in 1867. Lt. Col. R. S. Williamson, the Twelfth District engineer, dealt with the Shafers and their new partner, Charles Webb Howard, over a price for the land. The Lighthouse Board authorized Williamson, who felt the the land was "intrinsically worthless" except as a lighthouse site, to make an offer of \$5,000. Historian Toogood noted:

The negotiations were complicated by the fact that the District Attorney, Delos Lake, advised Williamson that the new proposal from the Shafers and Howard to sell the twenty-three acres at issue for \$10,000 was not far from what a jury would appraise the land. Furthermore, the owners, in their letter of July 8 [1868], warned that they were on the verge of disposing of their lands; if they did so

without making a deed for the lighthouse, negotiations would then have to be continued with the new owners, causing yet further delays.<sup>9</sup>

In November 1868 Williamson received clearance from the Lighthouse Board to instigate condemnation proceedings against the Shafters and Howard. An advertisement stating such was run in the Marin County newspapers for four months as required. Meanwhile the Shafters made a counter-offer of \$6,000, a sum supported by the Board of Marine Underwriters in San Francisco. No doubt in an attempt to move the project along, the underwriters had formed a committee to investigate the dangerous delays in getting the lighthouse built. They provided to the Lighthouse Board a list of shipwrecks at Point Reyes since 1860, which had resulted in over three-quarters of a million dollars in losses.

The Lighthouse Board authorized Williamson to accept the Shafters' price in January of 1869 and a deed was signed on July 28 of that year. The sale gave the U.S. government 83 acres for the lighthouse reservation, "together with a convenient embarcadero on Drakes Bay and the right to land at any point between Drakes Bay and the tract herein conveyed, and a convenient right of way between the two; a perpetual right of access across to the beach on the north side of the point for firewood, and the perpetual right to take the same for the use of the Light House Keepers for fuel; a perpetual right to take water from the spring most convenient to said Light House site, and the right to take materials from the Granite quarry on the Bay aforesaid to be used in the erection of such portions of the Light House and other buildings connected therewith as it may become desirable to build of stone." After fifteen years of frustration, the construction could now begin.<sup>10</sup>

At the close of fiscal year 1869 the Lighthouse Board had \$49,288.12 set aside for construction and had asked Congress for an additional appropriation of \$45,000, which was granted on July 15 of the next year. Phineas T. Marston, a carpenter from Maine who had specialized in church building and had been recently appointed Superintendent of Lighthouse Construction on the West Coast, received the contract for site preparation and construction of the keepers dwelling.<sup>11</sup>

## E. CONSTRUCTION OF THE LIGHTHOUSE AND FOG SIGNAL

The contractor's first task, begun in the latter part of January 1870, was to build a road from the designated landing at Drakes Bay (at today's fish docks) to the lighthouse site, a distance of about three miles. Starting at a sheltered cove behind the east headland of Point Reyes, the road wound up a steep hillside and through a part of the pasture land of one of Charles Webb Howard's dairies, designated "A Ranch." Passing near the dairy complex, where the road to Olema (about 20 miles distant) and San Rafael headed north, the lighthouse road then went up a steep hill to the sandy top of the west headland, where it traversed areas alternately composed of sand and rock. The road terminated at the site of the keeper's dwelling, the first building to be constructed.

Originally, the area at the top of the bluff near the dwelling site had been earmarked as the site of the lighthouse, with the dwelling incorporated in the structure in a style typical of the East Coast light stations. This location, however, had a serious flaw: there was no visibility in the typical heavy fogs. At the request of the Lighthouse Board, the United States Coast Survey sent its talented surveyor, George Davidson, to Point Reyes in June 1869, to look at the situation. Davidson, well acquainted with the California coast after almost twenty years in charge of the Pacific Coast survey, traveled to Point Reyes via ferry from San Francisco to San Quentin and stagecoach to Olema. The next day Davidson and fellow surveyors Edward C. Cordell and Augustus F. Rodgers hired a wagon and proceeded to the foggy Point Reyes headlands.<sup>12</sup>

Davidson had been convinced as early as 1853 that Point Reyes needed a light at a location low on the cliffside, due to the heavy fogs there that "lift" just enough for a lighthouse at a certain elevation to be seen by a ship. So, departing from the proposed lighthouse site down the steep ridge to the west, the party "followed the sharp, jagged ridge of the head below the old location to a shelving, projecting point about 275 feet beneath it." There they found a suitable location where "with very little labor in taking away the sloping and higher part (27 feet) of the point to the north eastward, sufficient space can be had for a light house of the size of that at Mendocino."

Using a hand level and compass, Davidson figured that the new location was 225 feet above sea level and offered a superior arc of visibility. In his official letter to his superior, Superintendent Benjamin Peirce of the U.S. Coast Survey, Davidson

stated: "This location commends itself so soon as seen, and we recommend that it be adopted as the site for the proposed light . . . the rock is solid, and when the spur is levelled off there appears no reason to doubt its adaptability as a safe and sure foundation." He added, "We especially and earnestly recommend that a powerful fog trumpet or steam whistle be placed on the ledge below any selected location. In very thick weather it will be of greater use than the light itself." To confirm these recommendations, Davidson had recently distributed circulars to mariners asking for comments about peculiarities of the location and experiences in navigating the Point Reyes area.

Davidson also recommended that the light be a facsimile of the recently completed light at Cape Mendocino in Humboldt County to the north. He also commented on the state of the road from the proposed landing ("The road . . . is practicable with little grading") and the lack of a dwelling site within view of the proposed light tower ("But sufficient space immediately adjacent to the tower may be made for a small house for watching, working and sleeping quarters"). Davidson, Cordell and Rodgers left a mound of stones at their chosen site and returned to San Francisco.

Inspector of Hydrography Carlisle Patterson disputed Davidson's recommendations, and the Army Corps of Engineers concurred. Patterson felt that the tower should be placed even further down the cliff at a possibly higher cost. "A cheap lighthouse," he argued, "in a comparatively useless place, is a wasteful expenditure." The Lighthouse Board accepted Davidson's recommendation, however, and ordered construction to begin.<sup>13</sup>

Preparation of the lighthouse site, on the rocky cliff to the west of the dwelling site, proved to be a laborious and dangerous, and hence, an expensive task. Near the end of January crews blasted and graded a route down the cliff, then leveled a section of the cliff to accommodate erection of the tower. A tramway was built to carry tools and materials down the cliff to the lighthouse site. This tramway, consisting of a ramp skirting the north side of the wooden stairway upon which a cable-controlled cart operated, continued in practical use after construction was completed. Historic photographs have pictured a railway system at the top of the stairs, which could have been an original portion of the tramway system. Presumably handcarts traversed the area between the keepers dwelling and the top of the stairs on these rails; the rails appear in photographs into the 1920s.

Marston hired a second group of laborers in April 1870 to build the keepers dwelling on a site about 450 feet east of the top of the tramway. A 217-foot-long

retaining wall had to be built to provide a level space for the yard and garden for the keeper; the stone for this wall was probably taken from the Drakes Bay granite quarry mentioned in the 1869 deed. Workers then backfilled the wall, forming a large level yard. A wind fence erected on the top of the wall extended around the north and west sides of the house. Extensive grading to the south of the house produced a wide passageway needed to reach the lighthouse steps.

Carpenters built a two-story frame house, according to an official description at the time, "in the most thorough and substantial manner, [and] the materials of which it is built are of the best quality." The house featured a brick cellar and "was well-painted, inside and outside, with three coats of paint." Fences and outbuildings were whitewashed, no doubt giving the keepers complex a new and tidy appearance. A four-foot high fence, 1300 feet long and also whitewashed, was built some distance to the east of the dwelling to mark the boundary of the lighthouse reservation. While the dwelling occupied a somewhat protected spot on the headland, winds wreaked havoc during and after the construction, as reported later in a newspaper:

Time and again, it is said, the workmen engaged in the construction of the buildings had their tools blown away, and once the breeze lifted bodily a carpenter's kit and hurled it over the cliff. A stiffish gale unroofed the keeper's house soon after its completion.<sup>14</sup>

In August, Marston completed the dwelling contract and the first keeper, John C. Bull, and his wife, Melissa, moved into the house.<sup>15</sup>

Joseph Bien, a San Francisco machinist who had recently completed the lighthouse at Cape Mendocino (Point Reyes' only "sister" lighthouse, being practically identical), received a contract to construct the tower and install the lighting apparatus in April 1870. As the only man qualified in the state to build a lighthouse to government specifications, Bien was well paid at his own request, a fact that irked engineer Williamson. To be paid according to the weight of the iron tower, at eighteen cents per pound, Bien set to work fabricating the heavy sections of tower wall while waiting for the French-made lens apparatus to arrive via steamer from the East. The shipment eventually arrived but with a case of prisms missing, causing a frantic search during July and August by the engineer and the shipper, the Pacific Steamship Company. Someone found the missing case in time so as to not delay the assembly of the lantern.<sup>16</sup>

After making three specified alterations on the tower and repairing damage to

the lens apparatus suffered during shipment, Bien was ready to ship the parts to Point Reyes by September 15, 1870. The boxed parts arrived by steamer at the Drakes Bay landing; crews hauled them up the road to the bluff above the lighthouse site on October 9. A crew of seven men hired for the occasion then lowered the tower parts and apparatus down the tramway to the construction site. The tower's bed plates were attached to bolts embedded in the rock-and-concrete foundation that had been laid on the site.<sup>17</sup>

In little over a month and a half the lighthouse reached completion; a notice to mariners dated November 1870 announced that the light would begin operation on December 1, 1870, with characteristics being a white light flashing every five seconds from a white tower located 273 feet above mean sea level, visible from a distance of twenty-three and a half miles at sea when looking from a ship's deck fifteen feet above the water. According to the notice, bearings could be fixed with the lighthouses at Point Bonita, twenty-seven and a half miles southeast, at South Farallon Island, seventeen and three-quarters nautical miles south and east, and at Point Arena, sixty-seven miles northwest.<sup>18</sup>

An excellent description of the lighthouse appeared ten years after its construction in a detailed history of Marin County published in 1880:

The station is Number 495, and the light is a first order Funk's [sic: correct spelling is *Funck's*] Hydraulic Float. There are four circular wicks in the lamp, whose diameters are as follows: Three and one-half inches, two and one-half inches, one and three-fourths of an inch, and seven-eighths of an inch. The lamp consists of two chambers for oil, one above the light and one below. The oil is pumped from the lower into the upper, whence it passes through a chamber in which there is a regulating float, which governs the flow of oil to the lamp. The flow of oil is in excess of the amount consumed to the extent of one hundred and twenty drops each minute. The object of this is to prevent the charring of the wick. This overflow is conducted to the lower chamber, and pumped again into the upper. In this way there is no wastage. The upper chamber is pumped full of oil every two hours. This is what is known as a "flash[ing] light," i.e., the lenses revolve around the light in such a manner that the focus of each lens appears as a flash. There are twenty-four of these focal lenses, and the entire revolution is made in two minutes, thus causing the flashes to appear every five seconds. A very complete reflecting arrangement is constructed about the light, so that every ray is brought to the focal plane, and

passes thence across the surging billows to warn the mariner of dangers, and to guide him safely into the quiet harbor. These reflectors consist of a series of large glass prisms, divided into segments, varying in length as they approach the apex of the cone. Of these prisms there are eight horizontal series above the lenses, and the same number below them. Then there are eighteen series on the concave surface above the light, and eight series on the concave surface below, making a total of forty-two series of reflecting prisms, and the height of the reflecting apparatus, including the lenses, is eight feet and ten inches, and it is five feet and six inches in diameter. Viewed from the outside, the outlines are very similar to a mammoth pineapple. The reflector is revolved by a clock-work arrangement, and requires weight of one hundred and seventy-five pounds to drive the machinery. There is a governor attached to the gearing for the purpose of regulating the motion and speed of the revolving reflector. This weight requires to be wound up every two hours and twenty minutes. The lenses are of the La Pute patent, and the gearing was made by Barbieri & Fenestre, in Paris, in 1867. This light is on a sixteen-sided iron tower, and it is twenty-three feet from the base of the tower to the focal plane. It is two hundred and ninety-six feet above the sea level, and can be seen at sea a distance of twenty-four nautical miles. It illuminates an arc of two hundred and eighty-five degrees. The oil used is refined lard oil, and the yearly supply at this station is seven hundred and sixty gallons. The lamp will consume seventeen pints of oil, on an average, every ten hours.<sup>19</sup>

The lighthouse went into operation as scheduled on December 1, 1870.

#### **F. THE FOG SIGNAL**

Congress had appropriated \$2,500 for a fog signal at Point Reyes as early as 1860. Planning did not begin in earnest until the lighthouse was under construction in the summer of 1870. Two major design considerations had to be contended with: first, the height of the signal, which determines its effectiveness, had to be decided and an appropriate and feasible location found on the precipitous ledge; and second, the fact that no water source could be found within two miles of the proposed steam-powered fog signal, a fact which proved to be costly in more ways than one.

While engineer Williamson wanted to begin construction of the fog signal as soon as possible, his superiors in Washington asked that he wait until the next spring

when the weather would improve. Williamson, as well as members of the Coast Survey, mindful that Point Reyes held the record as the foggiest point on the West Coast, also objected to the Lighthouse Board's insistence that the facility be driven by steam, stating that, "this Point, above all others on the coast, should have a first class fog signal." Williamson also felt that the water shortage at Point Reyes would create an impossible situation, and that a system involving a coal-driven engine powering a compressor which sounds a fog trumpet was a superior design. The Lighthouse Board did not agree, and early in 1871, construction began on a coal-fired, steam-powered fog signal under contractor Marston. Upon completion of the project the Board published a report of the construction. The report stated:

On February 1 the work of preparing a site for the Steam Fog-signal at this station was commenced. A large cistern was constructed, which, with a basin around it, will hold 100,000 gallons. A watershed, ten thousand square feet in area, was made, from which water enough will be collected in a year to fill the cistern, even in a season in which the rain fall will be much below the average.

The water from the cistern is conducted to the Fog-signal by means of a galvanized iron pipe, which is securely fastened to the sides of the cliff. A chute has been built from the site of the tower to the Fog-signal. The chute is constructed in the most substantial manner, and is for the purpose of conveying fuel to the Fog-signal. A winding roadway has been constructed from the cliff to the signal site. Much blasting was done before it was completed. The work of preparing the site for the signal-house, coal shed, &c, was very slow, difficult and dangerous. Huge masses of rocks overhanging the signal site had to be blasted off, so that at the rear of the signal is a vertical wall of rock, one hundred feet high. An iron railing was put around the edges of the plot prepared for the signal, to keep any one from rolling off into the sea, as on all seaward sides of the signal the cliff is very steep and jagged.

On June 12 the work of taking the boiler and signal apparatus from the top of the cliff down to its position was successfully accomplished. The boiler was put in position, the apparatus fitted to it, and on June 14 the signal was tried and found to work satisfactorily. On June 30 the work of housing the boiler and signal apparatus was completed.

The signal is now ready for operation, and can be started as soon as

the rains of next winter shall have sufficiently filled the cistern with water. The work of establishing this Fog-signal has been, from the nature of the location, very expensive and dangerous.<sup>20</sup>

The 1880 county history described the operation of the fog signal in great detail:

The fog-whistle is located one hundred feet lower down on the cliff [from the lighthouse] in a little notch hewn out of the face of the rock. The building is twenty-four by thirty, and there are two boilers, each sustaining a pressure of seventy-five pounds. The blasts recur once every minute, and last eight seconds. The arrangement is automatic and governed by a small engine. The whistle is constructed on a principle similar to ordinary locomotive whistles, only on a much larger scale, the bell or cap being twelve inches in diameter. Everything is duplicated so if any piece of machinery should give away, no loss of time would be sustained. Fuel saturated with petroleum is kept in the furnace at all times so that steam may be gotten up at a moment's notice night or day, and the whistle set to going in a very short time. The water supply pipe connects direct with the boilers from the tank which is three hundred and fifty feet above, and the pressure is two hundred and thirty-six pounds to the inch. The fuel and all supplies are sent down on a chute from the top of the cliff. There are a series of stairs leading from the keeper's house to the light-house and fog-whistle, in all of which there are nine hundred and sixty-five steps. Along most of the stairway a guard rail has been set up to prevent the wind from carrying the keepers into the ocean in their passage up or down.<sup>21</sup>

The signal went into operation as planned, but a fire reportedly caused by spontaneous combustion suddenly silenced it on the night of April 28, 1872. The fire destroyed the building and damaged the machinery. On June 10, \$10,000 was appropriated to make repairs, which were soon commenced. A Mr. Wheeler and his five-man crew arrived July 7 on the U.S. steamer *Fern* and spent almost two months rebuilding the fog signal. The operation included blasting a large overhanging rock that threatened the site. Then, in September, a storage building containing 600 sacks of coal burned and was a total loss.<sup>22</sup>

Other problems surfaced, the lack of water being the greatest. The rebuilt fog signal could barely operate during 1873 due to a lack of water. The watershed was enlarged by some 5,000 square feet in 1875, but still the cistern ran out of water

during the fall, requiring over 20,000 gallons of water to be hauled to the tank by the local dairyman Hochreuter of A Ranch nearby, working as contract labor. The firing of the boilers required about 140 pounds of coal per hour, or 42 tons during 1875, all of which had to be carried to the precipitous site from the landing. At times the whistle could not be heard by passing ships, whether due to adverse conditions or light station crew errors. Technicians improved the machinery in 1877, and duplicate first class sirens replaced the whistle in April 1880.<sup>23</sup> Inspector Williamson urged installation of the sirens when he wrote to the Lighthouse Board:

Great complaint has been made, and is now made of the inefficiency of the signal at this place, which at times cannot be heard a mile distant; this, too, when the signal is being properly run with a pressure of from 65 to 70 pounds. I have frequently investigated complaints made by masters of vessels of not hearing the signal when passing within a mile of it in thick weather; and I am convinced that the fault does not lie in the way the signal is run, but something in the signal itself or its locations. Point Reyes is one of the most important points on the coast, and the needs of navigation require that its fog-signal should be in efficiency second to none.<sup>24</sup>

After adding more water storage and replacing the boilers to accommodate the new sirens, the fog signal operated relatively well until 1890, when two twelve-inch whistles replaced the sirens. Subsequent improvements to the water system included addition of a 35,000 gallon tank in 1896, 6,000 square feet of watershed and a 25,000 gallon tank in 1900 and a massive 40,000 gallon redwood tank in 1907. No serious problems were recorded after the initial mishaps and shortcomings of the signal's first two decades.<sup>25</sup>

## **G. OPERATION OF THE LIGHTHOUSE, 1870-1939**

Evidently the lighthouse itself had none of the major problems during its 105-year career that the fog signal had seen. The light, a precise mechanism operating a finely crafted lens housed in a sturdy iron tower, was subjected primarily to a rigorous maintenance schedule and improvements in efficiency, none of which radically changed the lighthouse structure itself. A telegraph communication system was created between the dwellings, lighthouse and fog signal in 1876. The tower and illuminating apparatus received "slight" repairs in 1881, and in September 1887 origi-

nal builder Joseph Bien, working as a Lighthouse Service machinist, replaced the lard-oil wick lamps with ones that burned kerosene (mineral oil). The *San Francisco Chronicle* described the new system shortly after it was installed:

The improved mechanism has five circular wicks, varying in diameter from one and one-eighth to four and one-half inches. The flame is of dazzling brilliancy, it being impossible to look at it from the tower without smoked glasses, and the heat inside the lantern is intense. From the single reservoir the oil is forced up by the "plunger," a weight of 120 pounds, through a tube into the wicks. The care of the lamps--thanks to the new apparatus--is a comparatively simple matter. In the morning the keeper has only to fill the reservoir with mineral oil, raise the plunger to the top of the reservoir and close the faucet in the tube. At night he opens the faucet, the plunger descends, the oil is forced up through the tube into the float chamber and from thence to the wicks. The lamp requires no trimming during the night. A little before daybreak the keeper closes the faucet, opens the damper in the draught pipe (which connects with the top of the chimney, and regulates the height of the flame) and lets the light burn itself out. He then removes the chimney, wraps it in flannel until it is entirely cold, wipes the ash from the wicks and all is done.<sup>26</sup>

In 1889 a new coal and oil storehouse was built to replace an older one on a flat just above the tower. This building was in turn torn down in 1928 to accommodate the equipment building. Also in 1889 a steel clock cord replaced the traditional fiber cord. No other major work occurred on the tower until after the turn of the century, when the 1906 earthquake bent the upper and lower guide-roller spindles and displaced the lamp stand in the lighthouse, damage which was repaired immediately.<sup>27</sup>

While most of the construction and improvements during the 1870s centered around the fog signal, the 1880s saw attention focused on the lighthouse reservation in general. The extreme weather at Point Reyes quickly took its toll on buildings and structures. Although assigned thorough and strict maintenance procedures, the underpaid keepers had a great deal of trouble keeping up with the elements. In 1877 an inspector found the station "in anything but a creditable condition showing in many cases want of care and attention."<sup>28</sup>

Extensive repairs and improvements were made at the reservation during 1880 and 1881, including construction of storehouses at the landing and the light-

house, additional watershed and water storage tanks, and general improvements to the dwelling, yards, roads and fences. The Lighthouse Board had two new keepers dwellings, called cottages, built opposite the original dwelling in the spring of 1885 at a cost of \$5,787.35. The additional housing provided private quarters to each of the four keepers, all of whom had previously lived in the original dwelling; now the second and third assistants would reside in the cottages. Carpenters constructed a barn on the approach road to the reservation in 1887, evidently to house the government horse. Telegraph communications reached the light station in 1888.

Apparently all went well at the light station until August 20, 1885, when the British bark, *Haddingtonshire* wrecked on Point Reyes Beach just north of the lighthouse. San Francisco newspapers rushed to blame the incident on a poorly equipped lighthouse. The San Francisco *Daily Alta California* charged:

The machinery in Point Reyes lighthouse is old and useless; a worn-out iron pulley had been replaced by a wooden one, the siren does not keep its time and frequently fails to blow at all during foggy weather, and the lighthouse employees put in much of their time as farm laborers.

In the article, Lighthouse Inspector Commander J.W. Philip replied:

The machinery in the lighthouse is in good order; the engine is nearly new; the "pulley" complained of is an iron drum, which he directed the keeper at the last inspection to cover with a layer of wood to make its circumference larger and give it additional power; the siren when running, being automatic, must go as regularly as a clock, and the land about the station is not suited to agriculture.<sup>29</sup>

The inspector's comment about agriculture was ill informed, as the lighthouse was located in the heart of California's best and largest dairy industry. Charles Webb Howard's "A Ranch," less than two miles from the lighthouse on the road to the landing at Drakes Bay, traditionally provided contract labor to the Lighthouse Service. The report of keepers earning extra cash as farm laborers (or, more likely, milkers) could have been fact. Incidentally, four years after the article appeared George Hussey, one of the tenant dairymen at "A Ranch," became principal keeper at the lighthouse after many years of contract hauling and as an assistant keeper at the station.<sup>30</sup>

The poor conditions at Point Reyes, mainly the isolation and extreme weather,

caused continued problems in personnel and, subsequently, maintenance. A new Principal Keeper, John C. Ryan, arrived and soon wrote in the keeper's journal: "In taking charge of this station I must say that it is broken, filthy and almost a total wreck from end to end of it, in the worst condition in every particular of any station I ever saw, in fact, it is more like an old Saw Mill than a Light Station." Ryan's Third Assistant corroborated the statement underneath, but the entire entry was scrawled over with the word, "Rats." Ryan set to work improving the station, keeping all the crew busy cleaning, repairing and painting. The assistants even whitewashed the stairs and coal chute, a somewhat out-of-the-ordinary sprucing up. Nonetheless, Ryan's attempts to get the station into shape proved to be a failure, as he received dismissal orders within a year.<sup>31</sup>

The Presidential Reorganization Act of July 7, 1939 placed the Lighthouse Service in the U.S. Coast Guard under the Treasury Department. After 1951, when the last Lighthouse Service-era keeper Gustav Zetterquist retired, Coast Guardsmen manned the light with various terms of duty; historian Shanks considered that, unlike some others on the coast, Point Reyes was operated in a "vigilant, high quality, very traditional manner right to the end."<sup>32</sup>

## H. MODERNIZING THE FOG SIGNAL

By the turn of the century the fog signal worked with reasonable reliability, but needed constant improvements nonetheless. Water supply continued to be the major concern, coupled with frequent complaints of the signal being ineffective. Crews increased the watersheds in size a number of times and installed larger water storage tanks, including a 35,000-gallon concrete tank built in 1896 perched precariously on the rocks overlooking the lighthouse stairs. The boilers were altered to burn fuel oil as well as coal for a savings in cost. In 1910 a gasoline-powered compressor and a more efficient six-inch siren replaced one of the steam plants and the twelve-inch siren, a move that necessitated rebuilding the fog signal building. The siren, in turn, was replaced with a Canadian-built Type G Air Diaphone in 1915, which was run by 30-horsepower Doak gasoline engines. Mariners agreed that this improvement brought the light station up to date in effectiveness and safety.

The only problem remaining was the distance between the light and the fog signal, some 100 feet of steep and dangerous old trail and stairway. Engineers par-

tially solved this problem in 1929 when the equipment that powered the diaphones was moved up to the lighthouse. A wood frame power house, the equipment building of this study, had been constructed in late 1928 on the site of the large storage house. The new 875-square-foot equipment building, usually called the "power house" by those stationed there, measured 20' x 46' and was set on a concrete slab that supported the heavy engines. A watch room, used as an office and weather station, and a tool/storage room, in addition to a much-needed lavatory (there had been a patent flush toilet in the lower fog signal building) and work bench were contained in the building, which featured large rolling doors on the east side at the bottom of the stairs. According to historian Shanks, this new equipment building, with its wood paneling, appeared to be fancier than many others on the coast. A circulating water tank outside the building cooled the engines. Moving the equipment to this site permitted lighthouse personnel to control the fog signal from the lighthouse area; the diaphones, still on the cliff 100 feet below, only had to be attended to occasionally.<sup>33</sup>

While this change improved operations a great deal, more could be done. In 1934, engineers moved the diaphones up to a newly built fog signal building directly below the lighthouse to the west. The two horns, mounted in what looked a little like a bell tower on the roof of the structure, could be aimed and adjusted for optimum performance. At about this time the south door to the equipment building was moved to the west side, presumably for more convenient access to the diaphones. Five years later, in 1939, commercial electric power reached the light station and one of the Doak engines was replaced with an electric motor and compressor; the other changed over to electrical operation in about 1948. A backup generator was installed about a year after electrification.<sup>34</sup>

In about 1947 the Type G Diaphones were replaced with F2T typhon air horns; these were replaced with "super typhon" dual emitter compressed air horns in about 1962. Two new electric motors and compressors replaced older ones in the power plant and an International Harvester/GE diesel generator plant supplanted a smaller one, for use in the event of power failures. The fog signal operated with this equipment until 1975, when the station was automated and the old equipment subsequently turned over to the National Park Service.

## **I. MODERNIZING THE LIGHTHOUSE, 1910-1975**

While the fog signal operated with many problems over the years from relying

on rainfall to run it, the lighthouse operated smoothly, with few obstacles. Safety was always a concern at any lighthouse, as flammable materials were used for many purposes at a reservation and fires could start easily, as they had at Point Reyes. At the turn of the century Point Reyes still lacked a safe storage building for kerosene. The Secretary of Commerce and Labor wrote to the Secretary of the Treasury on December 10, 1904:

It is necessary for the safety of the light-station at Point Reyes, California, and especially to the safety of the large quantity of mineral oil which it is necessary to keep at that important and isolated high-class light-station, that more secure and less dangerous storage facilities for it be provided. This mineral oil is now stored in an oil room, attached to the light-tower, which was originally designed to store lard oil. This is dangerous not only to the mineral oil but to the light-tower. Therefore it is recommended that an isolated brick oilhouse be built in which this inflammable illuminant can be stored. A building of the size in which to keep safely the large quantity of oil needed for this first-order light can not be built for \$550, the sum named as the maximum for building oilhouses in the general appropriation for oilhouses.

It is estimated that an oilhouse suitable for this station can be built for \$1,500, and the Light-House Board recommends, and in that recommendation this department concurs, that an appropriation of this amount be made therefor.<sup>35</sup>

After much pleading from the district, a small concrete oil house measuring 10' x 11' was built in 1910 near the old frame storage house for safely storing the fuel for the light.

The light source went through its second upgrading in 1911, when an incandescent oil vapor light replaced the old oil wick light. Some years later the light power was increased from 80,000 candles in 1924 to 160,000 candles in 1926. A Lighthouse Service publication noted that the Point Reyes light was seen from a ship thirty-nine and a half miles out to sea in 1925. Electrical power was brought to the station via lines and poles across Point Reyes in 1939 at a cost to Pacific Gas & Electric Company of \$30,000; that year a 1/18 horsepower electric motor was fitted to the mechanism pedestal and the old weight system was put aside for emergency use. A 1500-watt bulb (later reduced to 1000 watts) replaced the incandescent oil vapor light, but during power outages when the auxiliary power also failed, a Coleman

lantern was hung in its stead; this practice continued until the light was automated in 1975. The light power was increased to 170,000 candles in 1954 and to 1,350,000 candles in 1966. To update services to mariners the Coast Guard installed a Class D radiobeacon with a range of seven to ten miles in 1949.<sup>36</sup>

At some time between 1905 and 1915 an eight-sided concrete sidewalk was laid around the lighthouse. Also, the doors were replaced at an unknown date, the lower gallery door having been replaced with wood some time after 1951. A wind vane appears on the lighthouse roof in historic photos from around 1915, but had been removed some time after 1941. At an unknown date, considered by some historians and lighthouse men to be near the beginning of World War II, the roof and lantern were painted red. Historian Shanks speculates that the color change could have been an attempt to alleviate any confusion by mariners with the Point Bonita light to the south, which had and still has a painted black lantern.

In 1959 the Coast Guard undertook a major project at the light station: replacement of the old wooden stairway with 304 concrete steps and a cart track. The stairs were built in the same location but with ramps at two portions. An electric winch at the top of the stairway controlled a cart capable of hauling equipment and, if necessary, personnel.

In 1960 a modern apartment complex and garage replaced the old dwellings after almost a century of use and adverse weather. Ten years later an earthquake slightly damaged the light's clockwork mechanisms, resulting in uneven wear on the carriage wheels that continues today. In 1975 the Coast Guard poured a concrete sidewalk from the equipment building deck down to the lighthouse deck, as access to the automated light building gate.<sup>37</sup>

Point Reyes Light Station has traditionally been open to visitors during specified hours. A visitor register dating to 1892 has been preserved. During the 1960s visitors could see the station with a Coast Guard guide on weekends. Because of staffing problems, however, the Division Chief ordered the station closed to visitors effective May 15, 1967. Although the public protested, the Coast Guard never relented as long as it controlled the station and only by special permission could a non-service visitor see the lighthouse.

The light station was automated in 1975 as part of a servicewide modernization program. The Coast Guard erected a concrete building on the site of the fog signal building directly west of the lighthouse on which it put a revolving reflector light, a new radiobeacon and electronic tone fog signal, all controlled by timers and

computers. The last keeper, Thomas Smith, turned off the venerable old light on June 12, 1975, after 105 years of faithful service. By this time most of the historic buildings and structures on the reservation had been replaced with modern ones; only the lighthouse, equipment building, oil house, cisterns, watersheds and various sheds and outbuildings remained. Two years later the lighthouse and its 83 acres of land were transferred to the National Park Service for inclusion in Point Reyes National Seashore. The Coast Guard retained fee title to two tiny parcels in the reservation and the concrete transformer house. After construction of safety barriers, restrooms and a visitor center, the historic light station was reopened to the public in 1977.<sup>38</sup>

## J. OTHER GOVERNMENT AGENCIES AT POINT REYES

The United States Weather Bureau, founded in 1872, tracked weather patterns with a number of formal and informal manned posts along the California coast and provided this important information to the government and mariners. An official weather station was established at Point Reyes in the 1890s under the supervision of Julius C. Hayden, a former Signal Corpsman who had built similar stations on Mt. Tamalpais and the Farallon Islands. Hayden apparently operated the station out of existing buildings at the light station until permission was granted by the Lighthouse Board in 1901 to build a Weather Bureau station and dwelling. During the winter of 1901-1902 Hayden supervised construction of a two-story frame dwelling, with a weather observatory in the upper floor, perched at the edge of the cliff overlooking the top of the lighthouse stairs. Hayden experimented in wireless telegraphy using flagstuffs erected on the rocky hilltop adjacent to the station. Historian Jack Mason described the operation:

A flag told the direction of the wind, anemometers how fast it was going. Fog and rain forecasting was pretty much "by the seat of the pants":

Red sky in the morning,  
Is a sailor's sure warning.  
Red sky at night,  
Sailor's delight.

After recording his morning observations on the Point, the station chief telegraphed (later telephoned) them to San Francisco, whence

they were disseminated by mail, telegraph, telephone and (around 1920) radio.<sup>39</sup>

The last meteorologist stationed at the site was Julius Smith, who raised two children in the little house on the cliff and kept chickens in the small yard, where a swing had been set up. Two albums of the Smiths' family life at the site now in the Jack Mason Museum in Inverness provide a detailed look at life on the point early in the century. Smith and his family left the station on April 15, 1927. The Weather Bureau transferred the building to the Coast Guard later that year; it was used to house the principal keeper until its destruction in about 1960. The National Park Service rebuilt the foundation into an observation deck at the top of the lighthouse stairs, providing a favorite site for whalewatchers.<sup>40</sup>

The United States Navy took charge of the Coast Guard facilities during World War II, including the Point Reyes Light Station. The Navy granted a permit to the Department of War, United States Army on May 7, 1943, to establish a harbor defense radar installation near the eastern end of the lighthouse reservation. The army built a combination barracks, mess hall and latrine with a PX store, a prefabricated day room, an underground lookout station, a radar transmitter house and a power house, as well as water, electric and sewer systems. Of the approximately 15 enlistees at the installation Point Reyes historian Jack Mason wrote:

Rapport with the lighthouse personnel was excellent. When the boys wore out the felt on their pool table, keeper Gustav Zetterquist replaced it. For Christmas, the GIs chipped in and bought Mrs. Zetterquist a chenille bedspread. The boys had a mascot, Murphy, a little dog of jumbled ancestry. When naughty, Murphy was made to stand on his hind legs in a corner until he promised to do better.<sup>41</sup>

According to Mrs. Zetterquist's daughter, the army men regularly visited the family home for dinner, bringing hard-to-get rationed items like sugar and candy for the kids and receiving in return the results of Mrs. Zetterquist's fine baking.<sup>42</sup>

Per an agreement dated March 10, 1944, the lighthouse obtained limited water supplies from the army installation's well, replacing the old rainshed collection system in use at the light station for 75 years. The army abandoned the installation after the war and declared the installation buildings surplus on February 3, 1950; in 1952 the buildings were transferred to the Coast Guard and demolished.<sup>43</sup>

## K. THE KEEPERS OF THE LIGHT

The Point Reyes Light Station held a reputation for many years as one of the less desirable assignments on the west coast. A combination of wind, fog and darkness, the unrelenting fog signal, the immense set of stairs, not to mention isolation and poor wages, took a severe toll on the keepers and their assistants. Incidents of insanity, alcoholism, violence and insubordination plagued the station during its first half-century of operation. Not until modern conveniences arrived, such as better roads, transportation and electrical power, did the working conditions improve to any extent.

The station's staff included the principal keeper, usually a Lighthouse Service veteran, and three assistants, ranked as first, second and third assistant keepers. All were provided quarters, and many had families; until the Coast Guard took over the lighthouses, keepers were reportedly encouraged to come with families as a way to keep the men from boredom and isolation. Pay scales in 1887 ranged from \$800 per year for the principal keeper to \$600 for the first assistant and \$500 for the second and third assistants. Depending on the particular year, the service provided rations, although some reports complain of lack of government-provided rations. Marin County's historian pleaded for the keepers' well being in 1880:

When it is considered how these men have to live, far removed from society and neighbors, on a barren rock, subjected to the dangers and fatigues incident to their vocation, and the great responsibility which rests upon their shoulders, it would seem that the Government could well afford to be far more liberal in remunerating their services. The fate and destiny of valuable property and precious lives are in their hands . . . .<sup>44</sup>

Seven years later the *San Francisco Chronicle* commented on a somewhat different situation:

This [wage] seems a mere pittance (in fact it is not lavish), but, considering all that the word "rations" includes, it might be worse. House rent and repairing, stove fixtures, fuel, coal-oil, beef, pork, flour, rice, beans, potatoes, onions, sugar, coffee and vinegar are among the articles furnished by Government, with a privilege of exchanging any of them in something else.<sup>45</sup>

Until 1929 the keepers worked double watches during the frequently foggy nights. With one man stationed at the light tower and the other manning the fog signal 100 feet below, both withstood battering winds and an unimaginable racket from the fog signal's constant blasts. A sleeping room provided a safe place to rest between watches or when the wind prevented passage up the stairs, an apparently common event, as mentioned in the *Chronicle*: "On the left [of the stairway] a guard rail insures comparative safety to the keepers, who, as it is in heavy gales, have occasionally to prostrate themselves during the passage, making the best of their way between gusts, so furious is the sweep of the wind."

Day-to-day life at the station consisted of tedious tasks such as polishing the lens, cleaning and painting, repair of facilities and instruments, or making trips to the landing, post office or local ranch for supplies. Depending on the disciplinary character of the principal keeper, the work could be performed under pressure or barely at all. As evidenced in the keepers log of 1872-1896, some keepers let the station fall into disrepair while others enforced a stricter work ethic and pushed their crews to make the place shine. For instance, when John C. Ryan took over the station in January 1888, he found it to be in extremely poor condition and put his assistants to work cleaning it up. Ryan crowded the keepers log with lists of tasks performed, many of which were cosmetic; the crew appeared to have worked harder than any other time in the light station's history. Apparently he pushed a bit too hard, as in 1889 one assistant went "crazy" and was taken to the authorities at Olema; this incident was followed by Ryan's dismissal from the service.

The life of a keeper figured in romantic interpretations worldwide during the pioneer era of the job. Point Reyes received fame as one of the remote outposts on the California coast, and although isolated, close enough to a big city to be visited and reported on. The *Chronicle's* writer in 1887 found himself fascinated with the personal aspects at Point Reyes:

It is a lonely vigil, disposing one to serious meditation. The various ways in which the different watchers beguile their time, the books they read, the impressions made upon them by the weird and awful nature of their surroundings, are matters of interest to the philosopher. The first assistant has embodied his emotions in verse. It was the writer's good fortune to hear these poems read by their author under peculiarly favorable circumstances, and to the little group of listeners their quaint charm will long remain an impressive memory inseparable from the scene.<sup>46</sup>

Principal keeper E.G. Chamberlain, obviously depressed but in a poetic mood, wrote in the keepers log in September of 1885, "Fog fog and nothing but fog / had no mail since 9th instant / getting short of provisions," and then quoted English poet William Cowper:

O solitude where are the charms  
That sages have seen in thy face,  
Better dwell in the midst of alarms  
Than reign in this horrible place.  
Society friendship to love  
Divinely bestowed upon man,  
O had I the wings of a dove,  
How soon would I taste you again.<sup>47</sup>

While some keepers found poetic inspiration at the light station, others found loneliness, boredom and claustrophobia. Problems with alcoholism plagued the station, as described by the *Chronicle* writer:

Another local celebrity, in his way, was a late (and now happily deposed) keeper, notorious for his love of the flowing bowl. It is said that he even regaled himself, when out of whisky, with the alcohol furnished for cleaning lamps, and a familiar sight to the ranchman was this genial gentleman lying dead drunk by the roadside, while his horse, attached to the lighthouse wagon, grazed at will over the country. It was no unusual thing for him to be drunk for days at his station.

Apparently the fog signal caused most of the problems to keepers at the station. The signal building lay some 100 feet in elevation below the light, or another several hundred steps down the cliff. The steam apparatus was quirky and dangerous, requiring a great deal of maintenance and worry. The signal itself, whether siren or steam whistle, brought on numerous staff problems. The 1887 *Chronicle* article considered that the incessant sirens made "night and day alike hideous . . . the blast alone, which lasts five seconds and recurs every seventy seconds, is enough to drive any ordinary man mad, and must, it seems, exert a wearing effect upon even the hardened nerves of a keeper." The writer noted that after 176 hours of continuous operation, "the jaded attendants looked as if they had been on a protracted spree."

These difficulties wore on all the keepers, but no doubt brought the most problems to the principal keeper. Toogood wrote:

Keepers came and went frequently at Point Reyes light station during the nineteenth century, reflecting the nearly constant personnel problems plaguing that lonely spot. In March 1876 tensions flared between the principal keeper, William Wadsworth, and his second and third assistant keepers, who threatened him with violent language when he tried to put them on road repair. In 1875, however, Wadsworth had experienced his greatest trials with third assistant J. D. Parker, who threatened the safety of many navigators with his insubordination and neglectful duty. According to the keeper, Parker once shut down the fog signal, reporting clear weather when the Point was socked in with fog. Several times Parker failed to start the fog signal for hours after the fog rolled in, or didn't show up for his watch, or was late in reporting to duty. On one occasion Parker blew the fog whistle with little steam, only sounding it on five to fifteen minute intervals, so that when a steamboat signaled, he was unable to respond, although the station had plenty of water to operate the whistles at full pressure. On another occasion, he tampered with the fog signals' adjustments without authority, and on a consistent basis he refused to start his duty at the lighthouse one-half hour before sundown, although instructed several times to do so by keeper Wadsworth. Some days Parker would disappear from the station without explanation, and then return drunk, unable to go on watch. On Christmas eve, 1875, Parker attended a ball at a neighboring ranch, where he apparently burst into drunken song to entertain the guests, and to Keeper Wadsworth's disgust, vomited in front of the company.<sup>48</sup>

Lighthouse personnel did have various diversions, although most required a ride of more than an hour distant. The towns of Olema and Nicasio held regular balls, which were sometimes attended by keepers. One assistant, John McFarland, attended many balls and visited the local towns and ranches frequently during the mid-1870s, according to the keepers log; he often stayed away for days, apparently with the blessing of his superior. Eventually the keeper noted in the log: "Grave charges were preferred against John A.F. McFarland by Misses Vienna Jewell and Fannie Perham." McFarland was suspended but reinstated after the charges were tabled. The nature of Mr. McFarland's transgressions will perhaps never be known; he soon left to take charge of the Point Montara lighthouse.<sup>49</sup>

To many the lighthouse keepers stood as heroes, and one Point Reyes keeper,

Fred Kreth, became known as a real hero. In about 1927 the three-man crew of a fishing vessel found themselves stranded for twenty-four hours at an inaccessible area below the lighthouse. After the Coast Guardsmen from the lifeboat station at Drakes Bay failed to reach the wet and frightened men, Kreth climbed down the rocky cliffs to the fishermen and guided them to the safety of the keeper's quarters.<sup>50</sup>

Keepers found friendships and family-style companionship at local ranches. Until after the turn of the century one ranch, the F Ranch near the head of Drakes Estero, acted as a kind of community center, with post office, store and schooner landing. The log often mentions visits, meat purchases, or trips to the post office there. Mail service did not reach the lighthouse itself until well into the 20th century; a fourth-class post office established at the lighthouse in about 1925 survived until the 1940s. The mail drivers commonly would also deliver groceries from the store at Inverness to the keepers' families. The local school was originally located in a gulch beyond G Ranch until it was moved to A Ranch adjacent to the lighthouse in 1923. The old schoolhouse hosted community meetings and parties in addition to performing its educational responsibilities. Also, trustees of a Portuguese social hall on the Inverness road held regular dances and social gatherings, to which all were invited.<sup>51</sup>

The poor condition of the road to the lighthouse from Olema contributed to the isolation and hardships faced by the residents of the light station. The twenty-mile stretch of dirt and sand, planked in some places, was the responsibility of various local roadmasters until the turn of the century. Conditions varied along the road, as some dairymen kept the stretch through their ranch in excellent shape while others ignored their road sections. Sandy portions closer to the lighthouse reservation caused the greatest problems, as maintenance of the corduroy, or planked, sections taxed the keepers and roadmasters. A reporter from the *Marin Journal* remarked after an 1889 visit that "the wheels of the carriage utter sounds that grate upon the nerves, and the horses soon indicate the labor necessary to cross these sandy spaces by slowing down to a hum-drum walk, and a spiritless movement."<sup>52</sup>

By 1927 the road as far as J. V. Mendoza's B Ranch had been widened and resurfaced, but the remaining 3.3 miles to the lighthouse continued to be poor. Congressman Clarence F. Lea wrote to the Lighthouse Service Commissioner after a visit to the lighthouse:

At present the Lighthouse Service is under a heavy expense for hauling supplies between the landing at Drakes Bay and the sta-

tion, the road being impassable during wet weather, and the western half of it being very difficult to negotiate at any time due to heavy drifting sand. The Service keeps the western portion of this road corduroyed at considerable expense in order that supplies may be hauled to the station.<sup>53</sup>

Congressman Lea introduced a bill for funding road improvements but no money came of it; the county funded a general improvement in 1929 consisting of widening the road to sixteen feet, laying down a rock surface, and constructing culverts and ditches. Finally, in 1931, the Lighthouse Service funded improvement of the road to eighteen feet wide with a decomposed granite surface. Keepers and their families could now travel to the nearby towns without the rigors of the previous decades.<sup>54</sup>

## L. SIGNIFICANCE

The Point Reyes Lighthouse is one of the last remaining operable 19th-century lighthouses on the West Coast. According to historian Shanks, it is an unsurpassed example of a classic West Coast lighthouse and one of the finest examples of iron plate lighthouses in the country. While it has been replaced by an automated system, the 1870 lighthouse with original fresnel lens and counterweight operation is still used by National Park Service staff for interpretive purposes, a rare situation for a closed lighthouse. The architectural integrity of the original tower is complete, with the exception of window replacement (the original glass has been replaced with plexiglass), light source (electric for the last 51 years), and a replacement door on the lower floor. The original lens and clockwork mechanism, built in Paris in 1867, are intact.

The equipment building is also intact with minor architectural changes. Its machinery is intact and could be made operable. Its design is highly unusual, in that all of the other fog signals on the West Coast were contained in one building, operating as a unit; as an independent powerhouse structure supplementary to a fog signal, it is unique.

These elements of the Point Reyes Light Station possess significance as integral units of the West Coast lighthouse and fog signal system. Point Reyes, considered to be the foggiest and windiest point on the West Coast, has historically been one of the more important landmarks for mariners, beginning with the earliest

explorers of the region. The light station is significant in the history of maritime commerce and as an aid to navigation under the U.S. Lighthouse Service and U.S. Coast Guard in California. In addition, it is architecturally significant as the only remaining operable lighthouse of its type on the West Coast (Cape Mendocino Lighthouse in Humboldt County is practically identical, but has been stripped of its lens and mechanism and is in poor condition after years of abandonment).

The complex at the foot of 304 stairs on the western headland of Point Reyes provides the visitor with a rare example of an intact light station of the era 1870-1930. Only the Coast Guard automated light intrudes on the historic scene, although it is of interest in itself as a vivid representation of the changes in the aids to navigation on the California coast.

## K. END NOTES

This historical report is based largely on an existing National Park Service history of the lighthouse, with additions and corrections provided: Toogood, Anna Coxe, *Historic Resource Study: A Civil History of Golden Gate National Recreation Area and Point Reyes National Seashore, California*, pp. 206-207, 238-275. Toogood's numerous references are not cited individually in this report.

<sup>1</sup>*San Francisco Chronicle*, September 25, 1887.

<sup>2</sup>Shanks and Shanks, 1978, p.19; Shanks calls Point Reyes "the foggiest point on the Pacific Coast . . . and the nation's windiest headland as well"; Mason, in *Point Reyes, The Solemn Land*, page 117, refers to Dr. Horace Byers' *Synoptic and Aeronautic Meteorological Book* about Point Reyes fog; Holland, p. 202, quotes 2,139 hours of fog in 1918; according to the *United States Lighthouse Service Bulletin*, Vol. IV #37, January 3, 1933, pp. 141-142, Point Reyes had the highest number of fog hours in the service during fiscal year 1932: 1,774 hours, and 2,129 in FY 1930; highest number of fog hours was 2,662 in 1953, recorded in Gibbs, p. 71; average wind velocity at Point Reyes was found to be 23.5 miles per hour year round, with winds of 100 mph recorded in 1916 (National Register of Historic Places Nomination Form, 1973, and Gibbs, p. 71).

<sup>3</sup>Holland, p. 202.

<sup>4</sup>Map, Copy "A", Executive Office, September 11, 1854, in Real Property records, U.S. Coast Guard, Alameda, California; Lt. T.A. Jenkins to Major Hartman Bache, Corps of Engineers, May 2, 1855, National Archives, Record Group 26. A lighthouse at Point Lobos was never built; in its stead a third order light was built at Mile Rock outside San Francisco Bay.

<sup>5</sup>Mason, *Point Reyes*, pp. 25-29.

<sup>6</sup>Deed recorded on March 18, 1856, Book C, page 52. Toogood, p. 241. The deed states a price of \$1,000.

<sup>7</sup>Toogood, p. 241; there is little doubt that the Civil War interfered with negotiations during this time.

<sup>8</sup>Ellison, p. 359. *Lighthouse Board Annual Reports*, 1867-68.

<sup>9</sup>Toogood, p. 243.

<sup>10</sup>Deeds book G page 518, Marin County Recorders Office. The figure for acreage is almost universally

stated in historical reports and books as 120 acres, but has never been substantiated; no evidence of a change in boundaries has been found during the current research, while the official acreage has been noted as 83 acres for all documents of this century.

<sup>11</sup>Shanks, 1978, p. 21.

<sup>12</sup>Letters and diaries of George Davidson (1825-1911), Bancroft Library, University of California, Berkeley.

<sup>13</sup>Schmeider, in *Point Reyes Historian*, pp. 508-509.

<sup>14</sup>*San Francisco Chronicle*, September 25, 1887, p. 8.

<sup>15</sup>Unidentified letter, 1870, probably from Twelfth District engineer Col. R.S. Williamson (letter refers to "my last annual report"), NA. RG 26, LHB Vol. 285.

<sup>16</sup>At some point between 1856 and 1870 the specifications were changed to provide for a first order revolving lens, replacing a second order light planned during the 1850s.

<sup>17</sup>Lighthouse Board *Annual Reports*, 1871.

<sup>18</sup>Light lists from later years noted the characteristic as a 1.5 second flash and 3.5 second eclipse; this was amended by 1950 to a 1.7 second flash and 3.3 second eclipse. The light tower is documented to have been painted white with a black lantern (roof, window frames and balcony) at least to 1924; oral histories indicate the lantern was black until World War II; early photos tend to corroborate this, although no early color photos of the light have been found; also see Shanks, p.22. The first photographs of the light tower, taken by Eadweard Muybridge in 1870, show what appears to be either no paint or a light-color primer coat on the lantern. It appears that the tower was painted similar to today's paint scheme (red roof, white lantern and tower, black and green balconies) during the 1870s and 1880s, evidenced by orders for paint for the tower dated 1875 which involved 100 pounds of white lead, 25 pounds of red lead and 10 pounds of green, and by a description in the 1889 *Coast Pilot*, which described the lighthouse as a white tower with the top of the lantern painted red and two open balustrades painted black. In 1888 it took the crew ten days to paint the tower; they used red primer during that job. From the Lighthouse Keepers Journal, 1875, 1876, 1888.

<sup>19</sup>Munro-Fraser, pp. 304-305.

<sup>20</sup>Lighthouse Board *Annual Reports*, 1871.

<sup>21</sup>Munro-Fraser, p. 305.

<sup>22</sup>Lighthouse Keepers Journal, 1872-1877, NPS Collection: entries of July 22, August 16-23 and September 8, 1872; *Marin Journal*, September 21, 1872.

<sup>23</sup>Lighthouse Keepers Journal, October 1875. Toogood, p. 256.

<sup>24</sup>Lighthouse Board *Annual Reports*, 1880, quoting a report submitted by the Twelfth District Inspector.

<sup>25</sup>Lighthouse Keepers Journal, March 11, September 6 and 9, 1890. Lighthouse Board *Annual Reports*, 1896, 1900, 1907.

<sup>26</sup>*San Francisco Chronicle*, September 25, 1887, p. 8.

<sup>27</sup>The Lighthouse Keepers Journal provides the correct date for conversion to mineral oil, September 1, 1887; entries of September 1-13, 1887. Entries of April and December, 1889. Letter from Frank A. Burt to Engineer, 12th District, April 30, 1906.

- <sup>28</sup>Quote from Lighthouse Keepers Journal, Feb. 12, 1877.
- <sup>29</sup>*San Francisco Daily Alta California*, August 25, 1885.
- <sup>30</sup>*Marin County Journal*, February 21, 1889. Lighthouse Keepers Journal, 1880-1890.
- <sup>31</sup>Lighthouse Keepers Journal, January 21, month of February, April 16, May 20, June 17, October 10, 1888, February 7 and 10, 1889.
- <sup>32</sup>Toogood, pp. 271-272. Interview with Ralph Shanks.
- <sup>33</sup>Toogood, pp. 262-266. Coast Guard Property Data Inventory, March 5, 1946.
- <sup>34</sup>Interview with Charles Zetterquist.
- <sup>35</sup>Lighthouse Board *Annual Reports*, 1905.
- <sup>36</sup>Toogood, pp. 266-267. *Marin Journal*, July 20, 1939; *Lighthouse Service Bulletin*, Vol. III, Number 18, June 1, 1925.
- <sup>37</sup>*Baywood Press*, July 2 and October 29, 1959.
- <sup>38</sup>Data in Coast Guard and Point Reyes National Seashore files.
- <sup>39</sup>Mason, *Point Reyes Historian*, p. 293.
- <sup>40</sup>Letters of Lighthouse Service, December 4, 1926 and January 12, 1927, Coast Guard files, Alameda.
- <sup>41</sup>Mason, *Point Reyes Historian*, p. 625; Mason cites the *Point Reyes Light*, January 4, 1968 and memories of Mrs. Zetterquist.
- <sup>42</sup>Interview with Mary Giddings by Suzanne Baty, 1990, Jack Mason Museum.
- <sup>43</sup>Letters, February 16 and 26, 1944, October 8, 1945, May 12, 1949, May 6 and June 19, 1952, and permit dated March 10, 1944, Coast Guard files, Alameda.
- <sup>44</sup>Munro-Fraser, p. 306.
- <sup>45</sup>*San Francisco Chronicle*, September 25, 1887, p. 8.
- <sup>46</sup>*Ibid.*
- <sup>47</sup>Gunn, p. 25, attributes the poem to Cowper (1731-1800) in his *Verses Supposed to be Written by Alexander Selkirk*; Selkirk was supposedly the model for Defoe's *Robinson Crusoe*.
- <sup>48</sup>Toogood, pp. 268-269.
- <sup>49</sup>Lighthouse Keepers Journal, July 24, 1873, March 17 and September 6, 1874 and February 7, 1875.
- <sup>50</sup>*San Francisco Examiner*, undated article; letter from Mrs. Ruth Kreth to U.S. Coast Guard dated May 28, 1971.
- <sup>51</sup>Mason, *Point Reyes*, pp. 149, 151. Interview with Mary Giddings.

<sup>52</sup>*Marin County Journal*, September 12, 1889.

<sup>53</sup>H.W. Rhodes to Lighthouse Commissioner, November 29, 1927, National Archives, RG 26.

<sup>54</sup>Toogood, p. 274.

### III. CONSTRUCTION HISTORY

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#### A. DESCRIPTION OF CONTRIBUTING BUILDINGS

##### 1. LIGHTHOUSE (PR-025)

The Point Reyes Lighthouse, built in 1870, is a sixteen-sided pyramidal tower with three levels, a watch room, first gallery (mechanisms) and second gallery (lantern). It is constructed of iron plate, bolted together and to a concrete base. The second gallery is largely a glass (plexiglass) lantern with metal astragals and an iron and copper roof. Narrow balconies surround the first and second galleries on the outside. There are two interior spiral staircases. The pedestal holding the clock-work mechanisms stands in the first gallery, supported by a pole-like base which extends to the ground floor. The lens, measuring 8' 6" high, is mounted on the pedestal and fills the lantern level (second gallery). The lighthouse is 20' in diameter at the base and 35' high. The tower has been painted white, with a red roof, black decks and green trim.

Only minor structural changes have occurred at the lighthouse. What was apparently a riveted iron door on the first gallery was replaced in 1934 with a welded steel plate door which remains. The lower level door was replaced at an unknown date with a four-panel wood door. The light was electrified in 1939, necessitating holes being machined into the lens pedestal to accommodate an electric motor. At an unknown date linoleum was installed on the first gallery floor.

Paint schemes on the lighthouse have changed through the years. The lantern exterior (top level) was painted black or red until at least 1889, with a red roof and black baustrades on a white tower. The lantern was then painted black, including the roof, from about 1892 to about 1941, when the roof and lantern were repainted red. More recently, about 1965, the astragals were painted white and the balconies green, leaving the roof red.

The lighthouse complex was abandoned in 1975 when an automated light was placed below the light tower. Now under National Park Service management, the lighthouse has undergone restoration and is in good condition. The lighthouse is fully operable and used for park interpretation programs.

## 2. EQUIPMENT BUILDING (PR-016)

The fog signal equipment building, built in 1928 and put into operation in February 1929, is a 20' x 46' wood frame one-story building on a concrete slab foundation. Its purpose was to house the machinery necessary to power the fog signal, first located about 100' feet below on the cliff and after 1934 in a building adjacent to the lighthouse tower. It has also been called the power house, or the machinery building. It is composed of four rooms: a large machinery room with natural wood paneling, which contains a generator, two electric motors and compressors, a compressed air storage tank, work bench, sink, and related hardware, gauges and electrical utility boxes; a watch room with desk; a storage room, more recently called the TV room, with cabinets; and a lavatory, now used for storage. The building has a door on the west side and a set of rolling doors on the east side at the foot of the stairway which leads up to the visitor center and dwellings. The building is painted white with green trim and has a red composition tile roof.

The equipment building has been slightly altered: the smaller door was moved from the south side to the west some time between 1935 and 1945; a door was added between the watch room and the storage room after 1951; a single swinging door was added into one of the sliding doors on the east side after 1951; the ventilators on the roof were altered over the years and have since been removed; and the machinery has been changed and updated over the years (the current equipment dates from 1962 and is no longer operable). The building is in good condition.

## 3. TRANSFORMER BUILDING

The transformer building, built in 1910, is a 10' x 11' concrete box with a metal door on the west side. It has an almost flat hipped roof and panels formed in the walls. The building was originally used as an oil storage house until the light station was electrified in 1939; it has since housed the electrical transformer and is still owned and used by the Coast Guard. It has had few structural alterations since construction except for a replaced door.

4. CISTERN AND WATERSHEDS (PR-014 & 019)

The first 100,000-gallon brick-and-concrete cistern and 10,000-square-foot concrete watershed (PR-019) were built in 1871 to collect and store water for the steam-powered fog signal and for general use. The collection system was supplemented with other watersheds in 1875 and 1881. One smaller cistern and watershed was built on the rocks overlooking the lighthouse stairs (PR-014) in 1896. A new watershed of 6,000 square feet was built to the east of the keepers cottages (garage today) in 1900. The cisterns were not used for fog signal operation after 1915, when the signal was switched to engine power. The original cistern appears as a dome at the lower elevations of the large watershed; the actual water storage is under the dome. The watersheds are cracked, with plants invading the openings.

5. OLD GARAGE (VISITOR CENTER) (PR-017)

The current visitor center, sometimes called the multi-purpose building, was constructed as a one-car garage in 1924. It is a wood frame building with four windows and a gable roof, 14' x 20'. The original garage door opening was replaced before 1975 with a wall and standard door. In 1976 the building was outfitted as a visitor center, and the interior was renovated in 1990.

6. FUEL AND PAINT STORAGE BUILDING (PR-021)

This small white building was constructed before 1925, possibly as early as 1900. It is wood frame, with a gable roof, measuring 6' x 8'. It is still in use and is in good condition. The structure was repainted in 1990.

7. PUMP HOUSE (PR-022)

This building is reached by a flight of stairs which depart northerly near the visitor center. It measures 6' x 8' and is similar to the fuel and paint shed. It was constructed in about 1935 and is in good condition.

8. STAIRWAY (PR-012)

The long flight of stairs to the lighthouse from the dwellings on the bluff above was originally made of thick planks of wood. It was replaced in 1959 by this sturdy, reinforced concrete stairway which measures four feet wide by 600'. There are 304 steps and two ramp sections, the equivalent height of a ten-story building. The steps are flanked by parallel ramps which accommodate a cart, operated by an electric winch at the top of the stairs. Aluminum railings with light fixtures at intervals were installed on both sides of the stairway. Three small rest areas were built by the National Park Service about halfway up the stairs in 1977.

9. MISCELLEANEOUS STRUCTURES

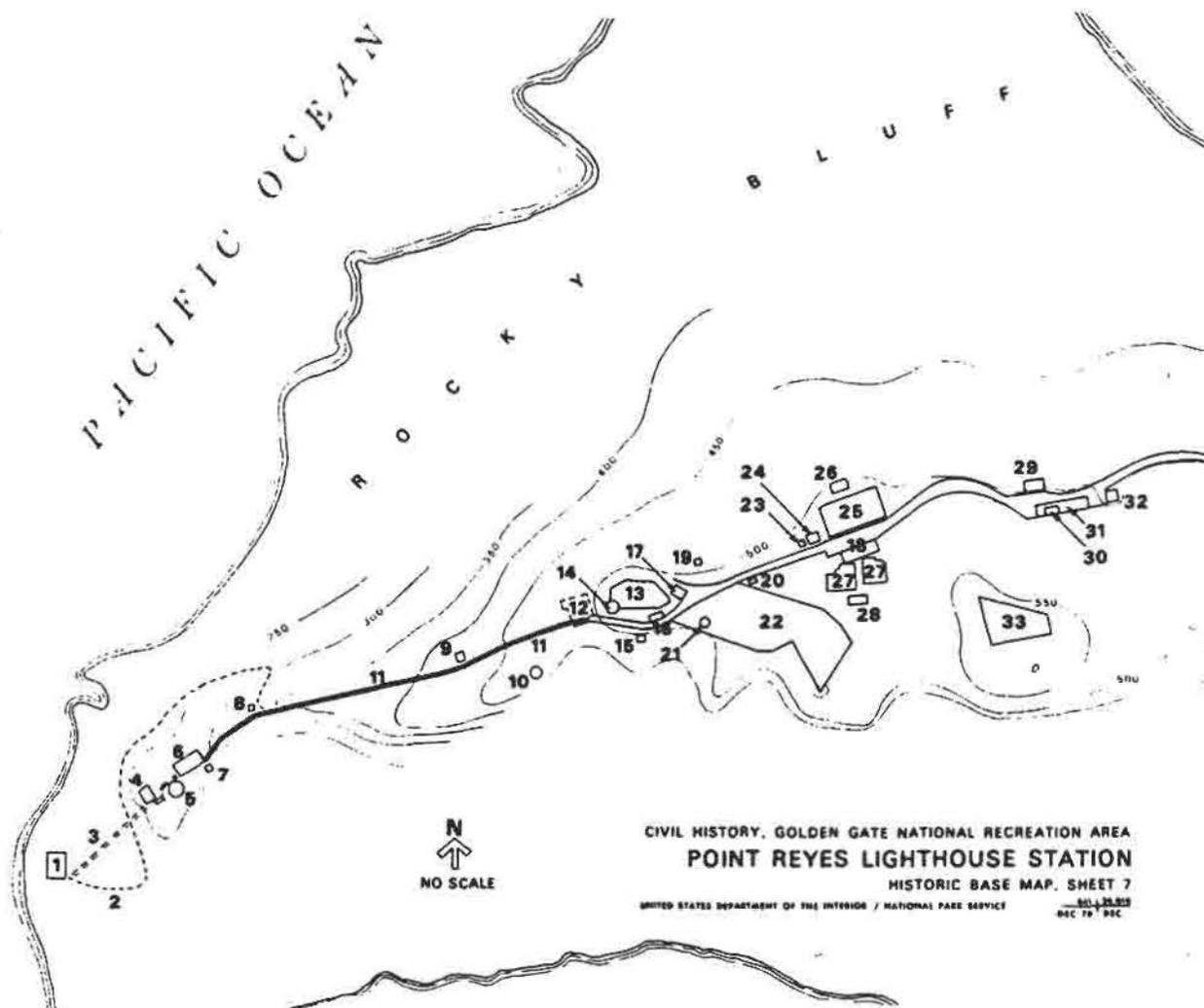
Also at the lighthouse complex are miscellaneous remains of structures and buildings spanning the history of the lighthouse. Among these are the trail to the original fog signal (1871) which is largely intact but unfit for public use; foundations of various water and fuel storage tanks on many portions of the site; foundations of the weather bureau building (1902-ca. 1960), now used as the main visitor overlook at the top of the stairs, and brick foundations of the old washhouse below the upper walkway; various tank, tower and antennae bases; and at least two dump sites. Of interest is the road to the lighthouse from the landing at Drakes Bay: much of it is in its original alignment, and portions of abandoned alignment remain. The section from Nunes (A) Ranch to the landing remains as a one-lane road, similar if not identical to the original road.

**B. NON-CONTRIBUTING STRUCTURES**

There are four non-contributing structures in the complex: the automated light station below the 1870 lighthouse, built in 1975 and owned and operated by the U.S. Coast Guard; the restroom building next to the visitor center, built in 1977 by the National Park Service; the apartment quarters, a two-story building constructed by the Coast Guard in 1960; and the garage/office, also constructed by the Coast

Guard in 1960. A number of water tanks and a pump shed stand on the east side of the reservation. There are also a number of small communications facilities located east of the complex on hilltops along the road to the lighthouse; however, most of these are not within the historic boundaries of the lighthouse reservation.

C. HISTORIC BASE MAP from Toogood



- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Fog signal (site, 1871-1934)</li> <li>2. Trail/stairs to fog signal</li> <li>3. Route of coal chute</li> <li>4. Modern light station/site of fog signal 1934-1974</li> <li>5. Lighthouse, 1870</li> <li>6. Equipment building, 1928</li> <li>7. Transformer building (old oil house), 1910</li> <li>8. Fuel tank (site)</li> <li>9. Gasoline storage building (site)</li> <li>10. Wooden 42,000 gal. water tank (site)</li> <li>11. Stairway, 1959 (site of original wooden stairs)</li> <li>12. Weather Bureau/keepers dwelling, 1902-c.1960 (site)</li> <li>13. Rainshed, site of storm warning pole &amp; flag pole</li> <li>14. Cistern, 1898</li> <li>15. Washhouse (site)</li> <li>16. Single garage, fuel shed (site)</li> </ol> | <ol style="list-style-type: none"> <li>17. Visitor center (ex-garage)</li> <li>18. Planked terrace (site)</li> <li>19. Pump house, 1934</li> <li>20. Fuel and paint storage building, c. 1900</li> <li>21. Cistern, 1871</li> <li>22. Rainshed, 1871-1900</li> <li>23. Paint shop (site)</li> <li>24. Coal house (site)</li> <li>25. Double keepers quarters, 1870-1960 (site), apartments, 1960</li> <li>26. Outhouses, sheds, laundry &amp; store buildings (sites)</li> <li>27. Keepers cottages, 1885-1960 (site)</li> <li>28. Fuel and store building (site)</li> <li>29. Barn, 3-car garage (site)</li> <li>30. Modern pumphouse, site of gas storage building</li> <li>31. Stable, barn (site)</li> <li>32. One-car garage, 1933 (site)</li> <li>33. Upper rainshed, 6,000 square feet, 1900 (site)</li> </ol> |
|---|---|

**D. HISTORIC PHOTOGRAPHS AND DRAWINGS**



Figure 1 - Aerial view of Point Reyes looking east, lighthouse on point in foreground, taken ca. 1959.  
National Park Service.



Figure 2 - Aerial view of Point Reyes looking southeast, lighthouse at extreme right, taken ca. 1959.  
National Park Service.



Figure 3 - Point Reyes lighthouse when new, probably taken in late 1870 or early 1871. Note the light color of lantern. Eadward Muybridge photograph, Records of the United States Coast Guard, National Archives.



Figure 4 - Newly built coal chute and fog signal, ca. 1871.  
Eadweard Muybridge photograph courtesy of Bancroft Library.



Figure 5 - Crew of the lighthouse tender, the steamer *Shubrick*, that serviced the California coast, at Point Reyes ca. 1871. Edward Muybridge photograph courtesy of Bancroft Library.



Figure 6 - Newly constructed keepers dwelling, ca. 1870. Eadweard Muybridge photograph, National Archives.



Figure 7 - View down stairs under construction, probably late 1870. Note that future site of equipment building has been graded. Eadweard Muybridge photograph, United States Coast Guard.



Figures 8 and 9 - Two views of the lighthouse and coal shed, before 1886. National Park Service.



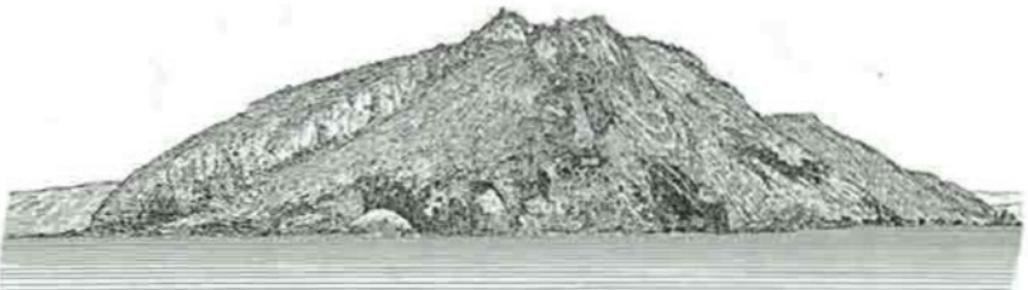
Figure 10 - Lighthouse and second coal storage building, ca. 1900. Jack Mason Museum.



Figure 11 - Fog signal building, ca. 1900. Jack Mason Museum.



Figure 12 - Lighthouse ca. 1910. Note concrete sidewalk around tower. Jack Mason Museum.



Foghorn.  
Water tank, Light-house,  
Point Reyes Light-house and Foghorn, E. 1/2 N., 1 mile.

Figures 13 and 14 - Lighthouse complex from stairs, before 1910 (left), Jack Mason Museum.  
Drawing of Point Reyes from sea (right), from 1889 Coast Pilot.

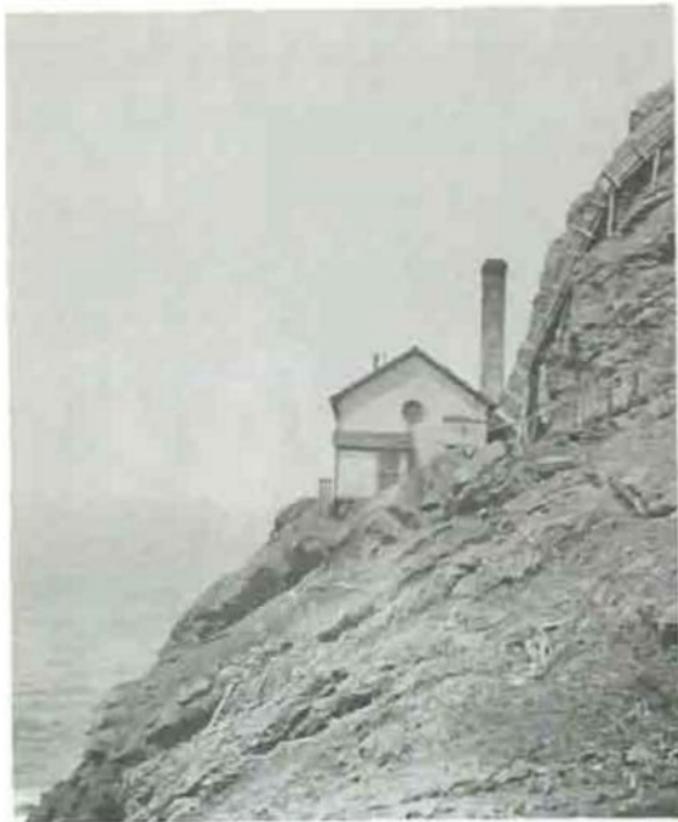


Figure 15 - Fog Signal building ca. 1915, National Park Service.



Figure 16 - Stairs and chuto, fog signal, ca. 1915; detail of fog signal building ca. 1915 (inset).  
National Park Service.

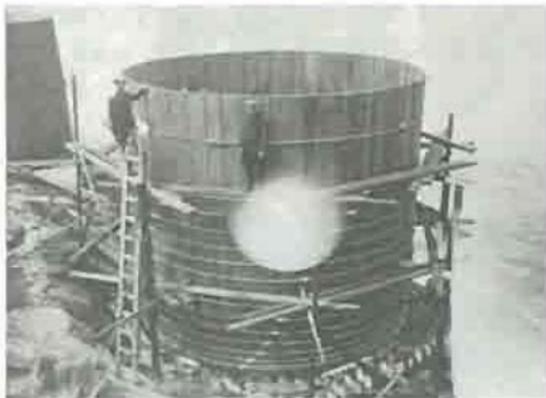


Figure 17 - Construction of new water tank near top of stairs, ca. 1915. National Park Service.



Figure 18 - Large waterbed and cistern, ca. 1915. National Park Service.



Figure 19 - Looking up wooden stairs, ca. 1915. National Park Service.



Figure 20 - Lighthouse, oil storage building, coal shed, 1927. Within a year the shed will be replaced by the equipment building. National Park Service, courtesy of Fred V. Kreth.



Figure 21 - Road in eastern part of reservation before repairs, 1921; line marks proposed bypass of plank road on left. National Park Service.



Figure 22 - Road after repairs, 1934. Notice vegetation planted to stabilize dune. National Park Service.



Figure 23 - Lighthouse landing at Drakes Bay, ca. 1915. San Francisco Maritime National Historic Park.



Figure 24 - "A Ranch," adjacent to the lighthouse reservation, ca. 1905. Teams like this hauled water, coal and supplies to the lighthouse on contract. National Park Service, courtesy of Edward Ramos.



Figure 25 - U. S. Lifesaving Station on Point Reyes Beach, ca. 1900. National Park Service.



Figure 26 - W. H. Hicks, keeper at Point Reyes in 1922. Jack Mason Museum.



Figure 27 - Wife and son of Julius Smith, chief at the Weather Bureau Station, on the bench by the station at the top of the stairs. Note the sign on the building. Smith family album, Jack Mason Museum.



Figure 28 - The Smiths kept chickens at the station, and had this swing rigged up below the large cistern. Smith family album, Jack Mason Museum.



Figure 29 - Lighthouse balcony showing original door to first gallery, taken about 1922. Smith family album, Jack Mason Museum.



Figure 30 - Visitors on lighthouse balcony, ca. 1922. Smith family album, Jack Mason Museum.



Figure 31 - Interior of fog signal building, 1915. Note similar appearance to later equipment building interior. National Park Service.

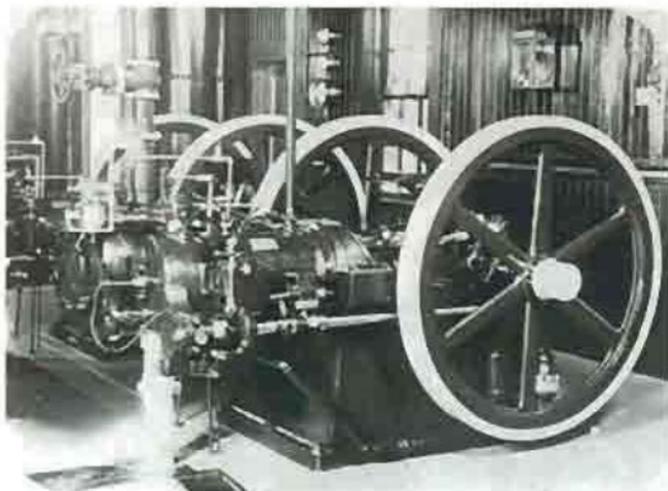


Figure 32- Doak gasoline engines, fog signal building, 1927. National Park Service.

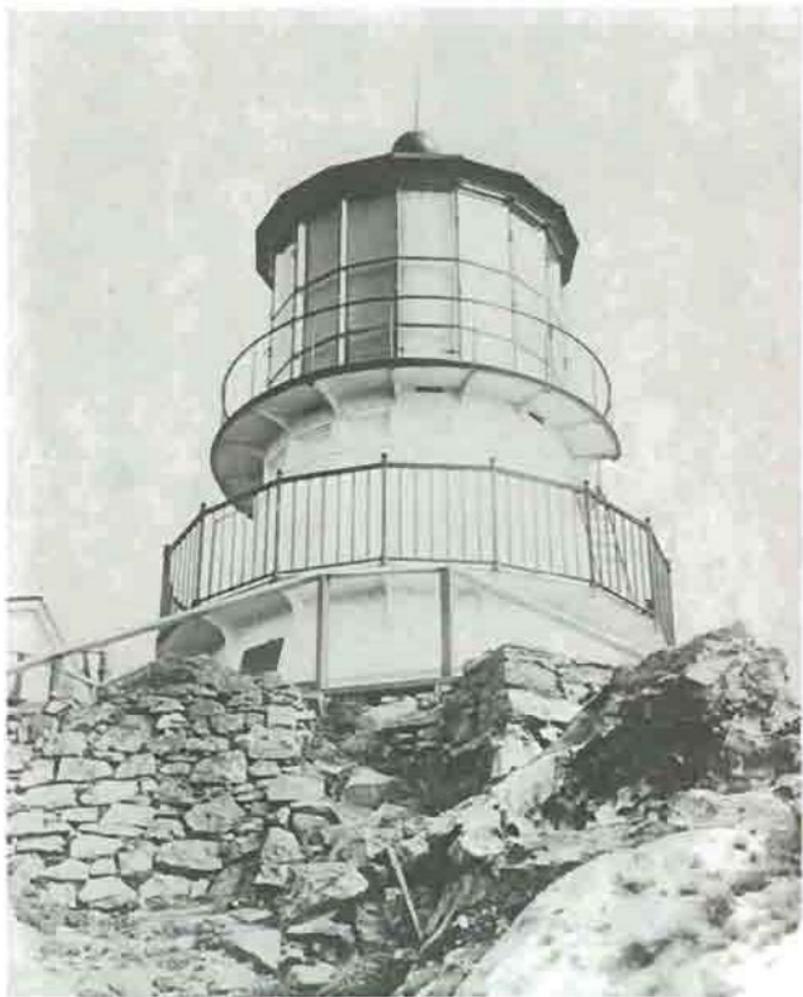


Figure 33 - Lighthouse tower from cliff below, 1927. National Park Service.



Figure 34 - Illuminating apparatus, 1927. National Park Service.

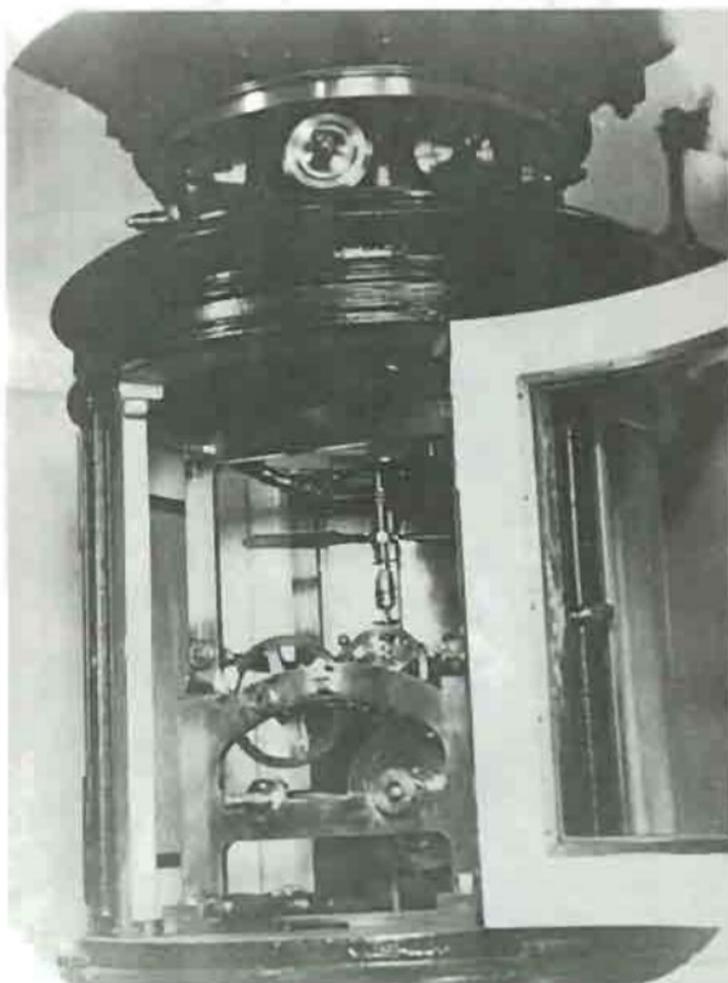


Figure 35 - Clockwork apparatus and lens pedestal, 1927. National Park Service.



Figure 36 - Keeper polishing the lenses, 1927. National Park Service.



Figure 37 - Point Reyes lighthouse from sea, 1927. National Park Service.



Figure 38 - Point Reyes Lighthouse from sea, looking north; newly built equipment building behind tower, February 1929. National Park Service.



Figure 39 - Lighthouse complex with new fog signal equipment building, January 1, 1929. Photo marked by photographer, "New fog signal building at Pt. Reyes showing circulating water tank [next to building] and distillate sump tank [on right]. National Park Service, courtesy of Fred V. Kruth.



Figure 40 - Interior of fog signal equipment building in 1935, showing compressed air holding tank on left and gauge board on wall, both still extant. National Park Service.



Figure 41 - Fog signal building ca. 1915-1925, before signals were moved up to the lighthouse complex.  
National Park Service.



Figure 42 - Lighthouse complex in 1935, after fog signal was moved to lighthouse level. National Park Service.



Figure 43 - Aerial photo of lighthouse reservation, taken January 7, 1934, before fog signal was moved to lighthouse level. Lighthouse at extreme lower right. U.S. Coast Guard Collection.



Figure 44 - Lighthouse tower, 1935. Note weathervane above the ventilator hall. National Park Service.



Figure 45 - Lighthouse tower, April 1941. Note weathervane. U.S. Coast Guard.



Figure 46 - Lighthouse and equipment building, April 1941. U.S. Coast Guard.



Figure 47 - Fog signal building, April 1941. Man is standing at base of diaphones. U.S. Coast Guard.



Figure 48 - Looking up lighthouse stairs, April 1941; keepers dwelling (ex-weather bureau building) and water tank at top of stairs. U.S. Coast Guard.



Figure 49 - Looking down lighthouse stairs, April 1941. Overflow water storage tank on left, gasoline storage shed in center foreground. U.S. Coast Guard.



Figure 50 - Keepers dwelling (ex-weather bureau building) at top of stairs, April 1941. U.S. Coast Guard.



Figure 51 - Dwellings, April 1941. Original keepers dwelling (1870) in center, cottages (1886) on right. U.S. Coast Guard.



Figure 52 - View to west, showing rain shed, keepers cottages, outbuildings, April 1941. U.S. Coast Guard.



Figure 53 - Original keepers quarters (built 1870), April 1941. U.S. Coast Guard.



Figure 54 - Large (original) watershed and flagpole, April 1941. U.S. Coast Guard.



Figure 55 - Garages on road approaching keepers quarters, April 1941. U.S. Coast Guard.



Figure 56 - Lighthouse complex, 1945. National Park Service.



Figure 57 - Water tank, keepers dwelling, west cistern, waahouse, 1945. National Park Service.



Figure 58 - View down stairs, 1945; fuel storage shed is on right. National Park Service.



Figure 59 - Pump house in foreground, double dwelling at left, 1945. National Park Service.



Figure 60 - Large cistern in foreground; water tank, wash house, keepers dwelling, and two garages, 1945. National Park Service.



Figure 61 - Cistern at double dwelling, 1945. National Park Service.



Figure 62 - Aerial photo of lighthouse reservation ca. 1945. The buildings in foreground are the Army radar installation. U.S. Coast Guard photo.



Figure 63 - Fog signal building with F2T horns, ca. 1950. U.S. Coast Guard.



Figure 64 - Lighthouse complex, ca. 1950, shows F2T horns on fog signal building, light tower, equipment building, transformer house. National Park Service.



Figure 65 - Lighthouse complex, date unknown ca. 1950. National Park Service.



Figure 66 - Part of lighthouse complex at top of stairs, ca. 1953-1950. Building at left is ex-weather bureau station. U.S. Coast Guard.



Figure 67 - Aerial view of lighthouse complex, ca. 1960. Stairs have been replaced, keepers dwelling at top of stairs has been removed. National Park Service.



Figure 68 - Equipment building and new ramp from stairway, ca. 1960. National Park Service.



Figure 69 - Lighthouse complex, 1900s. Note lantern astragals are still painted dark.  
National Park Service.



Figure 70 - Lighthouse complex, February 1971. National Park Service photo by Thomas Mulhern.



Figure 71 - Lighthouse tower from fog signal building, February 1971.  
National Park Service photo by Thomas Mulhern.



Figure 72- Equipment building and lighthouse tower from fog signal building, February 1971; note the whip antenna on the equipment building. National Park Service photo by Thomas Mulhern.



Figure 73 - South elevation of equipment building, February 1971; supports for water tanks have since been removed. National Park Service photo by Thomas Mulhern.



Figure 74 - Fog signal building showing previous location of super typhon fog horns, February 1971. National Park Service photo by Thomas Mulhern.



Figure 75 - Super typhon fog horns temporarily mounted outside of equipment building, 1975. Note poor condition of building during its last year of use. National Park Service.



Figure 76 - Aerial view of lighthouse, 1975. Ramp is being constructed for access to fog signal site, where the new automated aids building will be constructed. National Park Service.



Figure 77 - Detail of lighthouse ventilator hall and roof prior to stabilization, November 29, 1979. National Park Service photo by Robert M. Cox.

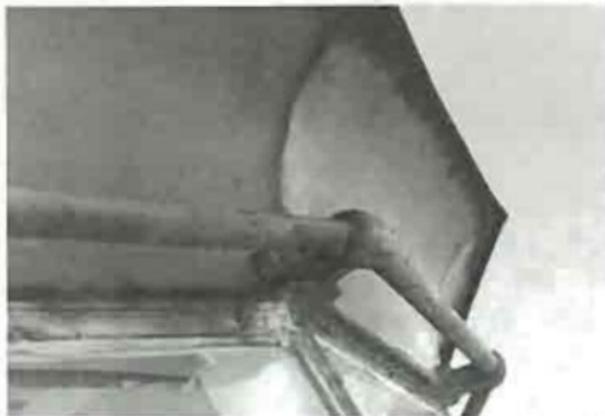
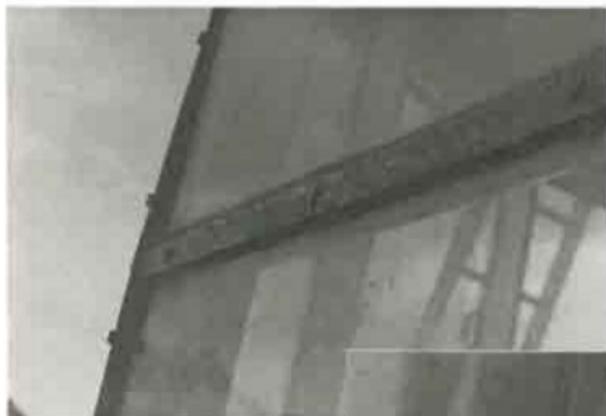


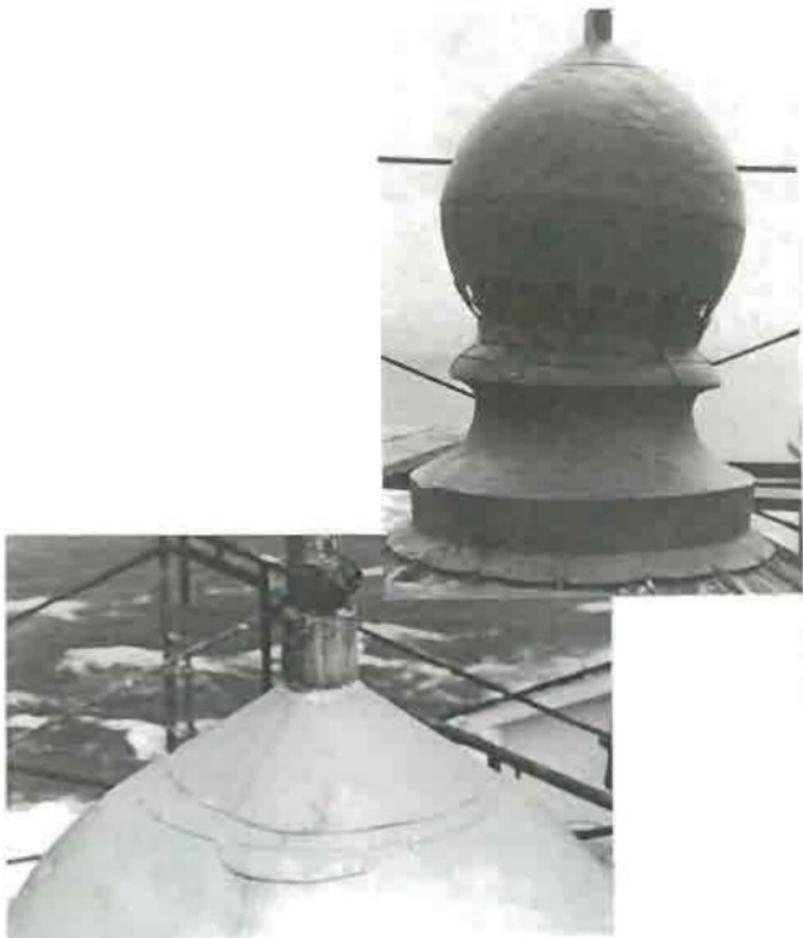
Figure 78 - Detail of lantern cornice and ladder rail prior to stabilization, November 29, 1979. National Park Service photo by Robert M. Cox.



Figures 79 and 80 - Details of bronze astragal hand grip and transom cleat after white paint has been stripped off. There is visible evidence of what appears to be red lead on these pieces despite cleaning. November 29, 1979. National Park Service photos by Robert M. Cox.



Figures 81 and 82 - Equipment building in the process of having the paint removed, November 29, 1979.  
National Park Service photos by Robert M. Cox.



Figures 83 and 84 · Lighthouse vent ball after stabilization, April 24, 1980. Note rusted mounting bracket for weathervane base. National Park Service photos by Robert M. Cox.

**SOURCES OF PHOTOGRAPHS:**

**Bancroft Library, Berkeley**

**Fred V. Kreth, Stockton**

**Jack Mason Museum, Inverness**

**National Archives, Records of the U.S. Coast Guard**

**National Park Service, Point Reyes National Seashore**

**National Park Service, Historic Preservation Branch, Western Region**

**San Francisco Maritime National Historic Park**

**U.S. Coast Guard**

#### IV. ARCHITECTURAL ANALYSIS

## **IV. ARCHITECTURAL ANALYSIS**

### **A. INTRODUCTION**

The prime objective of this section of the report is to assemble, into one document (the historic structures report), the architectural information that has accumulated over the years, especially the last ten years (1979-1989). It was during this period of time that the most intensive preservation treatments were carried out. There have been no fewer than four separate architectural thrusts, ending with the nearly complete restoration of the Point Reyes Lighthouse.

The historic Point Reyes Light Station is located on an extremely rugged precipice, and as such is subjected to the salt air of the northern California coastal environment. By the late 1970s, when the initial preservation measures were begun, the lighthouse and its equipment building were in a state of serious disrepair and neglect. Many of the three-level lighthouse's iron components were fused together; the ferrous metal was exfoliating; dissimilar metals were reacting (electrolysis); and the paint was peeling, leaving no protection for the structure.

Though extensive treatments have been performed on this structure, additional preservation recommendations will be made in the next section to deal with solving problems and incorporating newly discovered historic data, setting the stage for additional preservation treatments of the interior of the equipment building. In general, this section of the report will fill in known gaps in the existing data base.

### **B. ASSESSMENT OF CHARACTER-DEFINING FEATURES AND EXISTING CONDITIONS**

#### **1. LIGHTHOUSE**

##### **a. EXTERIOR**

The exterior of the lighthouse can be described in three basic components: the base or ground level, the first gallery level (first level), and the second gallery level and lantern level (second level).

**Ground Level:** The base of the structure is a simple sixteen-sided symmetrical structure. All of the elements listed below are character-defining features, with modern additions or constructions noted.

1. The base construction of the lighthouse is primarily segmental iron plate construction surrounded by a concrete slab. The concrete is scored decoratively, radiating out from corner and midpoints of the battered metal wall.

2. There are sixteen canted (105 degrees) and tapered (larger at base) iron plates, joined at flush iron ribs. Attachments are made at ribs with exposed steel bolts and rivets.

3. All surfaces are painted gloss white with the exception of a dark gloss green trim paint at the base and flange.

4. There are two windows in the upper portion of the base. They are single light, plexiglass, flush (no trim), rectangular in shape, and fill between rib segments. These windows show signs of having been damaged (scratched) during past paint removal treatments.

5. There is one hooded entry door. It is located between rib segments. The door is a four-panel (modern), single leaf. Historically this door swung out.

6. At the top of the wall plates there are exposed (semi-arched) cast iron supports at each rib to support the first-level gallery deck above.

**First Gallery Level:** This is actually the second level of the structure, accessed by a cat walk from the area just in front of the equipment building. It has a gallery deck that encircles the structure with a guard rail. All of the elements listed below are character-defining features.

1. Sixteen decorative recessed panel castings make up the wall of the first level gallery. They are painted gloss white. At this point the walls become vertical, breaking from the cant at the base of the panel assemblies (see historic drawings).

2. Sixteen striated iron plates make up the first level gallery deck, painted gloss black.

3. The gallery deck is ringed by heavy iron balusters, railings and posts. Posts and balustrades are round, the railing rectangular, the tops of the posts capped by spherical iron finials (fifteen, one is missing); all of these elements are painted gloss green. There are sixteen segments of actual decking.

4. A simple ship-type ladder has been removed (for obvious safety reasons) from the first-level gallery. The missing deck plate on the second-level gallery indicates the location of this feature.

5. At the top of the wall panel plates, exposed cast iron, semi-arched supports at each rib support the second-level gallery deck above. Vent openings are located between every other support, just below the deck.

6. There is one hooded entry door. It is located between rib segments. It contains a cast iron, welded, four-panel door, painted gloss white. A large brass rim-lock is exposed on the interior.

**Second Gallery Level:** This is actually the third level of the structure. The exterior gallery deck is accessed historically by a ladder from the first gallery level. All of the elements listed below are character-defining features.

1. The lantern walls are glazed continuously with sixteen rectangular, segmental sections of three lights apiece. The vertical segments are separated by metal astragals, the horizontal by transom elements, painted gloss white.

2. There are hand holds at the mid-points of the upper two rows of lantern lights, located on the vertical astragals, painted gloss white.

3. The lantern roof is divided with the same segmental (sixteen panel) construction, similar to the rest of the structure. Distinctive standing seams (the original vertical seams were covered by one simple lap in 1980) identify the connections of

roof panels, which intersect at the circular mount for the ventilator. Conical in shape, the roof has a spherical ventilator (vent ball or lamp chimney) at its pinnacle, topped by a tapered lightning rod, painted flat red (Red Lead). The concave iron cornice and horizontal iron pipe rail (for removable ladder support), which spans between astragal positions inside the concave shape of the cornice, are all painted gloss green.

4. A simple cast iron railing, composed of tapered and rounded balusters, a top and bottom rail, is set at the perimeter of the metal deck. The railing and balusters are painted green. Balusters are bolted to the extreme outer points of the sixteen gallery deck joints. They are also capped by rounded copper alloy nuts (according to restoration drawings 80,021).

#### **b. INTERIOR**

The interior of the lighthouse can also be described in three basic components: the base or ground level, the first gallery level (second level), and the second gallery level and lantern level (third level).

**Ground Level:** The interior of the ground level is simple and utilitarian. Like the exterior, the sixteen-sided wall construction and basic structural system are reflected on the interior of this level. The following elements are character-defining features.

1. The walls consist of painted iron panels situated between exposed vertical uprights. These supports are canted 105 degrees toward the center of the structure, intersecting with exposed floor beams at the outer perimeter above. All bolt and rivet connections are visible. There are two rectangular ports.

2. The ceiling, like the walls, has exposed structural components. These painted iron beams have exposed iron deck panels situated between them, intersecting the top of a large vertical pipe column at the center of the structure, like the spokes of a wheel. All bolt and rivet connections are visible. These elements are painted gloss white.

An opening in the ceiling for stair access to the first gallery level has two deck

sections and two hinged trap doors. The trap doors are held open on the first gallery level by metal latches and a non-historic steel grating fills the open hatch.

3. There is a cast iron spiral stair case, railing and balustrades, accessing the second level. This assembly is painted gloss blue-grey, beginning at the northwesterly part of the room.

4. The floor of the ground level consists of sixteen segmental iron deck and bed plates with flush joints, tapering to the center. They are painted with glossy orange paint that also covers the bottom six to eight inches of the walls. Exposed iron piers and large bolts anchor the uprights at the segmental bed plates.

5. A large diameter iron pipe, called a drop tube or weight trunk, containing the clock weight, enters this space approximately midway between the center and outer walls. It appears nearly vertical and is painted gloss white.

**First Gallery Level:** This level is dominated by the intricate clockwork machinery that supplies power for rotating the first order lens. The following elements are character-defining features.

1. The walls of this level are segmented into the characteristic sixteen flat surfaces, reflective of the exterior iron plates. They are clad with vertical, beaded, tongue-and-groove wall boards, painted gloss white, and canted inward from the floor to approximately halfway between the ceiling and the floor. The walls break to vertical at this point and continue to the ceiling. There are painted wood moldings located at the transitions of all flat segmental sections.

2. Five wood cabinets are located on the easterly and southerly wall segments. They have vertical doors and faces, flush with the upper vertical portion of the wall, all painted gloss white. Interiors of these cabinets are painted gloss gray. One of them, the fifth in a clockwise direction, has an open shelf painted red. Between the fourth and fifth closet is a gap the size of a closet space. This is where the weight hangs (there is a rounded metal cut-out where the wall breaks to vertical to allow passage of the weight).

3. The clock-weight, its cable and pulley assembly, are all visible at the south end of the room. Electrical control boxes and utilities are surface mounted on the north side.

4. There is a circular cast iron stairway with railing and balustrades, starting up to the second gallery level at the southwesterly portion of the space. Its construction differs from the one on the ground level in that it does not have the decorative cast iron stringers. Instead, it has a simple, flat stringer on the outboard side with only bolted treads to the inboard. The whole assembly is painted the same blue-gray color as the one on the ground level.

5. The floor is covered with resilient floor tiles; however, there is evidence of a painted wood, tongue-and-groove floor underneath.

6. The ceiling consists of exposed beams and in-fill floor panels for the second level gallery. They, like the ground level ceiling elements, radiate out from the center, with an opening shaped like a key hole to receive the lens assembly, allowing it to turn freely (the small circular stair inside the lens assembly remains stationary).

7. In the very center of the space is the clockwork mechanism supporting the lens and lamp assembly above.

**Second Level Gallery:** The second level gallery is a highly complex space, as it contains the actual lighthouse lens.

1. The first order Fresnel lens is ten feet high and six feet in diameter, consisting of segmented glass prisms and bulls-eyes. This is a stationary light, with movable lens, and is still functional. The light is now electrically powered.

2. The outer walls at this level are segmented vertically by iron astragals into sixteen glass panels, each divided horizontally into three rectangular-shaped sections. There is a base gutter with vent shutters at every other segment, at the bottom course of glass panels. Transom gutters of cast copper alloy separate the upper two courses of rectangular glass panels. This glass lantern intersects with the roof as-

sembly along the top edge of the upper course of glass panels at a copper alloy transom bar. The interior gutters described are for catching and evaporating condensation from the glass.

3. The ceiling has several dominant elements, the first of which is an array of iron tie rods, painted gloss white. There are sixteen of these elements radiating out from a small metal ring with four spokes (spider frame) suspended at the center of the structure. This assembly is supported by eight vertical rods bolted to eight (every other one) of the sixteen metal rafters above. This framework holds a cone-shaped lead-coated copper chimney (called a lure), seven feet in diameter, poised directly over the center of the lens. The horizontal tie rods also bolt into the cast iron cornice brackets just above the lantern wall, with a continuous curtain rod on mounting brackets just below. The ceiling above is flush with the bottom of the rafters and the chimney is clad with zinc panels painted white.

## **2. EQUIPMENT BUILDING**

### **a. EXTERIOR**

The exterior of the equipment building will be described by individual architectural components. All of the exterior elements listed below are character defining features, including any ghosts (visible impressions and outlines left from past alterations).

1. Walls: All walls are sheathed with one-by-eight horizontal drop siding, painted white.

2. Windows: There are three types of windows: six over six, double hung, four over four, double hung, and one over one, hopper type. These are wood sash windows with rails, stiles, and muntins painted dark green. They are glazed with unobscured glass.

The sill line of windows vary according to functions inside the structure. All of the windows at the west end of the structure are in keeping with the interior function

(watch and T.V. rooms). All windows in the machinery portion of the structure have their heads at the eave line. The west gable end has two symmetrically located hopper windows and the east, a single hopper window. One other hopper window is located at the western third of the south elevation, its sill even with neighboring windows to the east.

3. Doors: The main entrance door on the west elevation is a single-leaf, wood-panel door. There is one light in the upper half of the door and a single wood panel in the lower part.

On the east wall of the building there is a set of large wood utility doors. Each are single leaf, two panel sliding doors. The panels consist of vertical tongue-and-groove boards and upper and middle rails are twice the width of the bottom rail. The door to the north has been modified with a non-historic, non-character-defining single-leaf door. These doors are painted the same green as the trim.

There is visible evidence (obvious in-fill with siding) of a past entry door at the west end of the south elevation.

4. Trim: The entire structure is trimmed out with one-by boards, varying from three to six inches in width. The wider trim at doors and windows, the narrower at corners, all painted the same dark green as the lighthouse trim.

5. Roof: The roof is gabled and covered with asbestos shingles, painted the same red as the light house roof. Its slope is approximately two in twelve. The eaves and rake have a closed soffit and are painted white. There is a masonry chimney at the far west end of the roof's ridge, and two patches at equal thirds along the ridge from missing attic ventilators; all of these roof features are painted the same red as the roof.

6. The following are historic equipment mounts that remain on the walls of the building.

West Elevation: Fire hose storage box, antenna mounting bracket, and two other round equipment mounts.

South Elevation: Two horizontal mounts (structural supports for diesel fuel tank inside) near the mid-point of the structure.

**East Elevation:** Surface-mounted electrical conduit and boxes, fire hose storage box.

**North Elevation:** Surface-mounted electrical conduit and boxes.

7. The following historic site features remain intact.

**West Elevation:** There is a concrete apron at the same level as the floor of the equipment building. A chain-link fence borders the edge of the slab (steel posts and rails on the north and west, wood posts and rails on the south), with an entry opening to the lighthouse tower on the southwest corner. The apron has a primary access from a concrete sidewalk at its southeast corner.

**South Elevation:** The sidewalk, as identified in the west elevation, runs the full length of the south elevation, with painted wood posts and rails chain-link fence. Primary access is from the east.

**East Elevation:** There is a concrete entrance apron on the east side, similar to the one on the west. A chain-link fence borders the edge of the slab, steel posts and rails on the north, south, and east. Main access is from the northeast corner.

**North Elevation:** The north elevation is not accessible; however, there are two (triangular shaped) concrete brackets mounted on an exposed concrete wall. This exposed foundation wall fills the void between steep rock outcroppings below the equipment building.

## **b. INTERIOR**

The interior of the equipment building still contains all of the historic machinery used when the lighthouse was in operation. There are three primary spaces, the watch room, T.V. room, and machinery room. All of the interior elements listed below are character-defining features including visible impressions and outlines left from past alterations.

**Watch Room:** Tongue-and-groove wall and ceiling cladding, painted, three and one-half inches wide; built-in wooden desk and drawers, painted, with plywood top varnished; five-panel wood doors and four-over-four, double hung windows, painted; windows and doors are trimmed out with one-by-six boards, painted the same color as walls; electrical conduit, boxes, and light fixtures, surface mounted and painted; composition floor tiles cover the concrete floor slab (they appear as flecks of dark gray and white in a field of light gray, laid with the pattern grain perpendicular); and a closet (formerly lavatory), with small two-light window.

**T.V. Room (formerly Tool and Storage Room):** Tongue-and-groove wall and ceiling cladding, painted, three and one-half inches wide; built-in wooden cabinets, counters and shelves, painted on all but working surfaces (floor tiles used on these surfaces); five-panel wood door and four-over-four double hung window, painted; window and doors trimmed out with one-by-six boards, painted the same color as the walls; electrical conduit, boxes, and light fixtures, surface mounted and painted; and the same floor tiles as the Watch Room.

**Machinery Room (formerly Engine Room):** Tongue-and-groove wall (vertical at walls) and ceiling (longitudinal at ceiling) cladding, linseed oiled or varnished, three and one-half inches wide; walls are soffited at either side of the windows (similar to a gambrel roof); painted concrete floor, raised compressor slab, and metal covered service trenches; all existing machinery, batteries, tanks, instruments, controllers, hoses and pipes, most of them painted; shield shaped and varnished wood plaque, with light house graphics and mounted pressure gauges (gauge board) on the north wall; all painted signage and warning stripes; all large six-over-six, double-hung windows, with painted wood sashes and trim; all electrical fixtures, exposed conduit and boxes; ceramic sink; and ladder and hatch door to loft above watch and T.V. rooms.

## **C. PHYSICAL CHRONOLOGY, LIGHTHOUSE AND EQUIPMENT BUILDING**

Due to the fact that the Point Reyes Lighthouse and Equipment Building have been treated extensively over the last decade, this report relies heavily on existing records, i.e., contract specifications, drawings, field notes, historic and later photographs, and interviews with participants. For the most part this information has been well documented, considering the depth and complexity of the work undertaken in the past. However, a major concern is the known loss of physical data on both structures due to comprehensive paint removal without significant sampling. Since Munsell color comparisons and chronological layering were not documented in a conventional manner prior to the time of paint removal, some or all of the then-extant physical data has either been destroyed or remains quite limited.

### **1. EXAMINATION OF HISTORIC PHOTOGRAPHS**

The following are observations of architectural changes based on historic photographs.

**1870 - 1945**      1870 photos appear to indicate the lighthouse was only partially painted (railings painted, other parts possibly primed), yet substantially complete otherwise. There is an oval shape (sign?) on the lower door in one photo with the door open, and no shape visible in another photo taken the same year with the door closed (this should rule out it being a port hole).

1905 photos are the earliest evidence that the Lighthouse was painted, with the roof and lantern elements a contrasting color.

A circa 1920 photo indicates same oval shape on ground level door, which is possibly a sign. First gallery level door appears to be constructed of wood. The existing door appears to be a copy in welded metal.

1929 photos indicate the earliest evidence of the existing equipment building, which replaced a similar frame structure on the same site. The equipment building has the entry on the south wall. Window, door trim, and ventilators are painted dark (the roof does not appear to be painted yet). These same photos also indicate the lighthouse roof, astragals, and railings are painted a darker color than the tower. Other site features include the concrete transformer building, storage tanks on the south wall of the equipment building, and a concrete pad around the lighthouse.

1935 photos indicate the addition of the weathervane base on the lighthouse tower, another storage tank on the south side of the equipment building and a new fog horn building. Paint schemes appear to be the same as in the 1929 photos. There is an interior view of the gauge board in the equipment building with the air storage tank to the left. On the exterior of the equipment building, the ventilator to the east has been changed.

1941 photos of the lighthouse indicate the weathervane base still in place, paint scheme unchanged. The equipment building lacks contrasting corner trim paint.

**1945 - 1973**

1945 photos indicate the color scheme of the lighthouse appears to have remained consistent from 1929, the weathervane base is not visible. The equipment building has now had both ventilators modified, the entry door moved to the west, east door modified, and the roof still unpainted. Sometime during this period, a whip antenna was added to the roof just to the east of the chimney, the previous one on the roof removed.

**1973 - 1979**

1973 black-and-white photos indicate the color scheme of the lighthouse has been changed. Astragals and transoms in the lantern no longer contrast with the tower. The roof appears to contrast, but is weathered. One photo shows the oval shape,

seen in much earlier (1870) photos, on the first gallery level door. The equipment building has a whip antenna mounted on the west wall, both ventilators capped, the roof appears painted, and a weather equipment tower is mounted between the capped ventilators.

1979 color photos of the lighthouse indicate fairly conclusively that the light-colored (probably white) paint applied in late '60s or early '70s had a red lead color underneath, which matches the roof color. This could account for the roof and lantern elements appearing dark in previous historic photographs.

## **2. WORK PERFORMED 1979-1990**

The following are general descriptions of work performed by the National Park Service from all three major contracting phases, from 1979 to the present.

- |                    |   |
|--------------------|---|
| <b>1979 - 1980</b> | <b>Contract CX 8000-9-0031: PAINTING AND ROOF REPAIR OF THE POINT REYES LIGHTHOUSE AND EQUIPMENT BUILDING.</b>  |
|                    | Sandblast to white metal all metal parts of the lower structure of the lighthouse, from the bottom of the glass lantern to grade, followed immediately by undercoating of metal parts to prevent rusting. New red roofing material patching the lighthouse roof and finial. Scrape and sand (existing paint was burned off with a gas torch) the wood surfaces of the equipment shop (equipment building), a wood building adjacent to the lighthouse, and repaint it to match the existing colors. |
| <b>1981 - 1982</b> | Touch up painting. 1979 specifications appear to have been reused.  |
| <b>1982 - 1983</b> | <b>Contract CX 8000-2-0043 RESTORATION OF METALWORK,</b>  |

**LIGHTHOUSE LANTERN, POINT REYES NATIONAL SEASHORE (see set of seven drawings, 612/80,021).**

General construction for the restoration of the Point Reyes Lighthouse: interior and exterior sandblasting, metal cleaning and painting; as well as structural stabilization of the lantern roof framing, glazing, manufacturing metal components; the provision of a canvas lantern curtain and hardware, a fabric lens and clock work protective garment for use during construction, and a sheet metal chimney over the spider frame.

**1983 - 1984**

Touch up painting. Paint ordered on purchase order PX 853040072

**1988 - 1989**

Contract CX-8000-8-9008 PRESERVATION OF LIGHTHOUSE FACILITY (see set of nine drawings 612/25,003).

The work of this contract consists of the general preservation of the Point Reyes Lighthouse. The work includes surface preparation and painting of exterior and interior features at the lighthouse and equipment building, the replacement of lighthouse lantern plastic glazing, including fabrication of a new metal rabbet insert, the rehabilitation of windows in the equipment building, and replacement wood door and frame in the lighthouse.

1979 EXTERIOR PAINTING

SURFACE	CONDITION	LAYER #1	LAYER #2	LAYER #3	LAYER #4	NOTES
EQUIPMENT BUILDING WALLS	BARE WOOD	2 COATS URETHANE SEALER, 1ST REDUCED 1 TO 2 WI. THINNER T-837, 2ND FULL STRENGTH	PRIMER 60-A-20 GRAY, CATALYST 60-65 A	COLOR BASE: 6011-OFF WHITE CODE: 82-W-270 CATALYST 82-6-84		U.S. PAINT FROM SPECS
EQUIPMENT BUILDING TRIM	" "	" "	" "	COLOR BASE: SAGE GREEN CODE: 82-G-169 CATALYST 82-C-84, MUNSELL 7.5 CY-5/2		" "
LIGHTHOUSE CORNICE FREE STANDING RAILING MULLIONS MUNTINS	WHITE METAL	NOXIDE RED LEAD PRIMER	OIL BASE HOUSE PAINT	OIL BASE HOUSE PAINT	OIL BASE HOUSE PAINT	COLORS TO MATCH OFF-WHITE & SAGE GREEN FROM SPECS
LIGHTHOUSE ROOF AND BALL COPPER	CLEANED, STABILIZED, PATCHED & SOLDERED	5% BENZOL TRIAZOLE APPLIED WI. SCOURING PADS TO ROUGHEN SURFACE	PRIMER: 666-A-7-545 GLASSGUARD PRIMER, CATALYST: 666-C-1 GLASSGUARD CATALYST	FINISH-2 COATS 60 R 24 RED 545 EPOXY OXIDE PRIMER		U.S. PAINT FROM MEMO
LIGHTHOUSE METALWORK LANTERN GLAZING TO GRADE	WHITE METAL	ZINC PRIME 100 WI. T-10 THINNER	" "	FINISH-AWLGRIP GLASSGUARD POLYURETHANE ENAMEL 666, THINNER T-816		U.S. PAINT FROM SPECS

**1981 TOUCH-UP PAINTING**

SURFACE	CONDITION	LAYER #1	LAYER #2	LAYER #3	LAYER #4	NOTES
LIGHTHOUSE	CLEANED OF LOOSE PAINT, RUST, CORROSION	AWLGRIP 545 PRIMER, WI. 60 -C-65 CATALYST T-1109 BRUSHING REDUCER	666 GLASSGUARD TOPCOAT, 82-C-147 AWLCAT BRUSHING CATALYST #3			U.S. PAINT  FROM MEMO
EQUIPMENT BUILDING	" "	" "	82-AWLGRIP TOPCOAT, 82-C-147, AWLCAT #3 BRUSHING			" "

**1982 PAINTING**

SURFACE	CONDITION	LAYER #1	LAYER #2	LAYER #3	LAYER #4	NOTES
COPPER ROOF	FAIR	RED LEAD PRIME	RED LEAD PRIME			FROM SPECS
INTERIOR/ EXTERIOR WOODWORK	SCRAPE & SAND TO REMOVE LOOSE PAINT	SUN-PROOF UNIVERSAL PRIMER 1-70 OR 1-870	FINISH COAT SUNPROOF OIL TYPE HOUSE & TRIM	FINISH COAT SUNPROOF OIL TYPE HOUSE & TRIM		PITTSBURGH PAINTS  FROM SPECS
NONFERROUS METALS-EXCL. ROOF	SCRAPING & PAINT REMOVER CLEANED	EPOXY PRIMER 30Y94	666-A 545 PRIMER 666-C-1 CATALYST, T-971 THINNER	AWLGRIP POLYURETHANE ENAMEL, T-816 THINNER		U.S. PAINTS  FROM SPECS
FERROUS & STAINLESS STEEL	SANDBLASTED OR POWER CLEANED TO WHITE METAL	ZINC PRIME 100 T-10 PRIMER	" "	" "		" "

## 1984 PAINTING

SURFACE	CONDITION	LAYER #1	LAYER #2	LAYER #3	LAYER #4	NOTES
EQUIPMENT BUILDING SIDING	?	AWLGRIP 545 EPOXY PRIMER, 60-C-65A CATALYST, T-1109 THINNER -BRUSH ON	AWLGRIP POLY-URETHANE ENAM. BASE: 6011-OFF WHITE CATALYST: AWL-CAT #3, T-1109 BRUSH ON			U.S. PAINTS  FROM SPECS
EQUIPMENT BUILDING TRIM	?	" "	AWLGRIP POLY-URETHANE ENAM. BASE: 8059 GREEN CATALYST: AWL-CAT #3, T-1109 BRUSH ON	AWLGRIP POLYURE-THANE BASE: 8059 GREEN CATALYST: AWL-CAT #3, T-1109 BRUSH ON		" "
LIGHTHOUSE	?	ZINC PRIMER CATHA-COAT 302	AWLGRIP 545 PRIMER WI. 60-C-65 CATALYST	AWLGRIP POLYURE-THANE ENAMEL		U.S. PAINTS  INVOICE

1988 PROPOSED PAINTING

SURFACE	CONDITION	LAYER #1	LAYER #2	LAYER #3	LAYER #4	NOTES
EQUIPMENT BUILDING (WOOD)	CLEAN, SCUFF & SAND	545 EPOXY PRIMER	AWLGRIP POLY-URETHANE ENAMEL			
EQUIPMENT BUILDING TRIM	" "	" "	" "			
LIGHTHOUSE FERROUS METALS, EXCLUDING ROOF	SCRAPE/BLAST RUST SPOTS TO BARE METAL	ZINC prime 100	545 PRIMER	545 PRIMER, BRUSH APPLIED AT BOLTS, EDGES, SHARP CORNERS	AWLGRIP POLYURETHANE ENAMEL CATALYST & THINNER	
LIGHTHOUSE NONFERROUS METALS	" "	30-Y-94 EPOXY PRIMER	545 PRIMER CATALYST & THINNER	AWLGRIP POLYUR-ETHANE ENAMEL CATALYST & THINNER		
EQUIPMENT BUILDING INTERIOR CONCRETE FLOOR	ABRASIVE GRIND TO REMOVE OLD PAINT & CLEAN	545 EPOXY PRIMER, CLEAR D-3020	545 EPOXY PRIMER, CLEAR D-3020	AWLGRIP POLYUR-ETHANE TOPCOAT		

## 1988 AS PAINTED

SURFACE	METHOD #	PREPARATION	SYSTEM	REMARKS/NOTES
PREVIOUSLY PAINTED WOOD	1	HS-9381 RUST-OLIUM HIGH SOLIDS EPOXY PRIMER-GRAY	HS-9400 HIGH SOLIDS, POLYURETHANE	PAINT FROM RUSTOLEUM
NEW UNPAINTED WOOD	2	" "	" "	" "
NONFERROUS METALS	3	3172 UNI-PRIME ACRYLIC PRIMER	2500 DUNGLO ACRYLIC GLOSS ENAMEL	" "
FERROUS METALS	4	9334 HEAVY DUTY POLYUMIDE EPOXY ZINC PRIMER, HS-9381 HIGH SOLIDS EPOXY PRIMER	HS-9400 HIGH SOLIDS, POLYURETHANE-RUSTOTHANE	" "
NONFERROUS METALS	5	9100 HIGH PERFORMANCE EPOXY	" "	" "
COPPER	6	HS-9381 HIGH SOLIDS EPOXY PRIMER	HS-9369 HIGH SOLIDS EPOXY	" "

LIGHTHOUSE PAINT COLOR SCHEDULE (as of 12/88)

**EXTERIOR**

ROOF VENTILATOR BALL AND COLLAR, LIGHTNING ROD AND COLLAR.....	MATCH EXISTING
CORNICE CLEATS.....	U.S. PAINT 8059
CORNICE.....	" " "
SECOND GALLERY DECK.....	FLOOR BORDER N 5/10*
	FLOOR TREADS N 1/0*
SECOND GALLERY HANDRAIL.....	U.S. PAINT 8059
FIRST GALLERY HANDRAIL.....	U.S. PAINT 9100
TOWER.....	WALLS U.S. PAINT 6011
	BASE U.S. PAINT 8059

**INTERIOR/EXTERIOR**

LANTERN ASTRAGALS.....	U.S. PAINT 6011
LANTERN GLAZING FRAME.....	" " "
FIRST GALLERY DOOR & CASING.....	" " "
GROUND LEVEL DOOR & CASING.....	" " "

**INTERIOR**

FIRST GALLERY PANELING.....	5Y 9/1*
FIRST GALLERY CABINETS.....	INTERIOR N 5/0*
	EXTERIOR 5Y 9/1*
FIRST GALLERY EXTINGUISHER NICHE.....	7.5R 3/8*
FIRST GALLERY CONDUIT & BOXES.....	10B 5/10*
GROUND LEVEL WALLS.....	U.S. PAINT 6011
GROUND LEVEL, FLOOR & BASE BORDER.....	2.5YR 6/12*

\*MUNSELL COLOR CODE

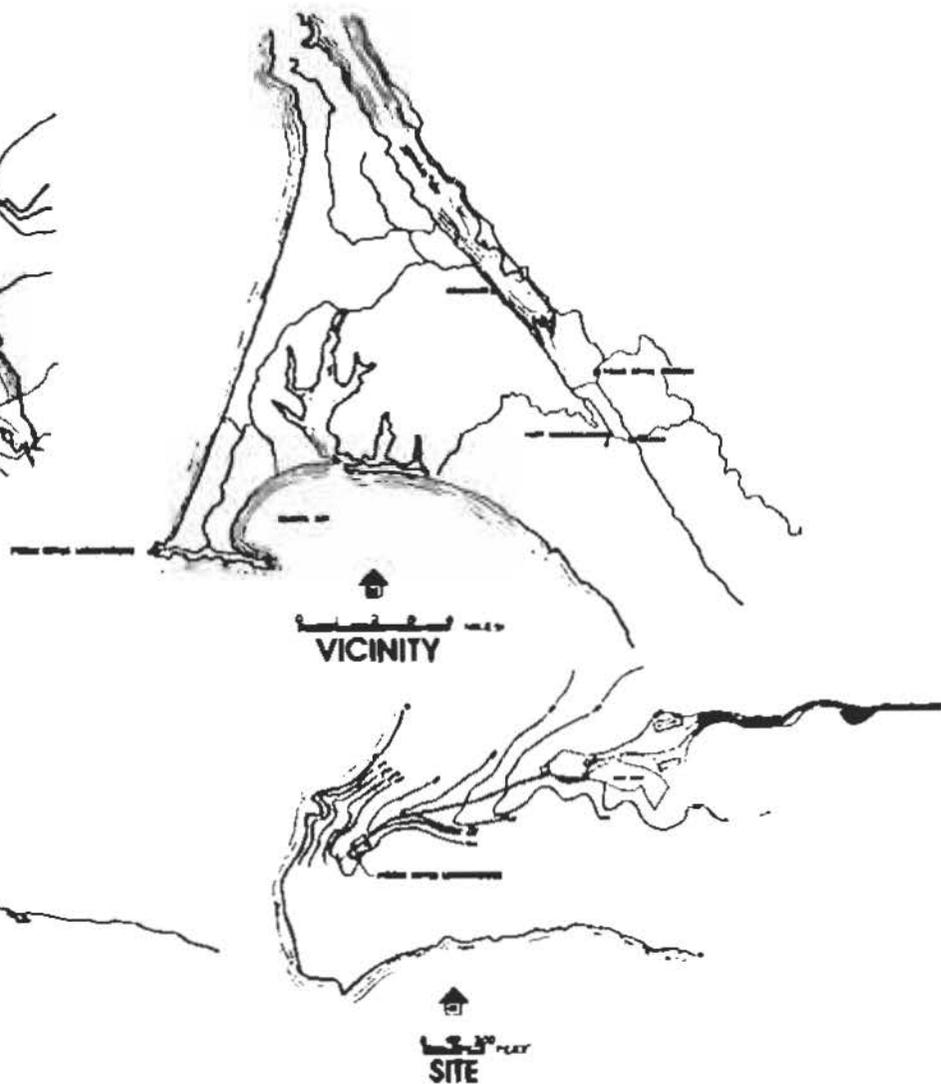
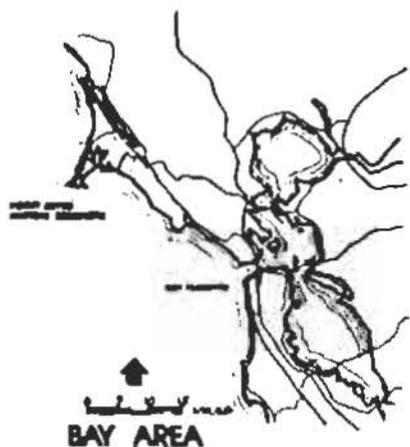
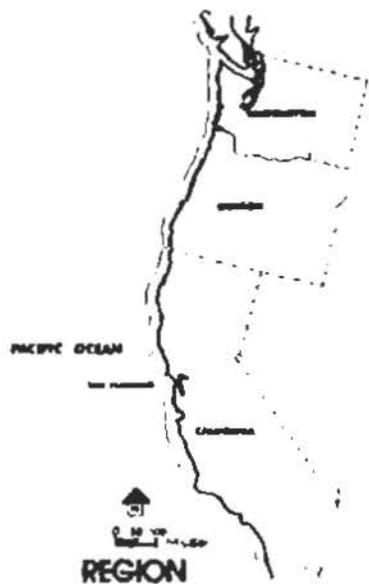
**EQUIPMENT BUILDING PAINT SCHEDULE**

**EXTERIOR**

SIDING & WEST DOOR.....	U.S. PAINT 6011
TRIM, WINDOW STOPS, SASHES, CASINGS & EAST DOORS.....	U.S. PAINT 8059
FIRE HOSE BOXES.....	MATCH EXISTING (RED)
ELECTRICAL CONDUIT & BOXES.....	MATCH SURROUNDING

**INTERIOR**

WINDOW TRIM & STOPS.....	MATCH EXISTING
MACHINERY ROOM BASE MOLDING/BORDER.....	" "
MACHINERY ROOM FLOOR.....	" "
MACHINERY ROOM TRENCH COVER PLATES.....	" "
MACHINERY ROOM FLOOR SIGNAGE.....	" "



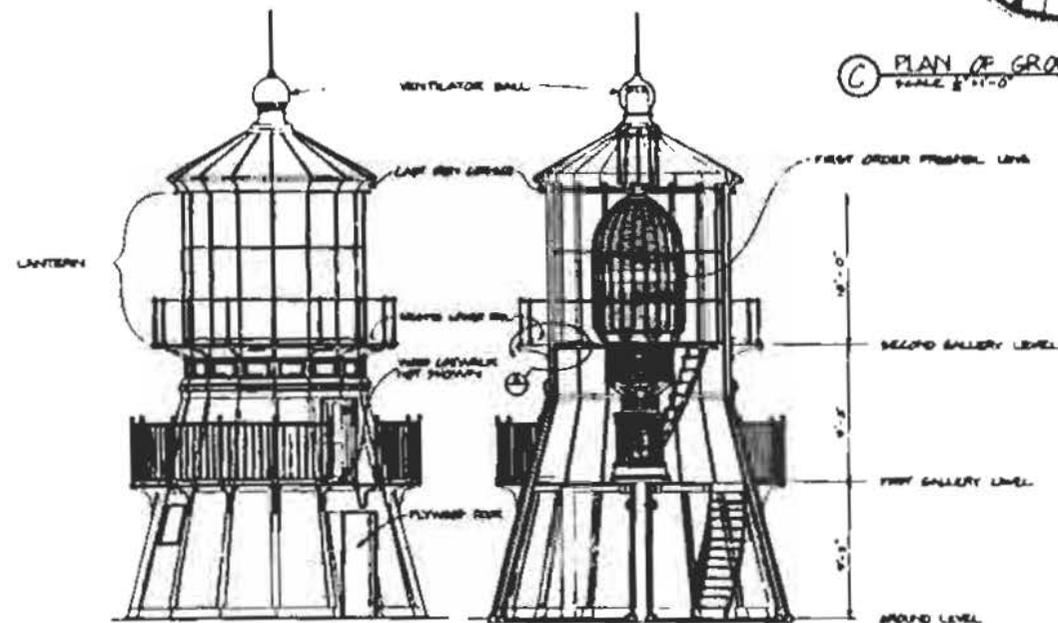
POINT REYES LIGHTHOUSE • PRESERVATION

HISTORIC STRUCTURE REPORT

EXISTING CONDITIONS

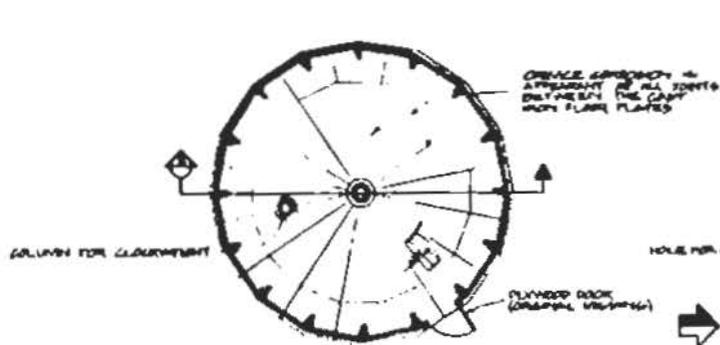
PREPARED BY ARCHITECTURAL SERVICES INC.	DATE 1977
PROJECT NO. 1001	SCALE AS SHOWN
DRAWN BY J. J. J.	CHECKED BY J. J. J.

ON MICROFILM

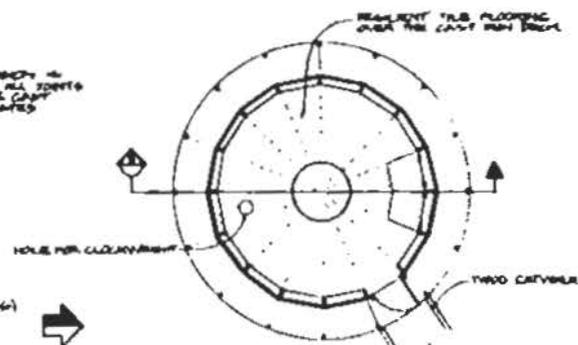


(A) EAST ELEVATION  
SCALE 1/4" = 1'-0"

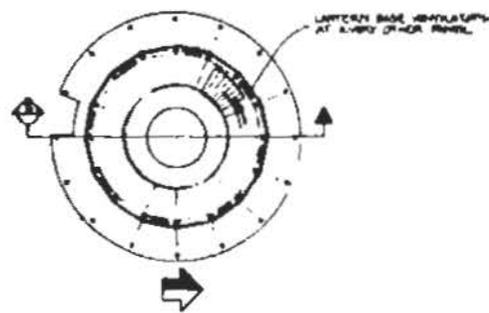
(B) SECTION  
SCALE 1/4" = 1'-0"



(C) PLAN OF GROUND LEVEL  
SCALE 1/4" = 1'-0"

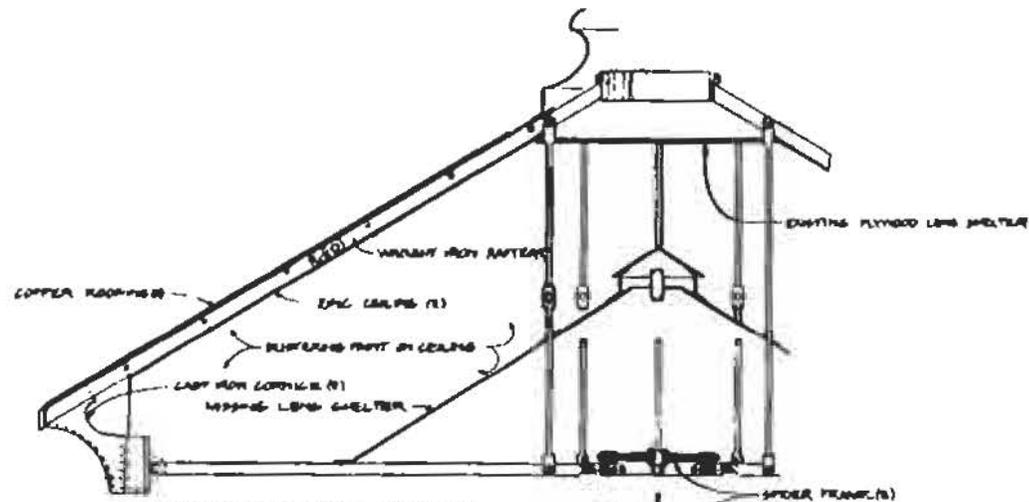


(D) PLAN OF FIRST GALLERY LEVEL  
SCALE 1/4" = 1'-0"

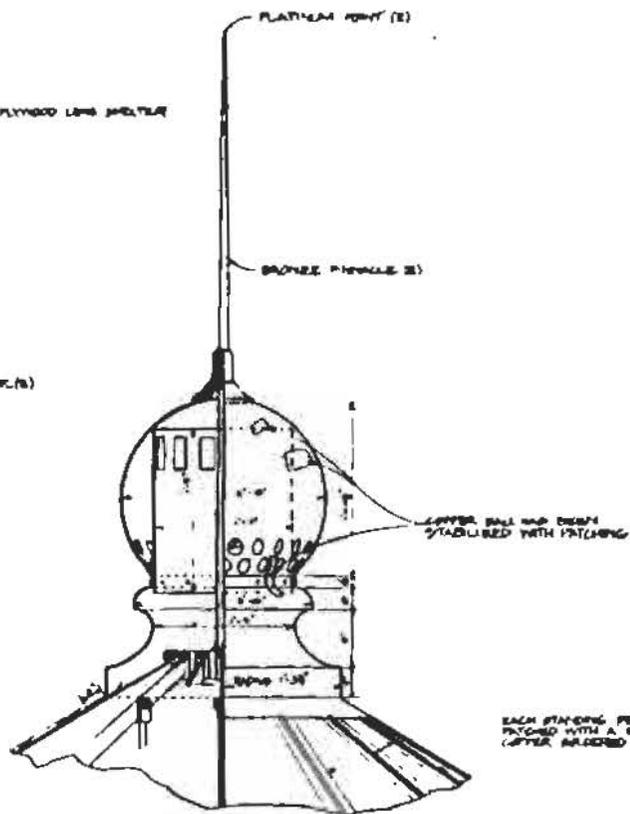


(E) PLAN OF SECOND GALLERY LEVEL  
SCALE 1/4" = 1'-0"

1 1/2" = 1' SCALE

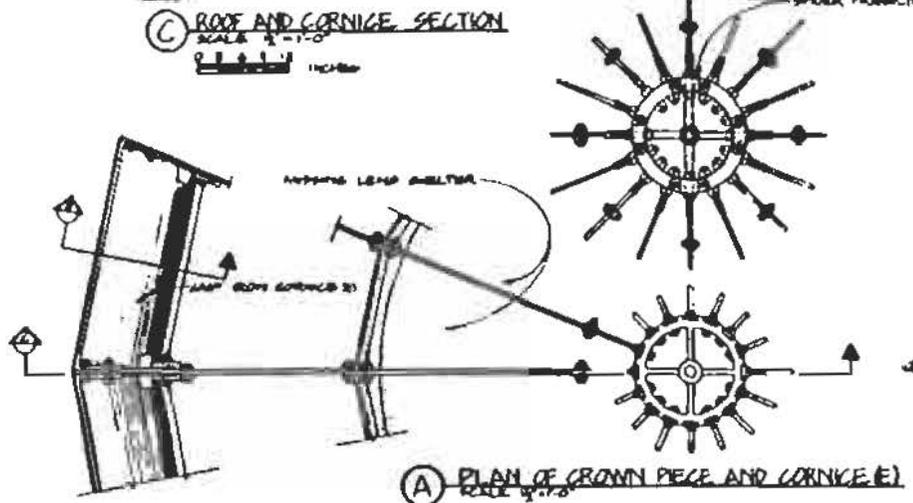


(C) ROOF AND CORNICE SECTION  
SCALE 1/4" = 1'-0"  
1/4" = 1/4" INCHES



(B) SECTIONAL ELEVATION OF VENTILATOR (1)  
SCALE 1/4" = 1'-0"

EACH STANDING PEAK HAS BEEN PATCHED WITH A STRIP OF COPPER BARRIED IN PLACE.



(A) PLAN OF CROWN PIECE AND CORNICE (1)  
SCALE 1/4" = 1'-0"

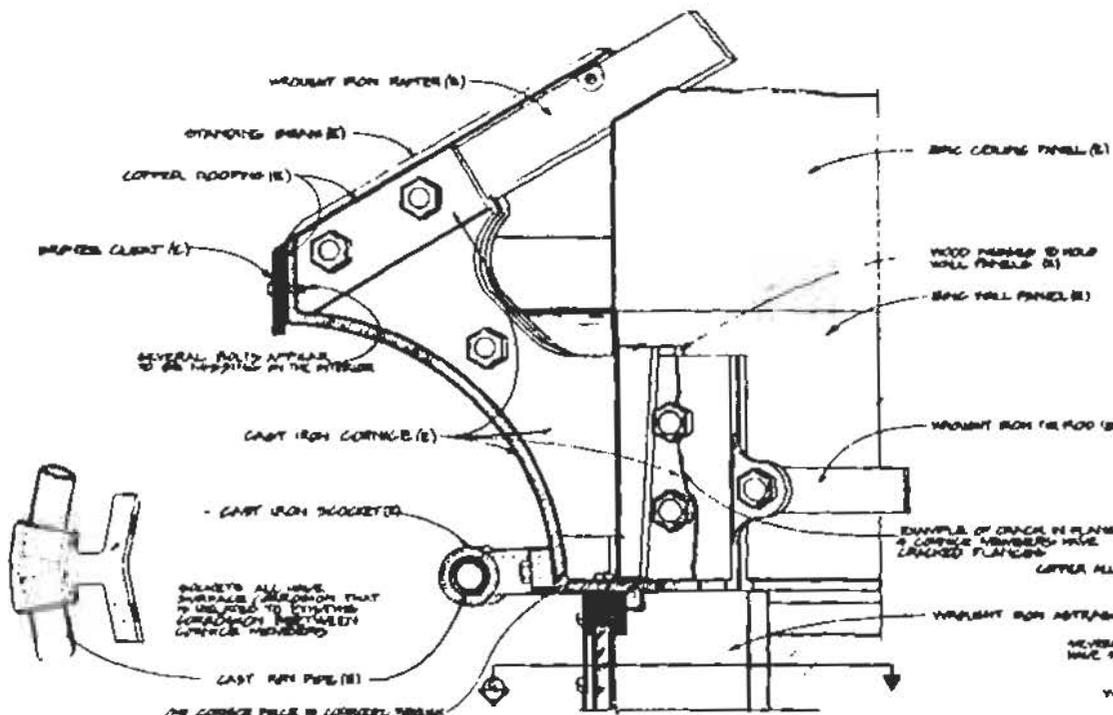
POINT REYES LIGHTHOUSE • PRESERVATION

HISTORIC STRUCTURE REPORT

EXISTING CONDITIONS

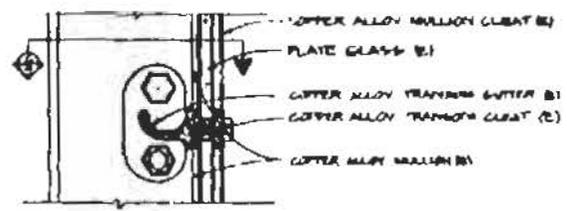
PREPARED BY J. LAW DESIGNED BY J. LAW	CHECKED BY J. LAW DATE 1970	SHEET 3
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ON MICROFILM

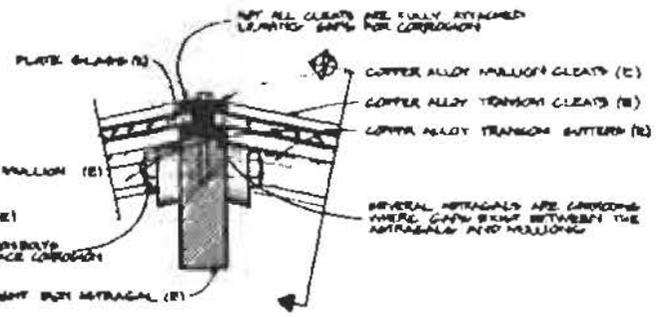


A SOCKET DETAIL  
 SCALE 3/4"=1"

B CORNICE SECTION  
 SCALE 3/4"=1"



D SECTION OF TYPICAL TRANSOM GUTTER  
 SCALE 3/4"=1"

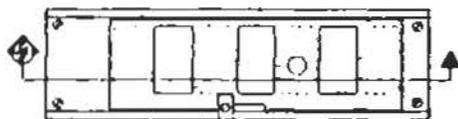


C SECTION OF ASTRALAL MULLION & CLEAT  
 SCALE 3/4"=1"  
 1 2 3 4 5 6 7 8 9 10 FEET

PREPARED BY	DATE
REVISIONS	BY
NO.	DATE
1	4
2	5

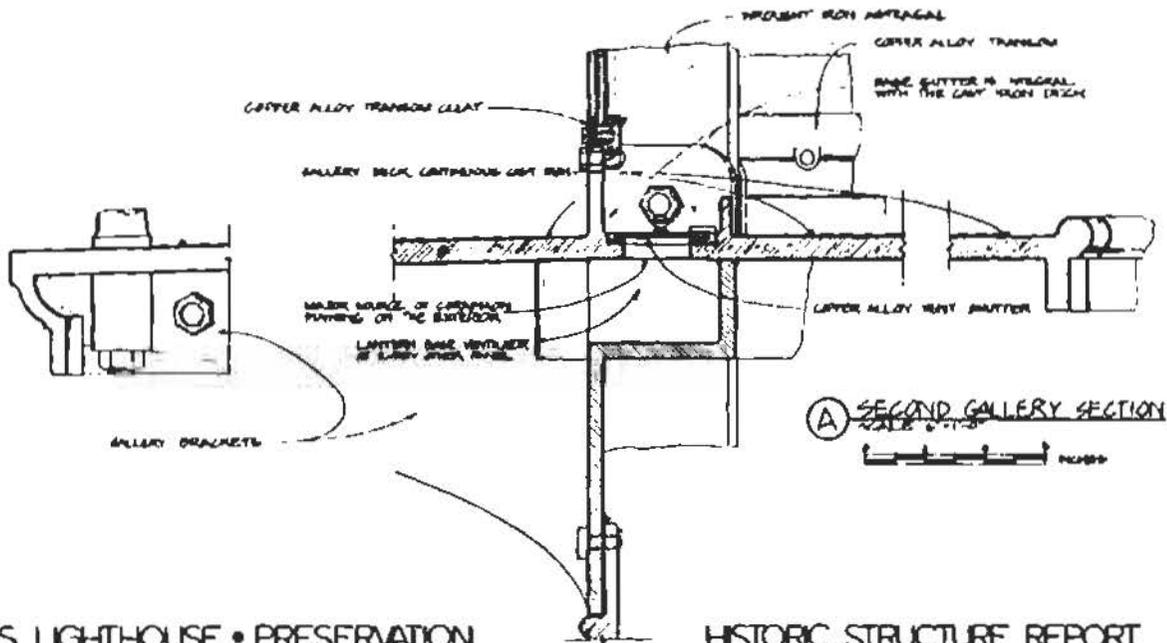


(C) SECTION OF SHUTTER  
SCALE 5"-1'-0"



NOTE ONLY FRAGMENTS OF ORIGINAL SHUTTER REMAIN AT THIS LOCATION. THE CONFIGURATION IS FROM CONSTRUCTION AND PHOTO REFERENCES TO DETERMINE WHAT THE ORIGINAL POINT REYES LIGHTHOUSE.

(B) PLAN OF VENTILATOR SHUTTER  
SCALE 5"-1'-0"



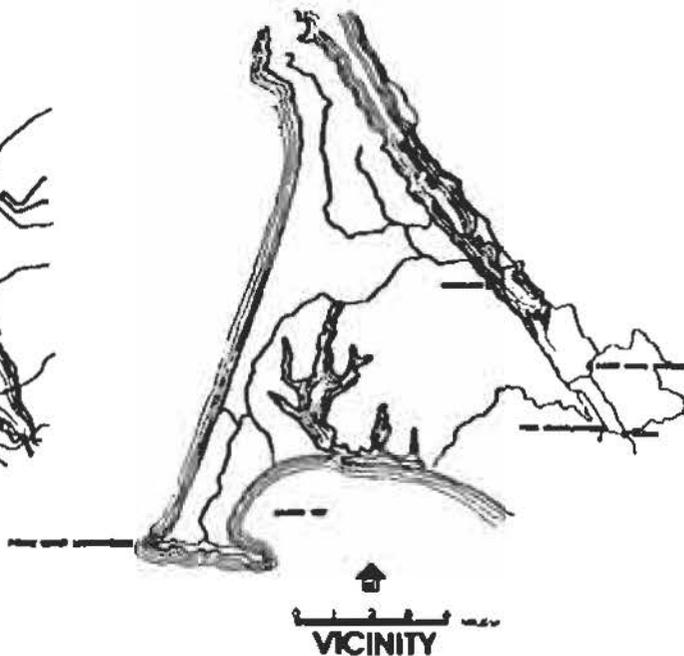
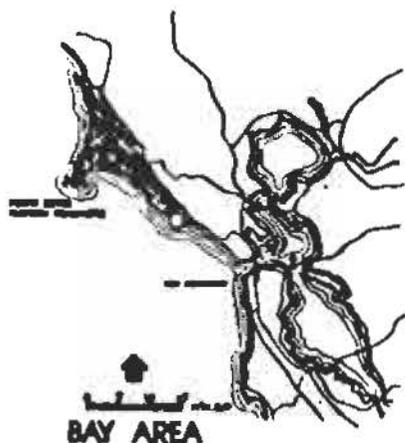
(A) SECOND GALLERY SECTION  
SCALE 5"-1'-0"

POINT REYES LIGHTHOUSE • PRESERVATION

HISTORIC STRUCTURE REPORT EXISTING CONDITIONS

PREPARED BY	DATE
CONDUCTED BY	7/78
SCALE	AS SHOWN
NO.	6
REV.	

ON MICROFILM



SHEET INDEX	
SHT NO.	TITLE
1	COVER SHEET
2	LIGHTHOUSE PLANS, SECTION, ELEVATION
3	CONCRETE FOUNDATION, ELECTRICAL WORK
4	FOOT DETAILS
5	PROPOSED METAL VENTILATOR CAP
6	FINAL METAL VENTILATOR CAP ELEVATION
7	ELECTRICAL WORK SCHEDULE

METALS LEGEND	
	CAST IRON
	STAINLESS STEEL
	WROUGHT IRON
	COPPER ALLOY

ABBREVIATIONS			
D	DOTTED LINE	E	AT
O	CIRCLE	CL	CENTRE LINE
S	SQUARE	DI	DIAMETER
EA	EACH	EQ	EQUIDISTANT MARK
H	HORIZONTAL	FS	SQUARE FEET
N	NEELED		
NEA	NOT AT CONTACT		
UPA	UPON PARALLEL		
CL	CENTRE		
R	RADIUS		
WT	WEIGHT		
MS	MILD STEEL		
Y	YIELD		
FA	FIELD		

**NOTES**

1) CONTRACTOR SHALL VERIFY ALL DIMENSIONS ON SITE PRIOR TO ANY WORK OF FABRICATION OF METAL ALSO TO THE FIELD OFFICE BUREAU TO OBTAIN TO OBTAIN ANY CLARIFICATION AND REPORT TO BUREAU OF REVISION MATERIAL

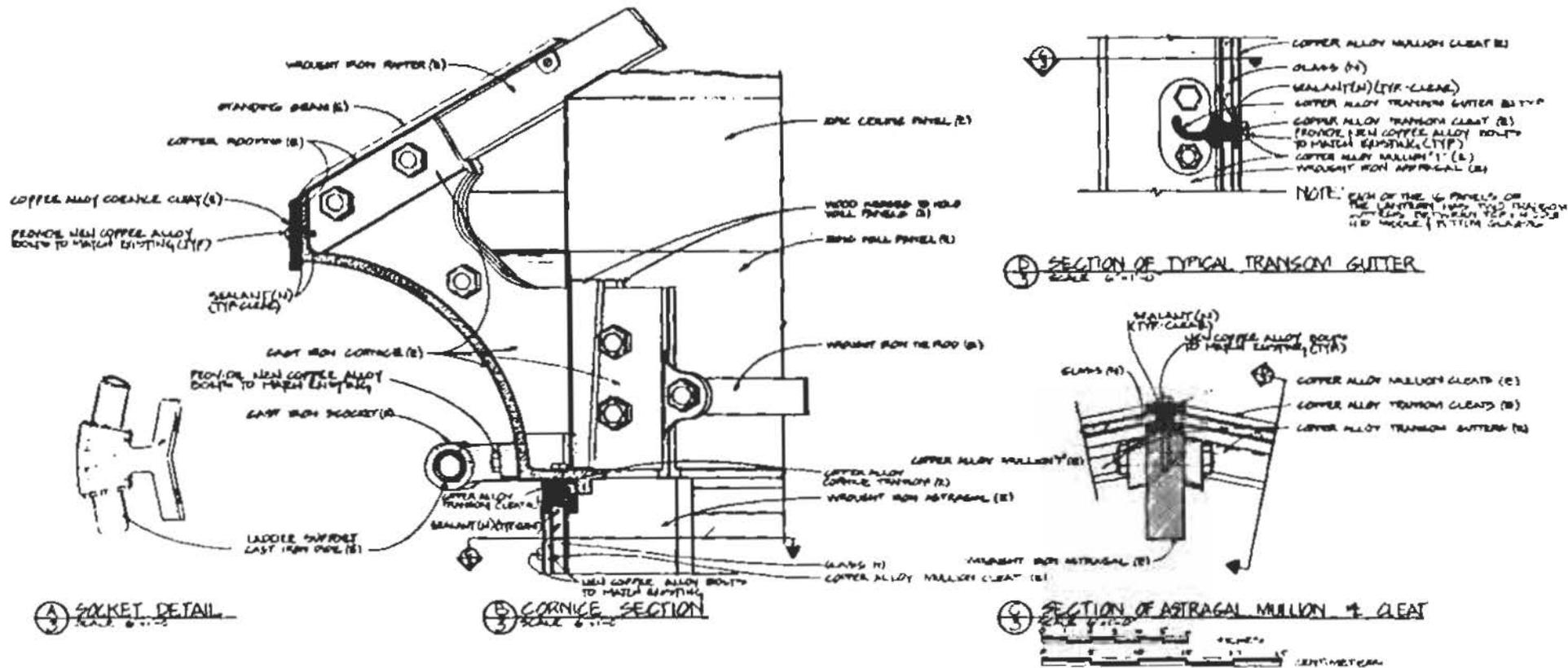
POINT REYES LIGHTHOUSE • RESTORATION OF METAL WORK

DRAWN BY <i>Wm. L. Carpenter</i> CHECKED BY <i>Wm. L. Carpenter</i> DATE 4/30/82	<b>CONSTRUCTION DRAWINGS</b> UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE SERVICE CENTER	DESIGNED BY JMW/SOOR	TITLE OF DRAWING COVER SHEET LOCATION OF WORK POINT REYES LIGHTHOUSE NAME OF PARK POINT REYES NATIONAL SEASHORE STATE CALIFORNIA	SHEET NO. 1 OF 7
		DATE 4/30/82	SHEET NO. 1 OF 7	

ON MICROFILM



**GENERAL NOTE:**  
SEE THE LIGHTHOUSE RESTORATION WORK SCHEDULE ON SHEET 7 FOR THE SPECIFIC TREATMENT OF EACH WORK ITEM



POINT REYES LIGHTHOUSE • RESTORATION OF METAL WORK

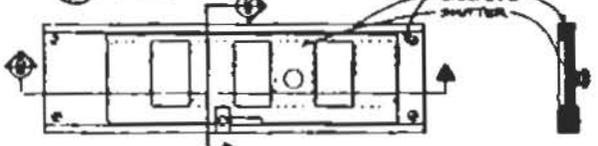
PROJECT NO.	DATE
100-100000	6-1
DESIGNER	SCALE
ARCHITECT	1/2"
ENGINEER	3/4"
CONTRACTOR	1"
DATE	1973
	3
	10

ON MICROFILM





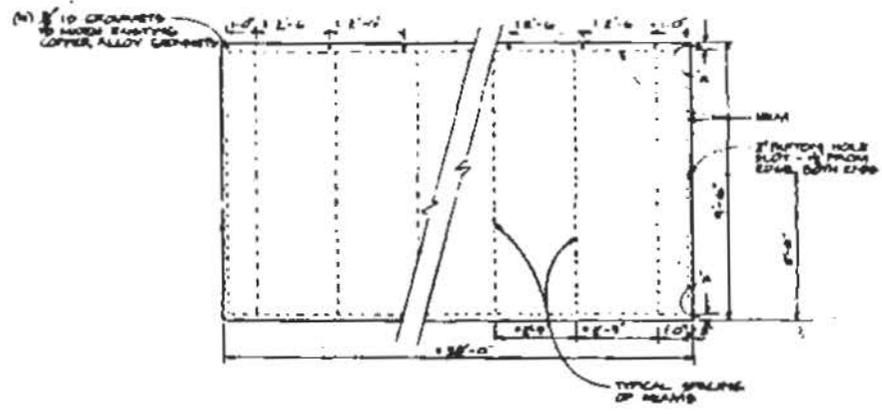
(C) SECTION OF VENT BASEPLATE + SHUTTER (N)  
SCALE 2"-1'-0"



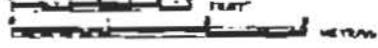
(D) PLAN OF VENT BASEPLATE + SHUTTER (N)  
SCALE 2"-1'-0"

NOTE: VENT SHOWN IN CLOSED POSITION. USE ONE OF THE SHUTTER'S DIMENSIONS FOR DIMENSIONS.

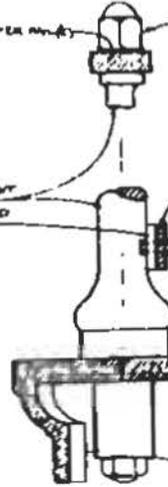
(E) SECTION OF VENT BASEPLATE + SHUTTER (N)  
SCALE 2"-1'-0"



(B) LANTERN CURTAIN DETAIL (N)  
SCALE 3/4"=1'-0"

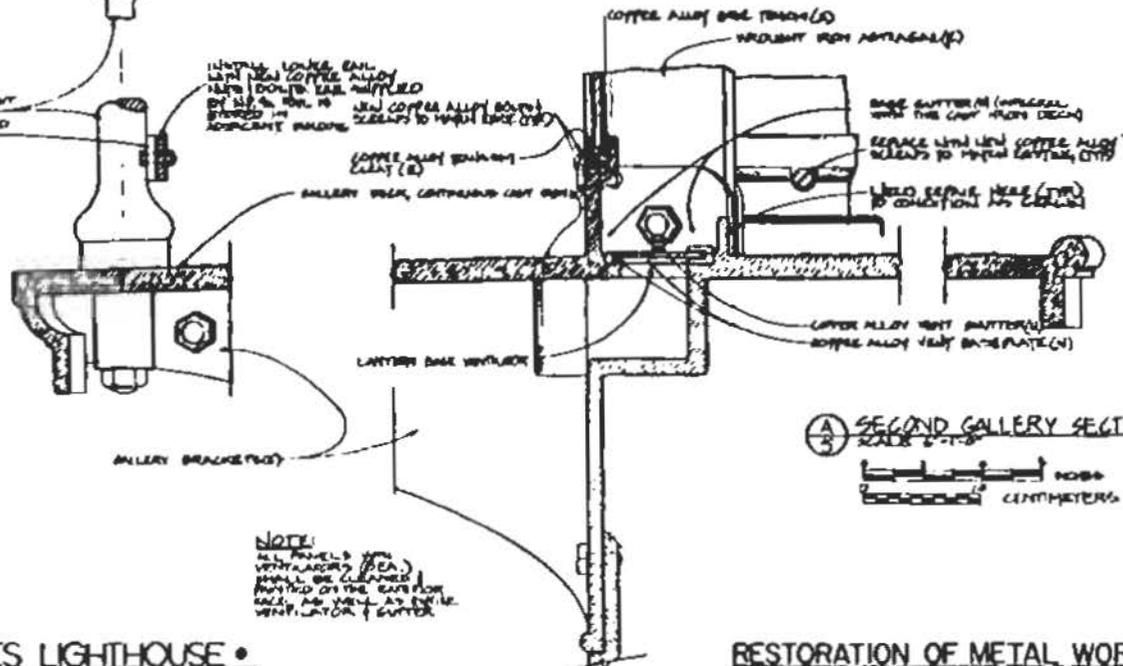


REPLACE EXISTING SCREW NUTS WITH COPPER ALLOY CAP NUTS AND WASHERS (A)

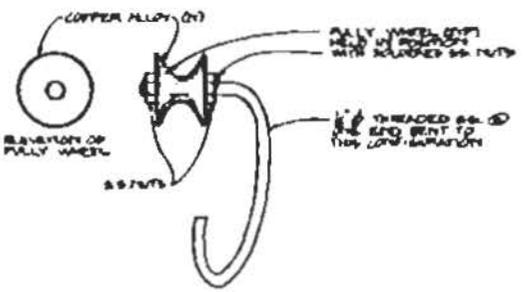


INSTALL LOCKWASHERS WITH NEW COPPER ALLOY NUTS. DO NOT USE NUTS BY THE ORIGINAL MANUFACTURER'S BRAND. USE COPPER ALLOY NUTS TO MATCH EXISTING (A)

BURSTING CAPS MUST REMAIN WITH ATTACHED LEADS



(A) SECOND GALLERY SECTION  
SCALE 2"-1'-0"



(F) DETAIL OF CURTAIN HOOK (N)  
SCALE 1/2"=1'-0"



NOTE: ALL PANELS WITH VENTILATORS SHALL BE CLEANED PAINTED ON THE EXTERIOR SURFACES AS WELL AS THE VENTILATION SHUTTER.

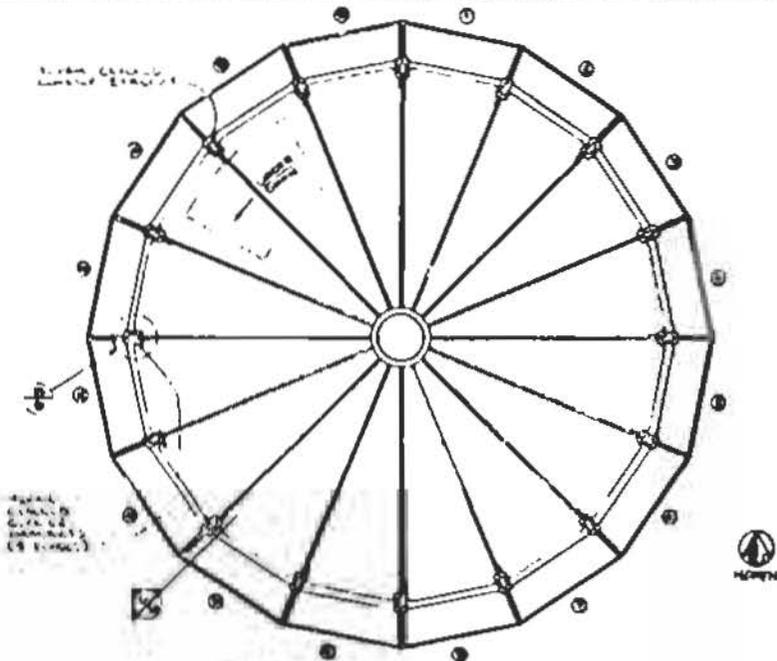
POINT REYES LIGHTHOUSE •

RESTORATION OF METAL WORK

PREPARED BY	DATE
CHECKED BY	DATE
APPROVED BY	DATE
SCALE	5
W.I.	

ON MICROFILM

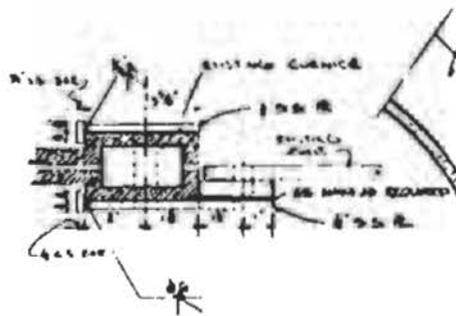
POINT REYES LIGHTHOUSE • RESTORATION OF METAL WORK



(A) SPOICE FRAME PLAN

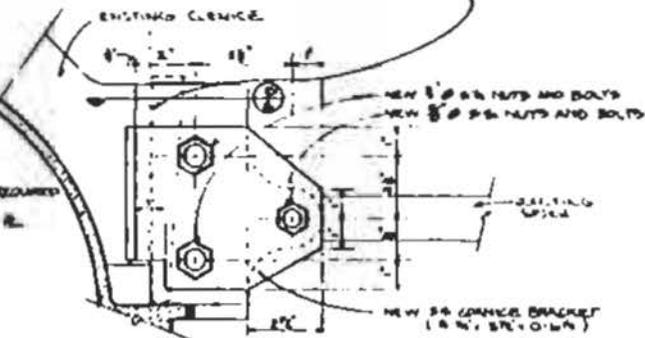
SCALE 10'-0" = 1" FEET  
CENTIMETERS

NOTE: HAVE REQUIRED INDICATIONS LEADING TO DIMENSIONS USED THROUGHOUT DRAWING WHERE THEY DO NOT APPEAR ON THE PLAN.



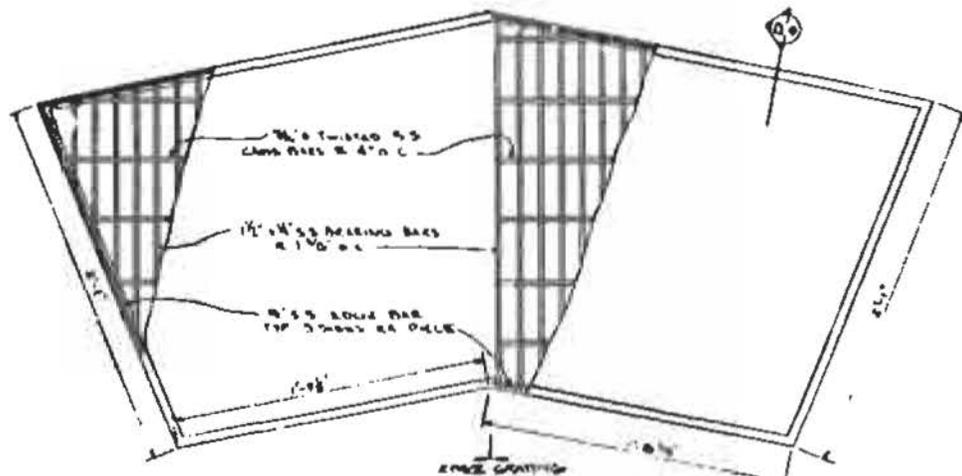
(B) PLAN OF NEW CORNICE BRACKET

SCALE 6'-0" = 1" FEET



(C) CORNICE BRACKET ELEVATION

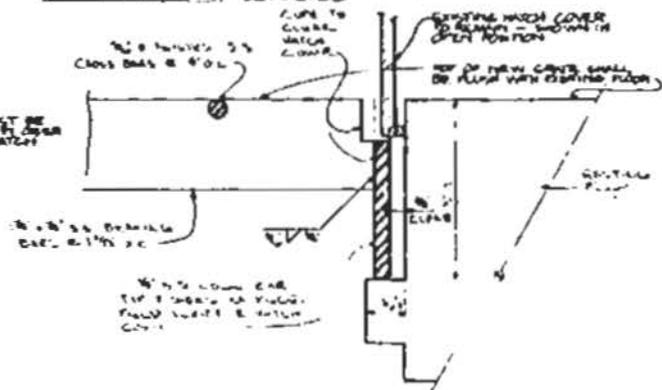
SCALE 6'-0" = 1" CENTIMETERS



(E) FIRST GALLERY LEVEL HATCH GRATE (N)

SCALE 5'-0" = 1" FEET  
CENTIMETERS

NOTE: GRATE MUST BE BRIDGED AT POINT OF CROSSING



(D) TYPICAL SECTION OF HATCH COMBING

SCALE 1/4" = 1" FEET  
CENTIMETERS

NOTE: ALL DIMENSIONS MUST BE FIELD WRITTEN BEFORE FABRICATION.

PREPARED	DATE
CHECKED	NO. 581
DESIGNED	BY
DRAWN	BY
SCALE	1/4" = 1"
SHEET	16
OF	21

ON MICRO

V. SIGNIFICANT FINDINGS  
AND RECOMMENDATIONS

## V. SIGNIFICANT FINDINGS AND RECOMMENDATIONS

The basic physical configuration of the lighthouse and equipment building has varied only slightly since they were constructed. The most significant historic appearance, from an integrity point of view, appears to be between 1929 and 1941, when they existed together and underwent the least amount of physical change, compared with their evolved appearance today. These criteria underlie recommendations for preservation and restoration.

All paint sampling should be performed by an individual qualified in historic paint sampling and analysis. All samples should be carefully preserved, Munsell coded, and accessioned into the park collection for possible future research.

The following elements of these structures bear further discussion, and will be linked to architectural recommendations.

### A. LIGHTHOUSE

#### 1. SIGNIFICANT FINDINGS

**Lantern Roof:** Historic photographs show evidence of a past weather vane base (stationary compass rose) mounted just above the ventilation ball on the lightning rod (removed in 1979-80). The color of the standing seam copper roof (presently red) is an important issue. The earliest known photographs (ca. 1870) appear to indicate there was no paint on the roof then, but it was probably still in the process of being painted. Subsequent photos all indicate the roof painted a contrasting shade (dark). Historical records show two color schemes that differ from the current one: in 1889 the roof was red, the balustrades black, the astragals apparently white, on a white tower; in 1924 the roof and lantern were black, the balustrades apparently black on a white tower.

**Lantern Astragals and Transoms:** Currently there are leaks in the astragals despite the recent (1988) restoration work. These leaks are in the form of small balloons of moisture trapped under the new interior paint. According to information available on the last contract for reglazing the lantern, a bead of sealant was used to

seal these cleats and bolts. There may be gaps in this material, leading to leaks.

Like the roof, there has been some doubt as to the historic color of the astragals and transoms, as evidenced by the historic photographs (they are presently painted white). The data here would seem to indicate that the astragals were dark from approximately 1905 to 1945. The earliest known photographs (ca. 1870), although black-and-white, appear to indicate there may have been no paint on the astragals. Analysis of 1979 color photos leaves unclear if the roof was always red (historical data appear to support a black roof until circa 1941).

**Ground Level Entry:** A ca. 1870s historic photograph clearly indicates the back-side of a single-leaf door, hinged to swing out. Another photograph, dated ca. 1910, shows the same door with what looks like an oval shape in the upper half. As stated previously, this shape may be a sign of some type.

**First Gallery Level Entry:** In circa 1870 - 1920s photographs, a single-leaf, four-panel door, with exposed bolts is clearly shown. It is difficult to know exactly what material this door was constructed of (wood or iron components), because of these bolt connections at rails and stiles. The existing door is a welded metal copy (ca. 1934) of this earlier door.

**First Gallery Level Clockwork:** Certain portions of the clockwork assembly are painted red. For the most part this paint is in fair condition with some cracking, dulling from oxidation, and chipping.

**Immediate Site:** There are signs of the concrete slab eroding around the base of the Lighthouse tower. This appears to be causing some puddling and runoff problems.

## **2. RECOMMENDED PRESERVATION TREATMENTS**

**Lantern Astragals and transoms:** It is recommended that the astragals and transom cleats, located on the lantern exterior, be removed at locations where there are existing leaks and old caulking completely removed (quality control at the time of contract installation may account for failure). New sealant of the same type and

quality as installed in 1988 should be reinstalled. Additionally, neoprene gasket/washers should be placed at all bolt head locations. As an alternative to the sealant, or if its reinstallation does not solve the problem, continuous neoprene gaskets could be installed under the cleats in place of sealant.

These areas must be monitored closely to ascertain if the moisture penetration continues. Should these treatments prove to be successful, then the detail can be expanded to include all remaining astragal and transom elements, when required, as a part of cyclic maintenance. If not, then the detail will have to be reevaluated by the Regional Historical Architect and a different approach taken.

**Roof, Astragal, Color Scheme:** It is recommended that the astragals and transoms be painted the same color as the roof at the next cycle of painting, or after repair work has been performed.

**Paint Schedule:** It is recommended that the most recent paint schedule used in treating the lighthouse be used as a primary reference for future work (1988 contract CX-8000-8-9008). The specifications contained in this contract document are the result of thorough and comprehensive research of all previously known or available paint data since 1979. A chronological summary of this material is provided at the end of the Architectural Analysis (Section IV).

**Flooring, First Gallery Level:** It is recommended that the existing tile be removed, the wood tongue-and-groove floor beneath be exposed and paint samples taken. This would also require removal of the asphalt-based adhesive, inspection and repair of any damaged floorboards, and treatment with a high quality deck paint that matches the historic color and texture. The paint layer would then become the sacrificial layer of protection, necessitating careful periodic inspection and cyclical treatment.

All historic ghosting should be documented by field drawings and photographs. Historic dents or wear marks should be preserved by the cyclical application of paint.

**Clockwork, First Gallery Level:** It is recommended that the painted portions of the clock mechanism be sampled and documented in a similar manner as outlined for metal features in the equipment building. The condition of this paint should be monitored as part of cyclic maintenance inspection and treatment scheduled.

**Ground Level Door:** It is recommended that the existing (non-historic) door be removed. According to historic photographs, the historic door swung out, rather than in as it does now, and appeared to be constructed of thick wood or sheet metal. An early photograph taken shortly after the lighthouse was built, indicates a simple (no panels) single-leaf door.

By changing the swing of this first-level door, it will not only improve the accuracy of the historic appearance, but it will also increase the weatherability of this particular location (by allowing the jamb and head to seat against the inside face of the door, instead of the reverse), which has been problematic in the past. The specification and design for this element should be provided by the Regional Historical Architect.

**Entry Level Windows:** It is recommended that the two windows in this area be replaced with the same thickness and type of material that is presently in use in the lantern.

**Weathervane Base:** It is recommended that the weathervane base, which is visible on a number of the historic photographs, be restored. It is installed at the base of the lightning rod. The specification and design for this element should be provided by the Regional Historical Architect.

**Immediate Site:** It is recommended that the concrete slab around the base of the tower be closely monitored to determine if there is standing water after periods of rain. If this appears to be a problem, a specification and design to solve this should be provided by the Regional Historical Architect.

**Previous Paint Samples:** Prior to any additional undertakings, it is recommended that all previous paint samples taken prior to sandblasting be tested by a qualified professional. There may be physical evidence of black paint which would support historic data.

## B. EQUIPMENT BUILDING

### 1. SIGNIFICANT FINDINGS

The equipment building exterior walls have received extensive treatment over the last decade. The old paint was burned off with a gas torch in 1979. The walls were stripped of paint down to bare wood in 1980 and new paint applied. In 1988 the windows underwent complete rehabilitation.

#### a. EXTERIOR

**Roof:** Based on historic records,<sup>1</sup> the original shingles were of asbestos composition. The existing shingles are painted red on their exposed weathering surfaces. The raw unpainted substrate is a hard, brittle, gray, cementitious material, one-quarter of an inch thick, with a twelve-inch exposure. According to park maintenance staff, the original asbestos shingles were replaced with poor quality cement/asbestos shingles (Supraslate) in 1980. The roof does have leaks at this time. Shingles are brittle and are falling off the structure.

There have been minor modifications to the roof concerning the chimney and the two roof ventilators. The ventilators changed configuration several times prior to WW II, the west one gone by 1945, the other modified; by 1967, only stubs remained. The chimney has a curious masonry and wood frame at its base. This, as determined by historic photographs, was installed sometime after 1941, as an antenna mount (the antenna was moved to the west wall sometime after WW II). Roof patches where the ventilators used to be, and the antenna mount, are extant. The chimney is painted the same red color as the roof shingles.

**Walls:** There have been very few actual changes to the exterior walls of the equipment building. The most significant was the in-filling of a door opening on the west end of the south elevation and the adaptation of the sliding door on the east wall to a single-leaf configuration. Based on the historic photographs, the south door opening

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<sup>1</sup>San Francisco District 683: 1 May, 1941, United States Coast Guard records; Power House. A 20'x46' frame building, with rustic siding, asbestos shingled, gable roof, concrete floor and foundation walls.

was removed sometime between 1935 and 1945, the east door opening installed later, after 1945. It is not known if the existing door opening on the west was always there or added when the south door was filled in.

Fire hose boxes and additional electrical conduit were added sometime after 1945, as was the antenna mast on the west wall (the antenna remained until about 1974). Only a metal mount still remains, located between the two attic windows.

## **b. INTERIOR**

**Features, Artifacts:** The interior of the equipment building, as previously described, still has much of the historic fabric from its significant period of operation. The condition of machinery and electrical apparatus is of primary concern, as is the state of interior architectural materials.

**Windows:** The windows are in excellent condition because of the recent contract work in 1988. All sash, casings, and trim are recently painted.

**Walls and Ceiling:** The three and one-half inch interior cladding that covers both the walls and ceilings is treated in two different manners, as previously discussed. This historic fabric is in fair condition overall, except in the machine room, where it has been exposed to excessive sunlight (ultraviolet light) due to the large windows probably being uncovered through the years. The clear finish that was originally applied, either varnish or linseed oil, has become severely alligatored and discolored. There is some moisture damage in areas that are near windows that leaked prior to their 1988 rehabilitation.

The painted cladding in the remaining spaces (watch, T.V. and closet) is generally dirty and scuffed from years of wear, especially at walls and high use areas.

**Interior Doors and Interior Surfaces of Exterior Doors:** In general, the interior doors and interior surfaces of exterior doors appear much like the painted wall cladding, scuffed and dirty from years of use.

The large rolling doors on the east wall have been altered, with the door to the north having been changed to a swinging (hinged) leaf-type door. The original rolling-type hardware appears to be in place, though it is showing definite signs of

deterioration and rust. (It is questionable if it is still functional.) The tongue-and-groove panels, stiles and rails on the interior have definitely been exposed to moisture (the paint is peeling).

**Built-in Furnishings:** The desk in the watch room, cabinets in the T.V. room, the work bench in the machine room, are in good condition, considering their utilitarian nature and construction. They are painted, except for the working surfaces, which are clear finished (varnish or linseed oil).

**Floor:** The exposed concrete floor in the machine room was painted gloss red during the same work phase as the window rehabilitation in 1988. It appears to be in excellent condition.

There is a raised concrete pad under the compressors. These have black and yellow warning stripes painted on them and were not painted during the last phase of work in 1988.

The concrete floor in both the watch and T.V. rooms is covered with resilient floor tiles (the same as in the first gallery level of the lighthouse).

**Engine, Electrical Motors, Compressors:** The historic engines and motors are in fair visual condition, with only spot rusting. Now that the windows are repaired, much of this moisture-related deterioration should be arrested. However, since all of these surfaces appear to be either painted or factory enameled, they are still subjected to degradation (oxidation of color) by ultraviolet light (sun light) from the unobscured windows.

**Instruments and Plaque:** The pressure indicator and shield-shaped wood plaque on the north wall are highly significant as they have changed little since 1935 (see historic photograph). Two of the three round gauges remain extant, a ghost of the missing one is visible to the left (see existing condition photographs).

**Tanks, Pipes and Conduit:** All of these items are in fair to good condition, considering their age. For the most part, these articles are painted, with some evidence of spot rusting and oxidation.

## 2. RECOMMENDED PRESERVATION TREATMENTS

### a. EXTERIOR

**Roof:** Due to the fact the roof is currently leaking, it is recommended that roof shingles be replaced and painted (or pre-colored) to match the existing color as a preservation treatment. It is further recommended that prior to any painting or color choice, paint samples be taken from this material (or original shingles if they still exist). Since replacement of roof shingles will be necessary, then all rules and regulations concerning removal of asbestos substances must be adhered to. Replacement shingles should match the existing shingles in dimension, texture, thickness, exposure, and paint color. Other materials that might be acceptable are fiberglass, cementitious composition (containing *no* asbestos), asphalt, etc.

**Walls:** Munsell color codes must be established for all components of exterior walls. Unfortunately this task may prove to be impossible because historic paint was burned off in the early 1980s without these codes being established in a conventional manner, or samples taken and archived. It is recommended that Munsell codes be established for the existing paint scheme, if no evidence of the original paint can be found. It is also recommended that paint samples be taken from the walls.

### b. INTERIOR

**Features, Artifacts:** These features, as previously discussed, retain much of their visual integrity (none have had their paint removed). It is highly recommended that paint samples be taken from these painted features.

**Walls and Ceiling in the Machine Room:** It is recommended that only the walls be treated where there is deterioration and severe discoloration. The ceilings are still in acceptable condition and do not require preservation treatment at this time. It is further recommended that fabric samples be taken from the walls prior to any future treatment.

Old varnish and linseed oil must be removed by the gentlest possible means that will not damage the substrate. A high quality spar varnish, containing ultraviolet

let light filters, may then be applied by brush in thin coats. This rehabilitation treatment should be specified in detail by the Regional Historical Architect.

All historic ghosting should be preserved, its significance determined, and appearance recorded, prior to implementation of any treatment or removal of finishes.

**Walls and Ceilings in the Watch and T.V. Rooms:** It is recommended that paint and fabric samples be taken from painted walls in the same manner previously stated in order to establish the true historic color scheme.

All surfaces should be cleaned with a mild detergent, then assessed as to whether or not they have lost enough historic integrity to necessitate repainting. If so, the Regional Historical Architect should be consulted for a detailed specification for treatment.

As with the machine room, any historic ghosting should be preserved, its significance determined, and appearance recorded prior to implementation of any treatment (removal of finishes).

**Glazing:** To protect the interior further from harmful ultraviolet rays, it is recommended that control film (95% Ultraviolet, 30% visible) be applied to the interior surfaces of the window panes. This will help to prolong the color and condition of all interior finishes and artifacts.

**Doors:** It is recommended that the large rolling doors and their hardware on the east wall be rehabilitated. Paint and fabric samples should be taken as previously described. This would require restoration of the door which has a hinged leaf, requiring removal and discarding of this later intrusion. The original door to the south would be used as a comparative guide for matching the historic appearance of the new door.

**Floor:** Samples of floor tiles should be taken in the same manner as described previously (there may be asbestos present). The tile floor in the watch and T.V. rooms should be cleaned and waxed, with every attempt to reestablish both a protective and sacrificial coating.

If it is determined, after cleaning, that the tile has lost its integrity, or that it has no historic significance, then its removal should be considered. New finishes must match the historic (probably painted or bare concrete) as closely as possible in

texture, and color. At the same time, the concrete slab should be investigated for any signs of previous historic finishes. The Regional Historical Architect should be consulted for detailed specifications to carry out this treatment.

**Diesel Engine and Electrical Motors:** It is recommended that a comprehensive paint analysis be initiated on all painted metal components of the diesel engine and the various electrical motors, generators, compressors, etc. that make up the mechanical systems for the historic fog signal. This should be done with the same procedures as previously outlined. These paint coatings are sacrificial in nature, providing a layer of protection which helps to protect these historic features from deterioration and rust, as well as maintaining an accurate visual historic character.

Additionally, it is recommended that all machinery with internal moving parts be "mothballed" with waxes, greases, etc. as may be needed. This will require the consultation of individuals familiar with this procedure. It is similar to what the U.S. Navy does when it mothballs a ship. The primary difference is that the historic appearance should be maintained as a priority for interpretive purposes.

**Gauge Board:** It is recommended that the historic gauge board, located on the north wall, be restored to its original appearance (which is accurately documented in a 1935 historic photograph). This would require removal of the two existing instruments, refinishing of the wood plaque, with repair and replacement of the pressure gauges. The missing gauge to the west should be replaced with one that matches the missing one as closely as possible in appearance.

**Electrical:** It is recommended that a qualified electrician inventory all electrical equipment, noting earlier and later installations to establish an evolution of the electrical systems. At this point, a decision can be made as to whether specific items have historic significance, and which, if any, might need to be removed to enhance the historic scene.

**Tanks, Pipes and Conduits:** It is recommended that comprehensive paint sampling be initiated on all visible interior tanks, pipes and conduits. This should be done with the same procedures as previously outlined. Openings that can allow humid air to enter should be sealed as an integral part of mothballing other mechanical and electrical systems.

## C. EVALUATION OF EFFECT OF RECOMMENDED TREATMENTS

**DISCUSSION:** The determinations of effects of recommended treatments are made in accordance with section 36 CFR 800.3 of the Advisory Council on Historic Preservation's "criteria of effect." The following are excerpts from NPS-28, Chapter 4, page 3, on compliance with Section 106 of the National Historic Preservation Act of 1966.

The Advisory Council's criteria of effect require the Service to take a broad view of effect and the associated range of casual actions. Effect follows not only from actions having a direct physical impact on cultural resources and taken to preserve, modify, or use them, but also from an undertaking near a cultural resource, inside or outside a park or National Register boundary, that may introduce "visual, audible, or atmospheric elements that are out of character with the property or alter its setting."

Application of the criteria will yield one of the following findings for a project (or recommendations): no effect, no adverse effect, or adverse effect.

### 1. DETERMINATION OF EFFECT

**NO EFFECT:** Recommended treatments having no effect on the character-defining features of the Point Reyes Lighthouse and Equipment Building are as follows:

1. Archival (or appropriate conservation storage) of all paint and fabric samples for both the lighthouse and the equipment building.

**NO ADVERSE EFFECT:** Recommended treatments that are considered as having an overall beneficial effect on the character-defining features of the Point Reyes Lighthouse and Equipment Building are as follows:

#### a. Lighthouse

- a. Repair leaks at lantern astragals.
- b. Restore painted wood floor on first gallery level.
- c. Take comprehensive paint samples.
- d. Restore ground-level entry door.

- e. Change astragals to a contrasting dark color, based on the outcome of historic research.
- f. Replace glazing in first-level windows.
- g. Restore weathervane base.

**b. Equipment Building**

- a. Replacement of shingles.
- b. Comprehensive paint, fabric sampling and analysis of all interior and exterior elements.
- c. Mothballing of all mechanical and electrical equipment.
- d. Cleaning and painting of all painted interior walls and ceiling.
- e. Stripping and refinishing of all deteriorated clear (varnished) wall finishes in the machinery room.
- f. Installation of solar film on the interior of all windows.
- g. Restoration of the rolling door on the east elevation.
- h. Cleaning, waxing, or replacement of all tile floors.
- i. Touch up or complete painting of mechanical and electrical components.
- j. Restoration of gauge board.
- k. Removal of non-historic, nonessential electrical equipment.

**ADVERSE EFFECT:** Recommended treatments that are considered as having an adverse effect on the character-defining features of the Point Reyes Lighthouse and Equipment Building are as follows:

No treatments in this report are anticipated to have an adverse effect.

## **D. RECOMMENDATIONS FOR FURTHER INVESTIGATION**

### **1. HISTORIC STRUCTURE PRESERVATION GUIDE**

It is highly recommended that a historic preservation guide be programmed for and implemented into the maintenance program as soon as possible. This would provide the necessary inspection, maintenance, and housekeeping specifications. This is essential to the continued preservation of these structures.

### **2. HAER DOCUMENTATION**

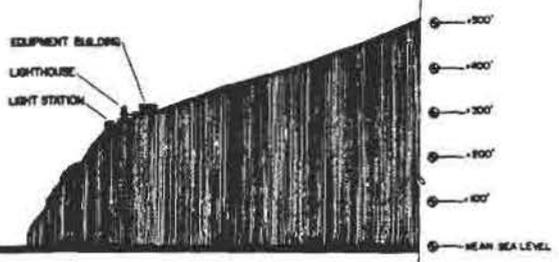
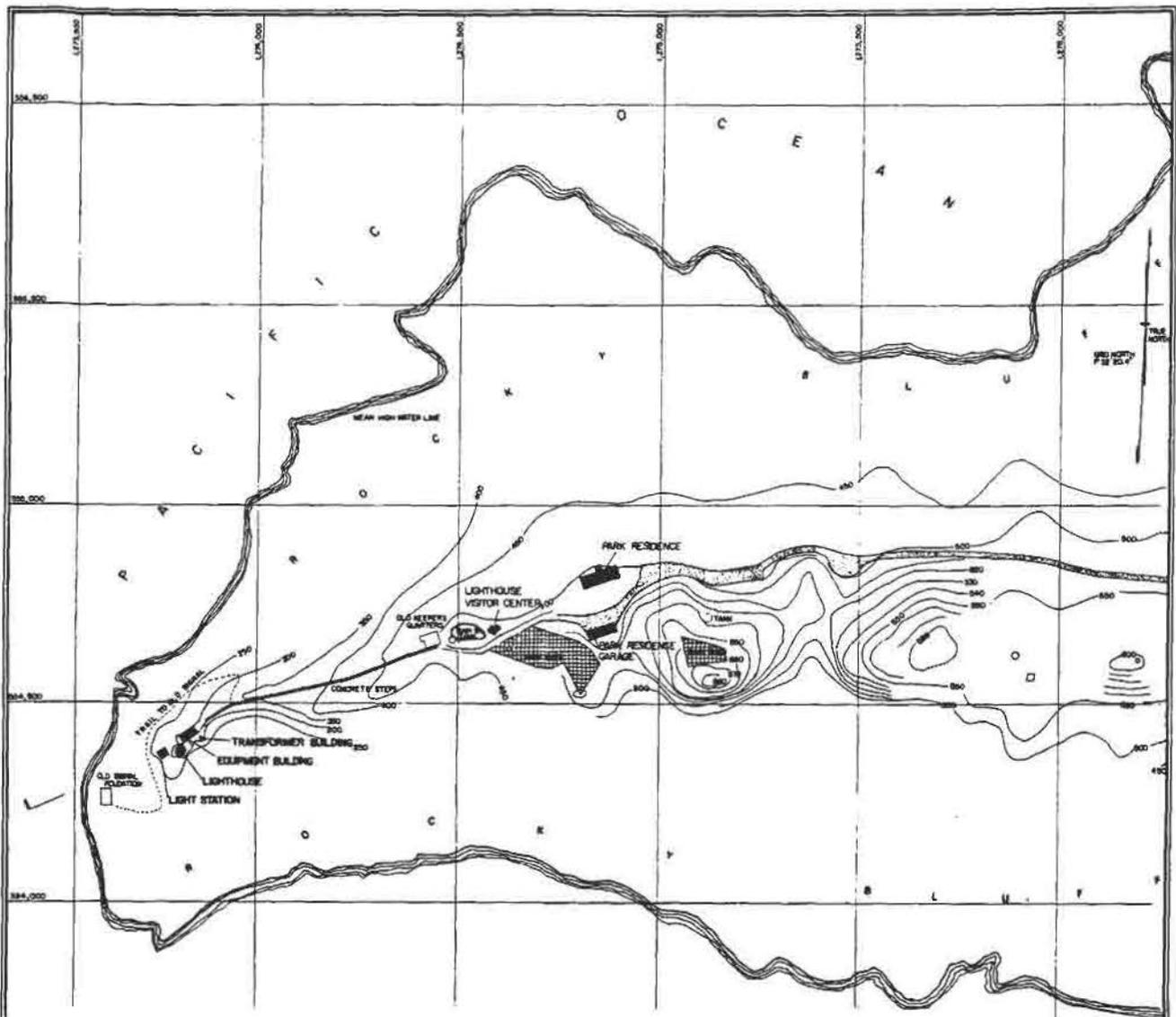
It is also recommended that Historic American Engineering Record documentation be made of this site because of its unique link with early lighthouse technology. This would be particularly true with the process of producing a fog signal.

### **3. PAINT SAMPLING AND DOCUMENTATION**

It is recommended that any further paint work be supported by appropriate paint conservation methodology, documentation, and storage (refer to various recommended treatment sections).



VI. *HABS* DRAWINGS AND PHOTOGRAPHS

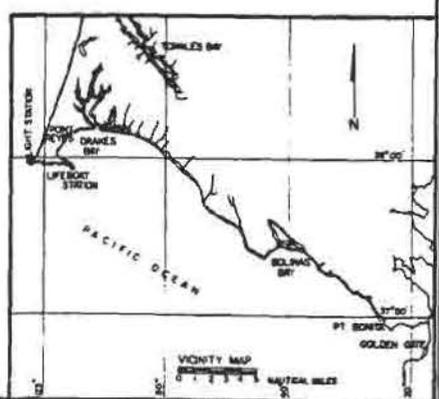


**COMPREHENSIVE SITE PLAN**  
SCALE 3/4" = 100'-0"

0 100 200 300 400 500 FEET

LIGHTHOUSE GEOGRAPHIC POSITION	
LATITUDE	LONGITUDE
37° 29' 44.650"	122° 01' 8.367"

# POINT REYES LIGHTHOUSE & EQUIPMENT BUILDING



**ON MICROFILM**



**SOUTH ELEVATION**  
SCALE 1/4" = 1'-0"



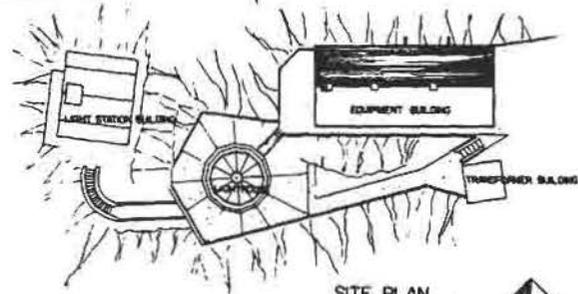
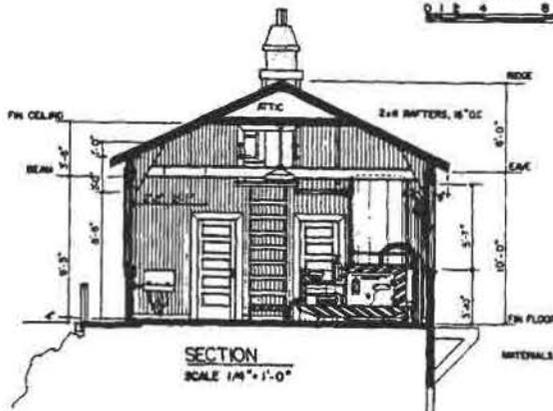
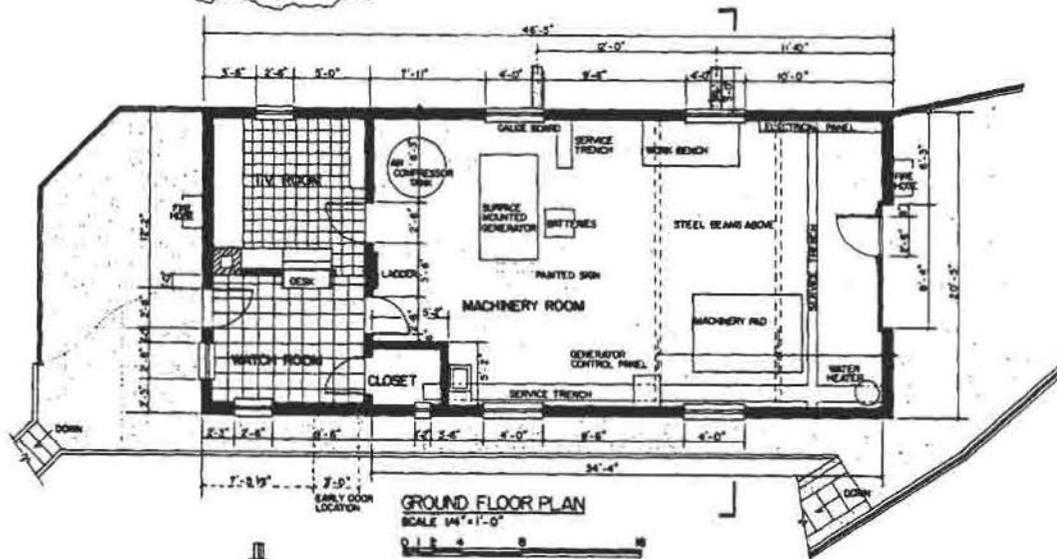
**EAST ELEVATION**  
SCALE 1/4" = 1'-0"



**NORTH ELEVATION**  
SCALE 1/4" = 1'-0"



**WEST ELEVATION**  
SCALE 1/4" = 1'-0"



**MATERIALS:** WOOD FRAME WALL AND ROOF CONSTRUCTION, HORIZONTAL SLIP BEAM, ON CONCRETE SLAB. WINDOWS - DOUBLE HUNG WOOD. DOORS - WOOD PANEL DOORS. ROOF COVERED WITH PINEBETTES SHINGLES, MACHINERY DRAWN.

DATE: 1978. 5/10. FIELD MEASURED BY CRAIG KENZEL. 4/90. PLAN DIMENSIONS U.S.C. 8/72

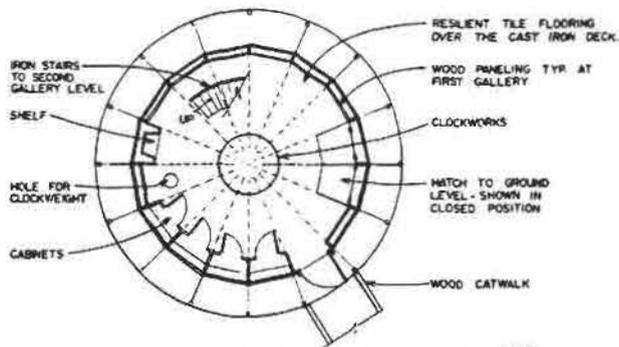
DONOR SERVICE CENTER  
HISTORIC AMERICAN BUILDINGS SURVEY  
NATIONAL SYSTEM OF PUBLIC LANDS

**POINT REYES LIGHTHOUSE, EQUIPMENT BUILDING**  
POINT REYES NATIONAL SEASIDE, MARIN COUNTY, CALIFORNIA

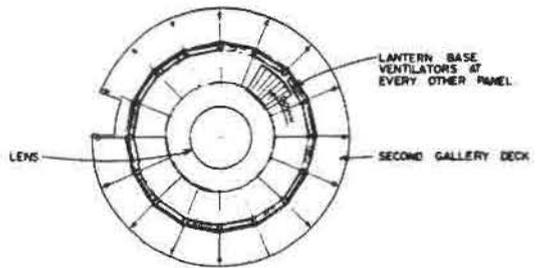
PROJECT NO.  
CA 320-A

HISTORIC AMERICAN BUILDINGS SURVEY  
SHEET 2 OF 2

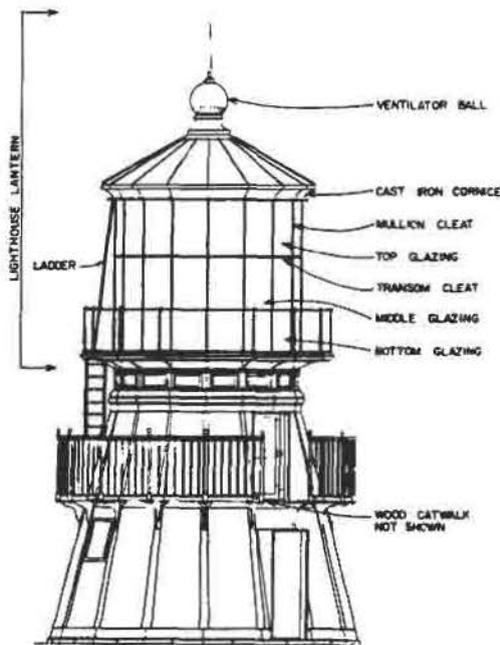
ON MICROFILM



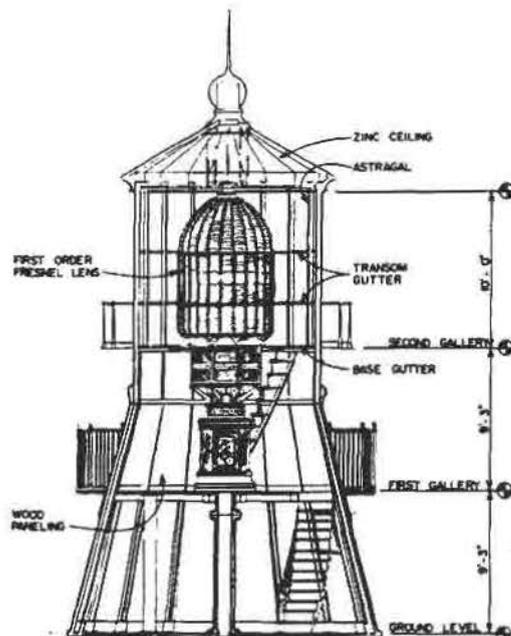
PLAN OF FIRST GALLERY LEVEL  
SCALE: 1/4" = 1'-0"



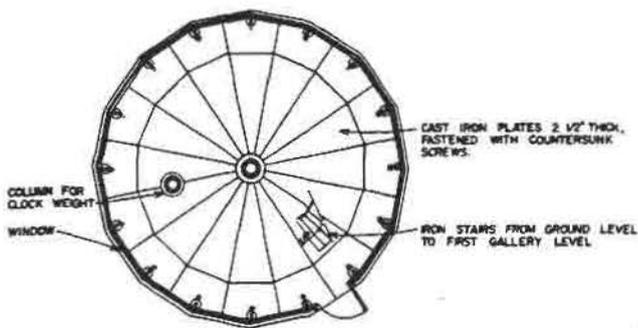
PLAN OF SECOND GALLERY LEVEL  
SCALE: 1/4" = 1'-0"



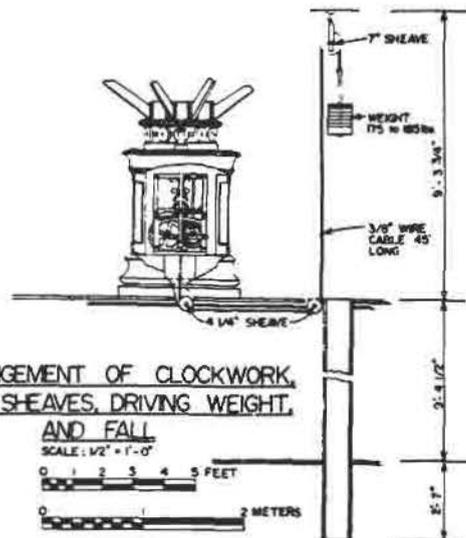
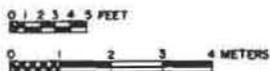
EAST ELEVATION  
SCALE: 1/4" = 1'-0"



SECTION  
SCALE: 1/4" = 1'-0"



PLAN OF GROUND LEVEL  
SCALE: 1/4" = 1'-0"



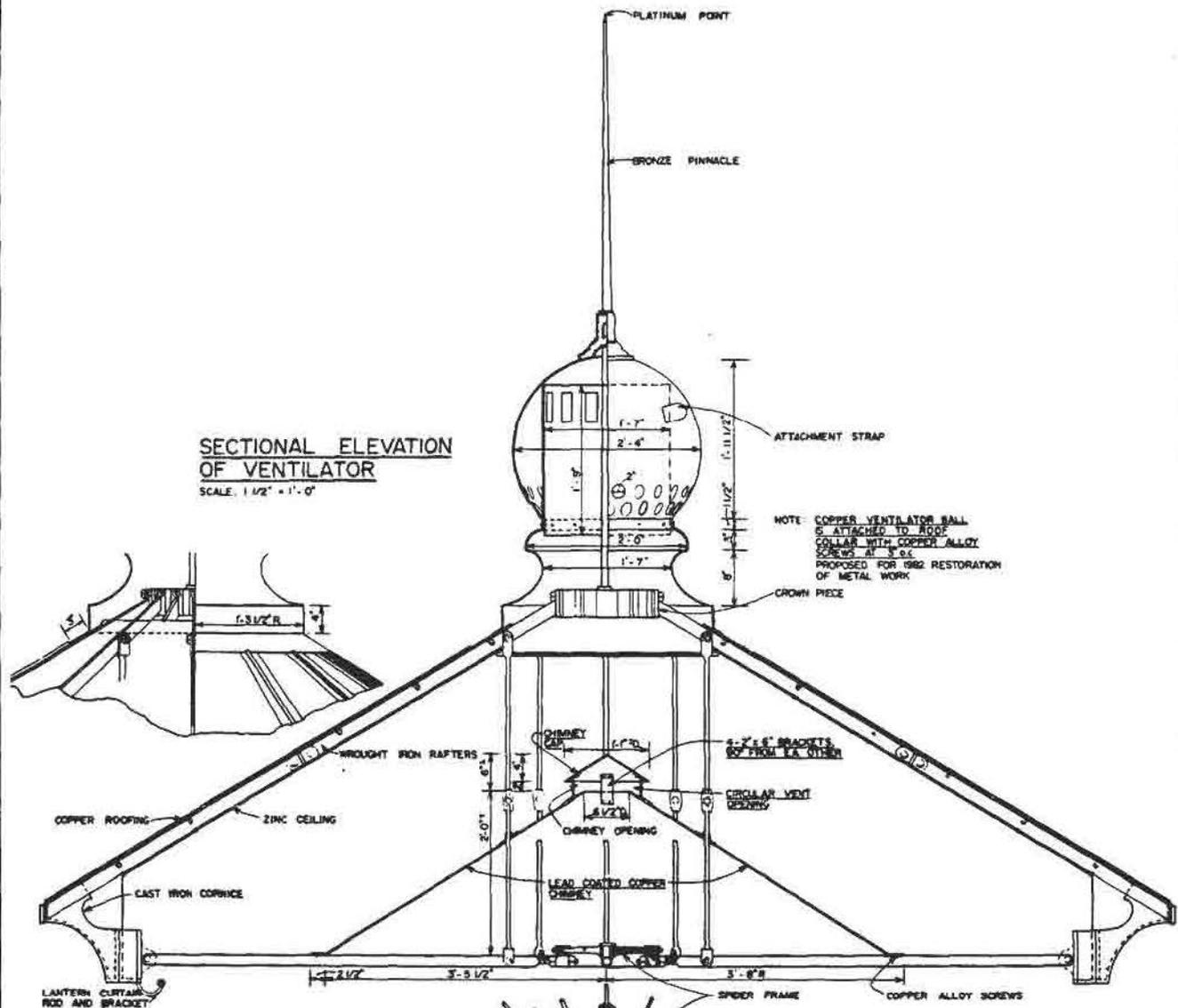
ARRANGEMENT OF CLOCKWORK, CORD, SHEAVES, DRIVING WEIGHT, AND FALL  
SCALE: 1/2" = 1'-0"



ON MICROFILM

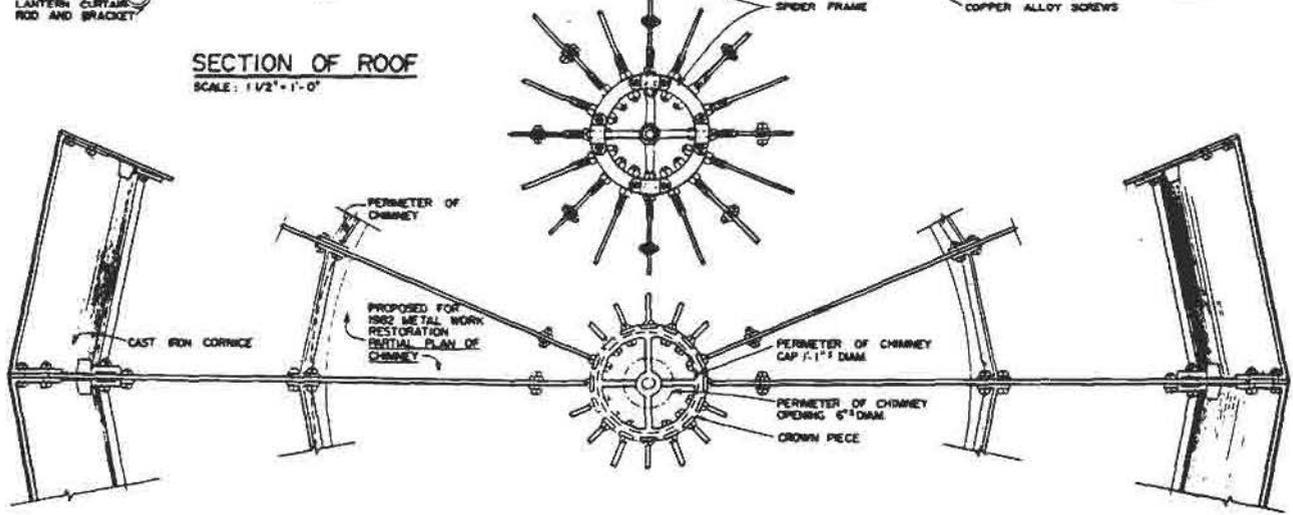
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**SECTIONAL ELEVATION OF VENTILATOR**  
SCALE: 1/2" = 1'-0"



NOTE: COPPER VENTILATOR BALL IS ATTACHED TO ROOF COLLAR WITH COPPER ALLOY SCREWS AT 3 O.C. PROPOSED FOR 1982 RESTORATION OF METAL WORK

**SECTION OF ROOF**  
SCALE: 1/2" = 1'-0"



**PLAN OF CROWN PIECE AND CORNICE**  
SCALE: 1/2" = 1'-0"



NOTE UNDERLINED NOTES PERTAIN TO 1982 RESTORATION







**HISTORIC AMERICAN BUILDINGS SURVEY (HABS) PHOTOGRAPHY**

Photographed by Dewey Livingston, National Park Service, September 4 and 5, 1990



1. Lighthouse complex: lighthouse, transformer building (foreground), Coast Guard light station (rear), equipment building, stairs.



2 and 3. Lighthouse, east elevation (left), north elevation (right).



4, 5, 6, 7. Lighthouse interiors (clockwise from upper left): pedestal and weight system, builder's plaque, watch room or ground level, lens and light source.



8, 9. Lighthouse details: concrete pattern (top), lantern interior (bottom).



10, 11. Exteriors, equipment building: east elevation (top), south and west elevations (bottom).



12, 13. Interiors, equipment building: view to east wall (top), view to west wall (bottom).



14, 15, 16. Interiors, equipment building: watch room (upper left), gauge board and work bench on north wall (upper right), compressors, (bottom).



17, 18. Transformer building west elevation (top), visitor center (old garage) south and west elevations (bottom).



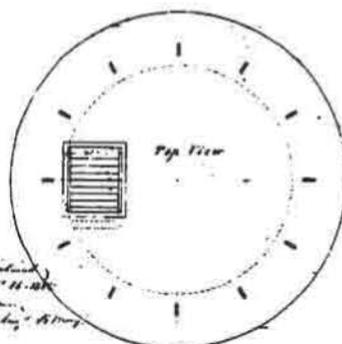
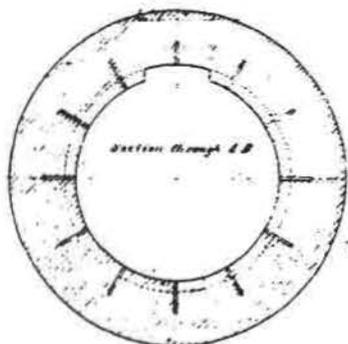
19, 20. Cisterns: west cistern (top), large original cistern (bottom).

VII. APPENDIXES

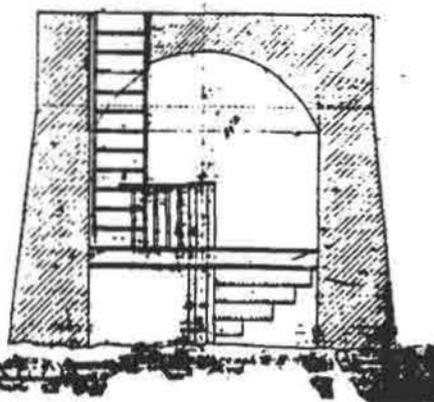
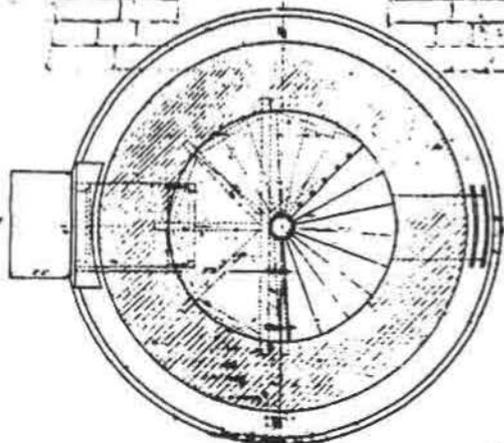
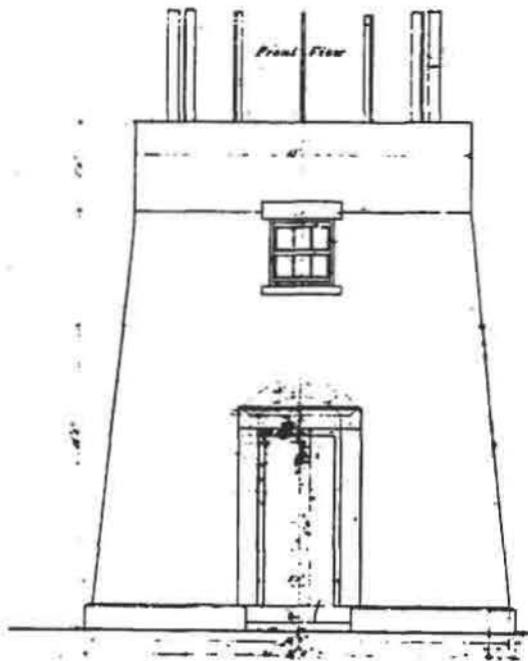
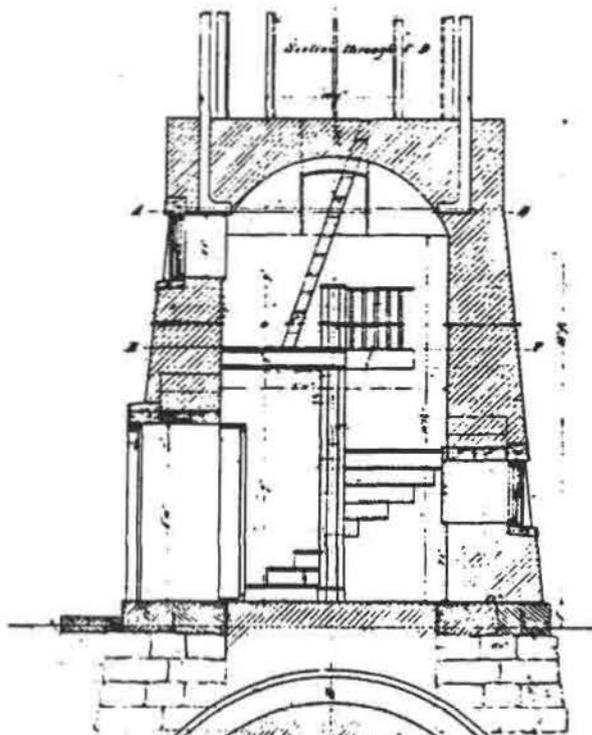
A. HISTORIC DRAWINGS

Aug. 16, 1855  
Pt. Reyes

Light House,  
Punta de los Reyes or Point Reyes  
2nd Order, flashing.  
Prolonged 3/4 of a Minute.



Transmitted by 6 1/2" (6" dia.)  
of Glass, 17 1/2" long, 1/2" thick, and  
1/2" wide, arranged in 12  
of 1/2" dia. and 1/2" thick,  
long, 1/2" dia., 1/2" thick.

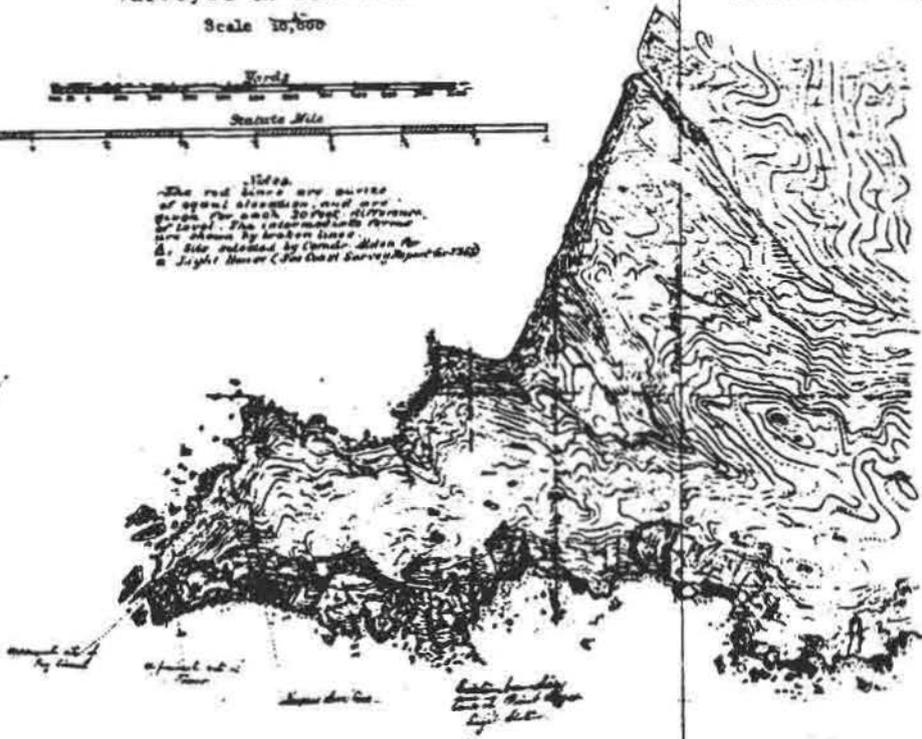


Section through A B

Positions of Towers  
 Keeler Dwelling and Day  
 Signal at  
**POINT REYES**  
 CALIFORNIA  
 Surveyed in 1852 & '53  
 Scale 10,000



*Note.*  
 The red lines are curves  
 of equal elevation, and are  
 drawn for each 20 feet difference  
 of level. The intermediate forms  
 are shown by broken lines.  
 A. Site selected by Comdr. Mendenhall  
 for Light House (See Coast Survey Report No. 1362)



Feb. 1871  
 Respectfully returned to the  
 Lt. H. Hoard with letter of the  
 date  
 (L.H. Hoard)  
 San Francisco Cal. Lt. H. Hoard  
 March 14<sup>th</sup> 1871

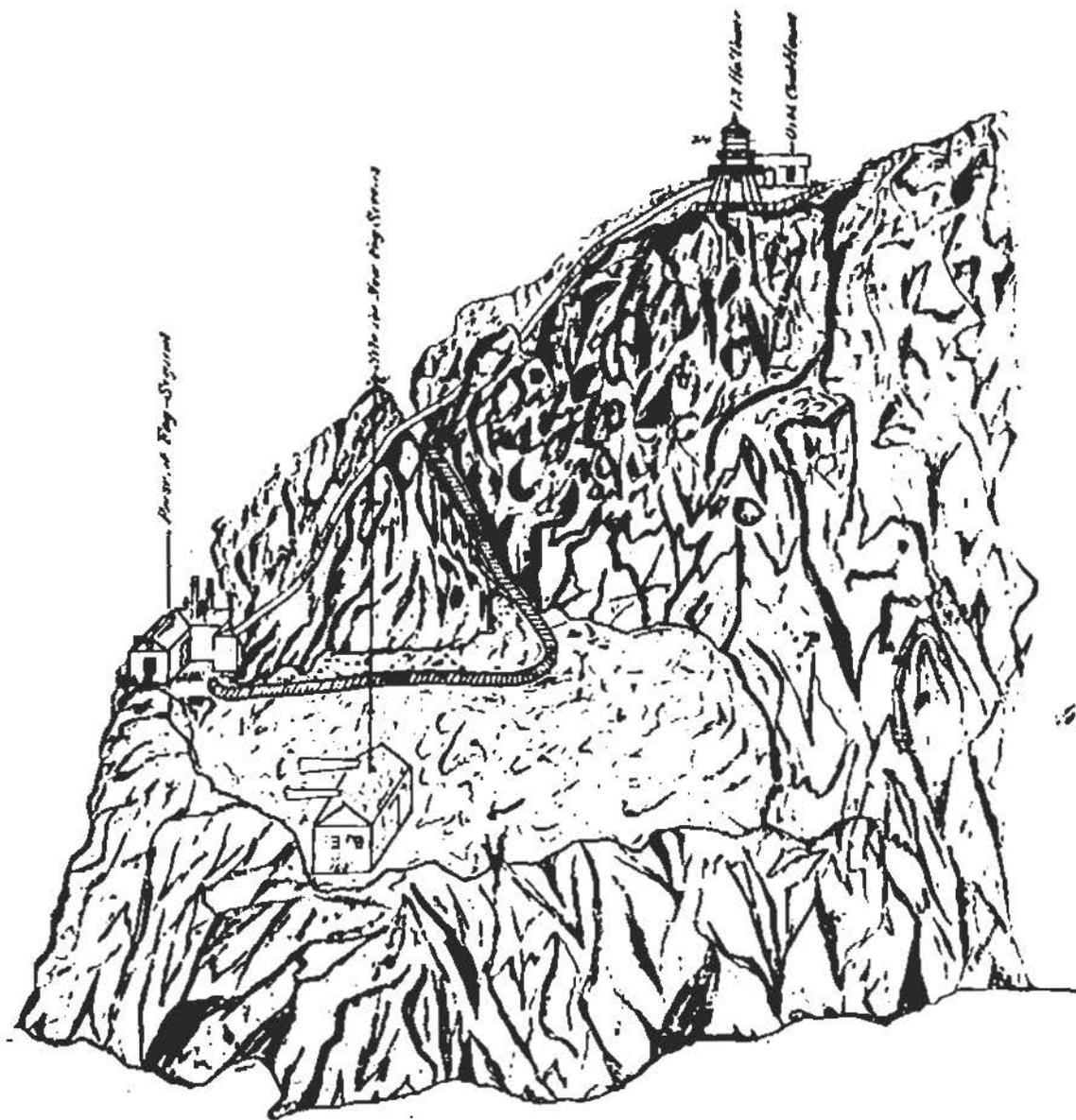
12<sup>th</sup> Dist.  
 17 P Indexed I.R. with Coast Survey letter of 20 Mar 71 -  
 Engin etc. R. 276 2074  
 filed 2007 on 2/7/20

U.S. COAST SURVEY  
 BENJAMIN PEIRCE Capt.  
 Copied from the Archives of the Office  
 February 20 1871

V.C. 148 Lt. H. Hoard  
 Assistant Coast Survey  
 In Charge of Office

Nov. 30, 1850

J. R.

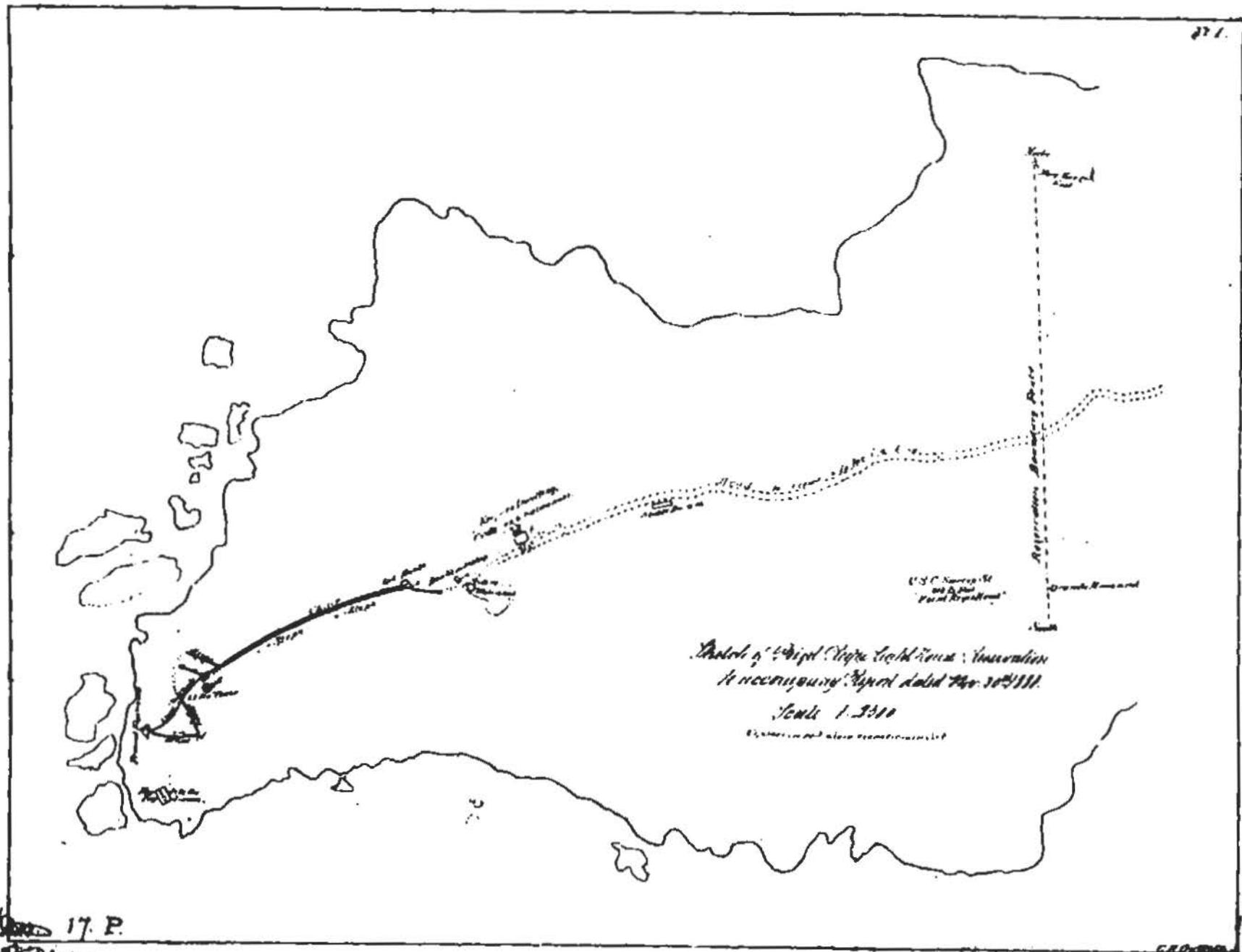


*Sketch of Point Reyes Light Station  
 from the report, dated Nov 30, 1850.  
 Elevation given in sketch.*

Historic Structures Report: Point Reyes Light Station

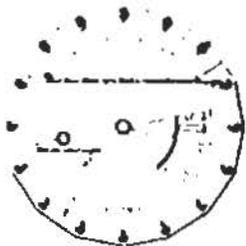
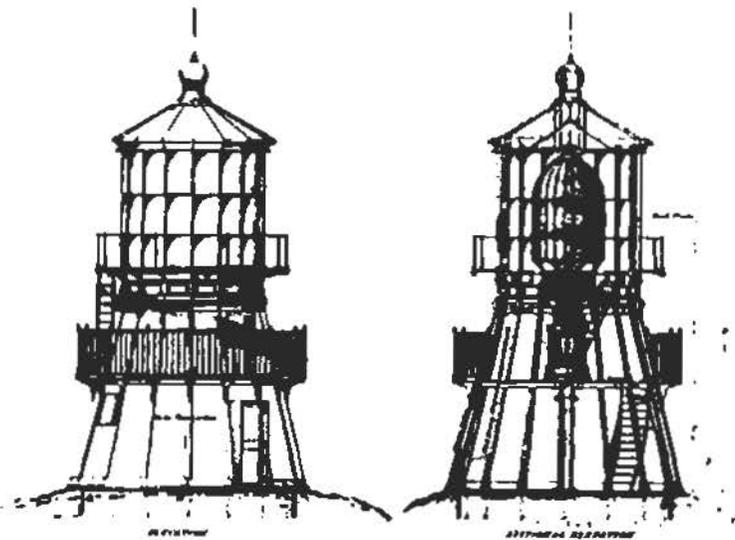


171

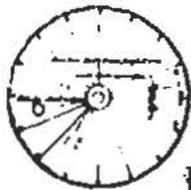


17. P.  
P. H. H.

610-100



PLAN OF LOWER PART



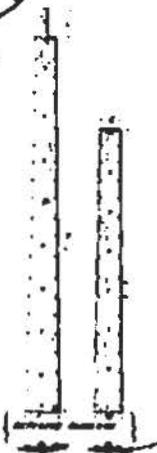
PLAN OF UPPER PART



DETAIL VIEW



DETAIL VIEW



SECTION THROUGH

# TWELFTH LIGHTHOUSE DISTRICT

1204 110 117 110 117

AT

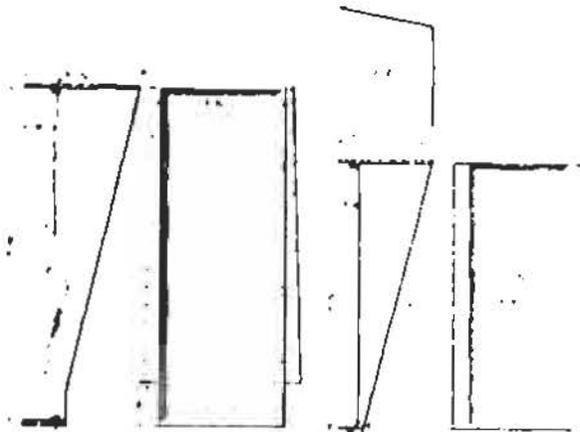
POINT REYES, CALIFORNIA

1876

AS ORDERED BY

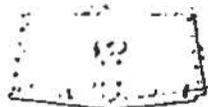
BOARD OF SUPERVISORS AND BOARD OF LIGHTS

BOARD OF SUPERVISORS, CALIFORNIA

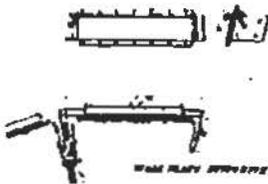


LARGE PORT DOOR

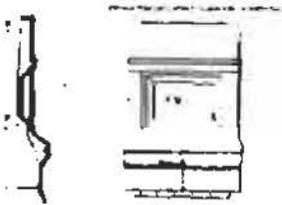
SMALL PORT DOOR



METAL PLATE



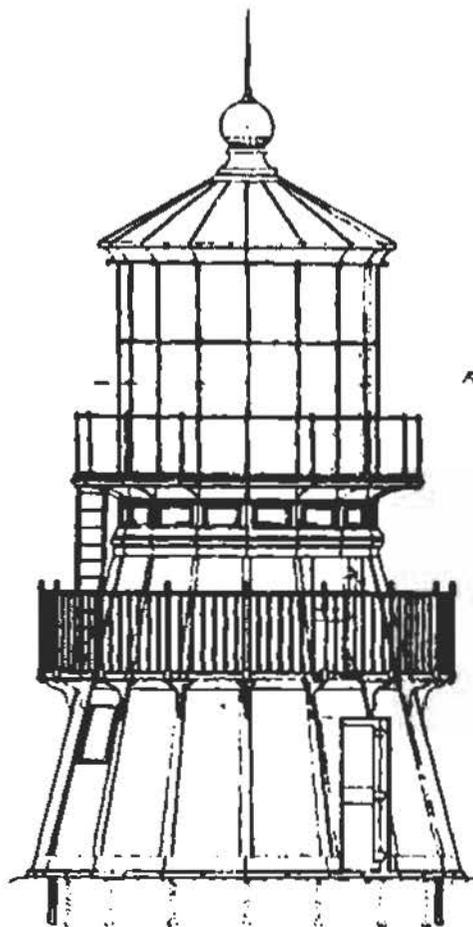
METAL PLATE WITH HANDLE



METAL PLATE

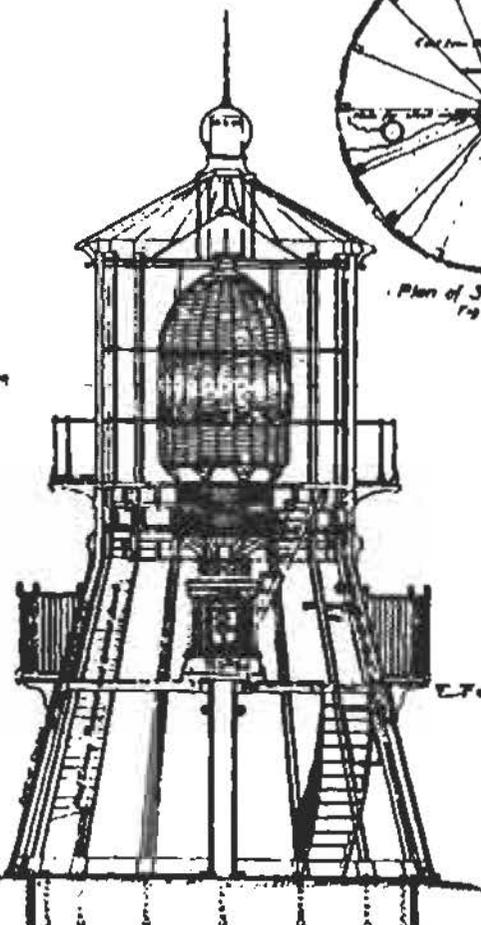


METAL PLATE

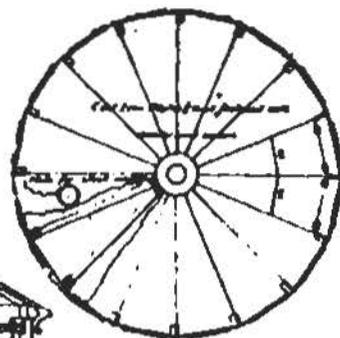


Elevation Fig. 1

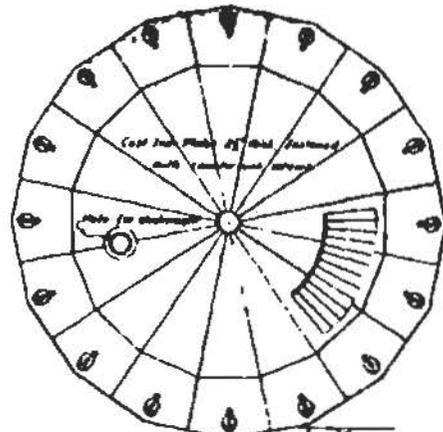
Plan Along



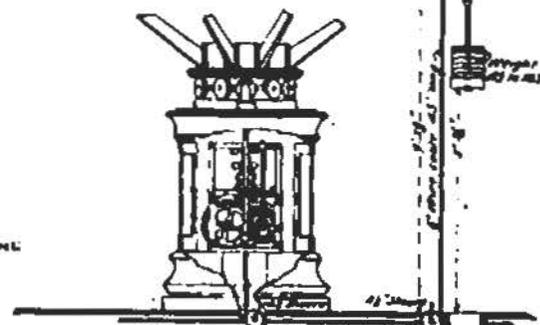
Sectional Elevation Fig. 2



Plan of Second Floor Fig. 3

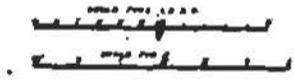


Plan of Ground Floor Fig. 4



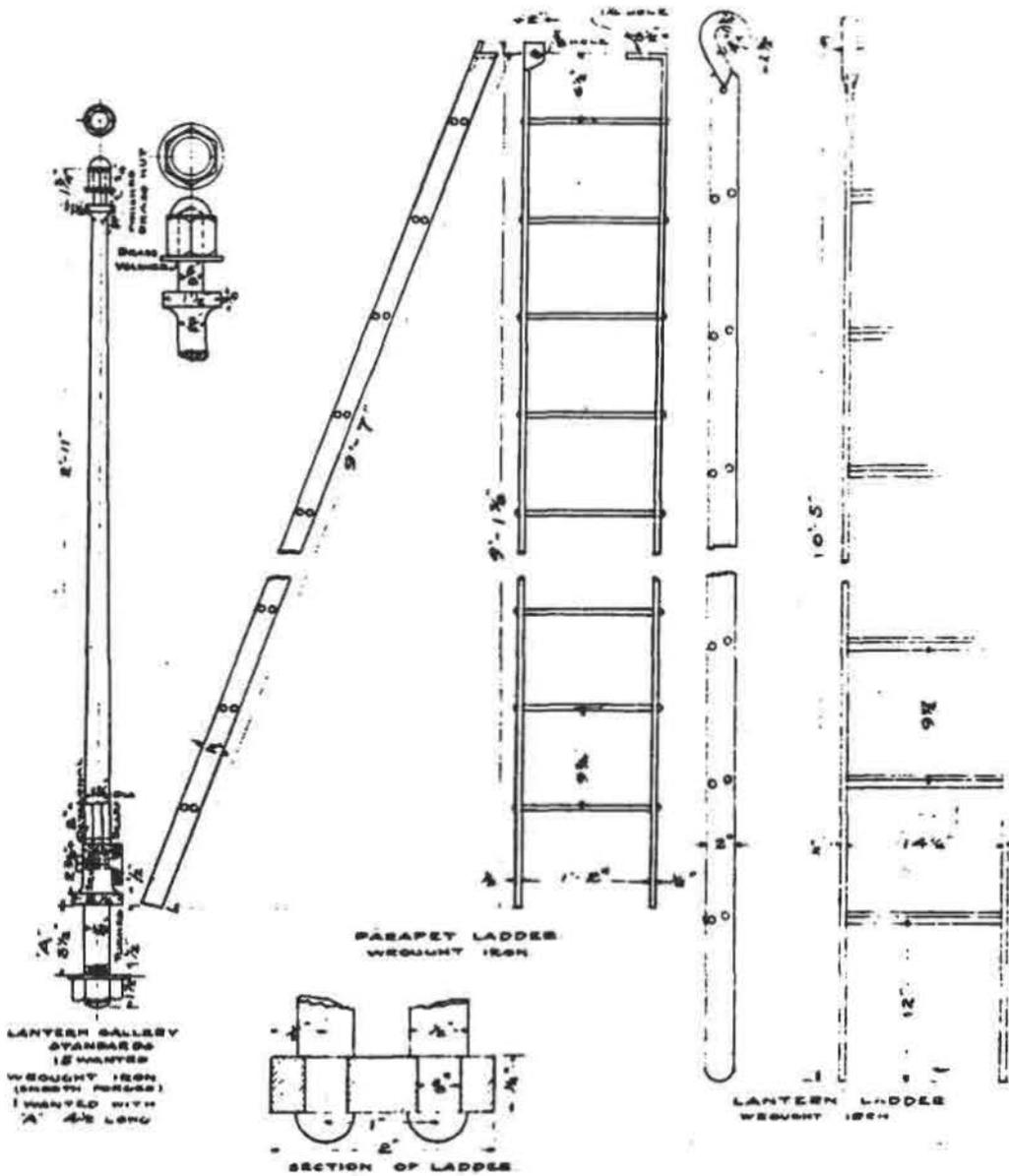
Arrangement of Clockwork, Cord, Sheaves, Driving Weight and Fall Fig. 5

Max. Characteristic of  
Light, flashing white  
every 2 seconds  
1 1/2 sec makes one re-  
volution in 2 minutes  
Total fall 11'-3"  
Time of fall 2 1/2 sec



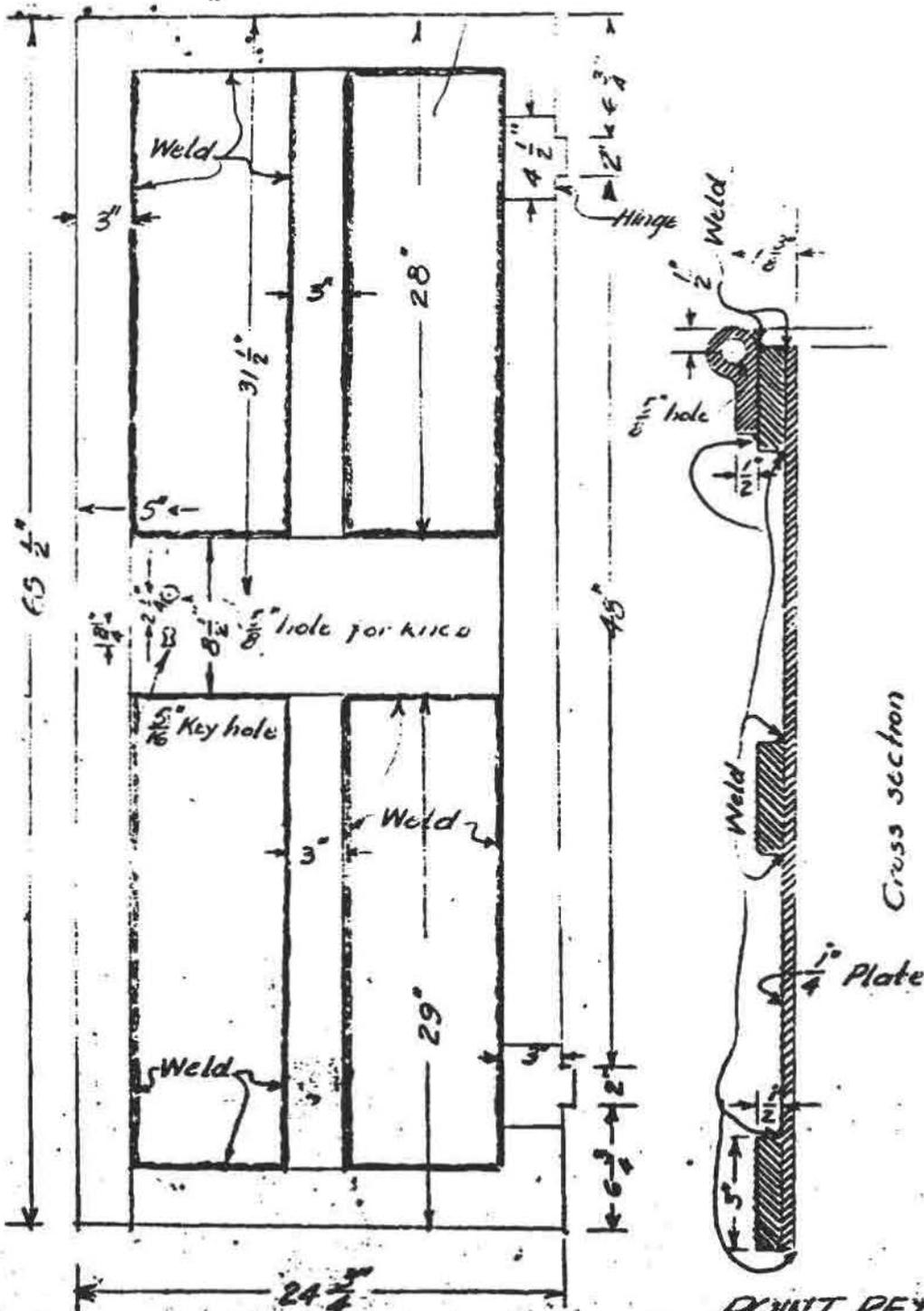
San Francisco, Cal. Mar. 28, 1907  
Office of U. S. Light House Equip.  
127-129th Street Dept.  
REVISION 9-2-08 by Robert [unclear]





OFFICE OF THE LIGHTHOUSE INSPECTOR EIGHTEENTH DISTRICT, SAN FRANCISCO, CAL.	
FIRST ORDER LANTERN PARTS. POINT REYES LIGHTSTATION, CAL. NO 354E.	
APPROVED APR 6, 1914.	
<i>A. L. Johnson</i> SUPERINTENDENT	<i>H. W. Rhodes</i> INSPECTOR
DRAWN BY TRACED BY CHECKED BY	SHEET NO 1 OF 1 POINT REYES, CAL.

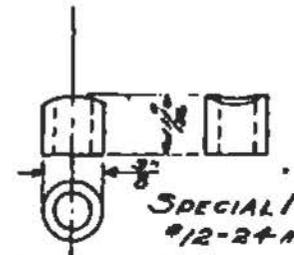
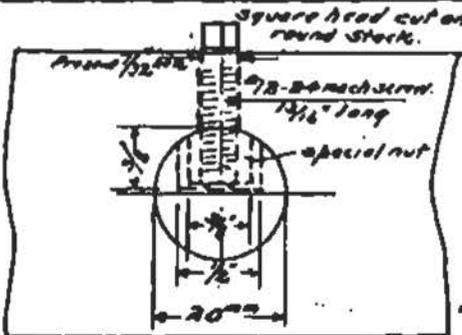




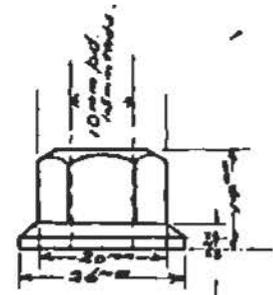
All welding to be continuous

POINT REYES LIGHT STA  
TOWER DOOR

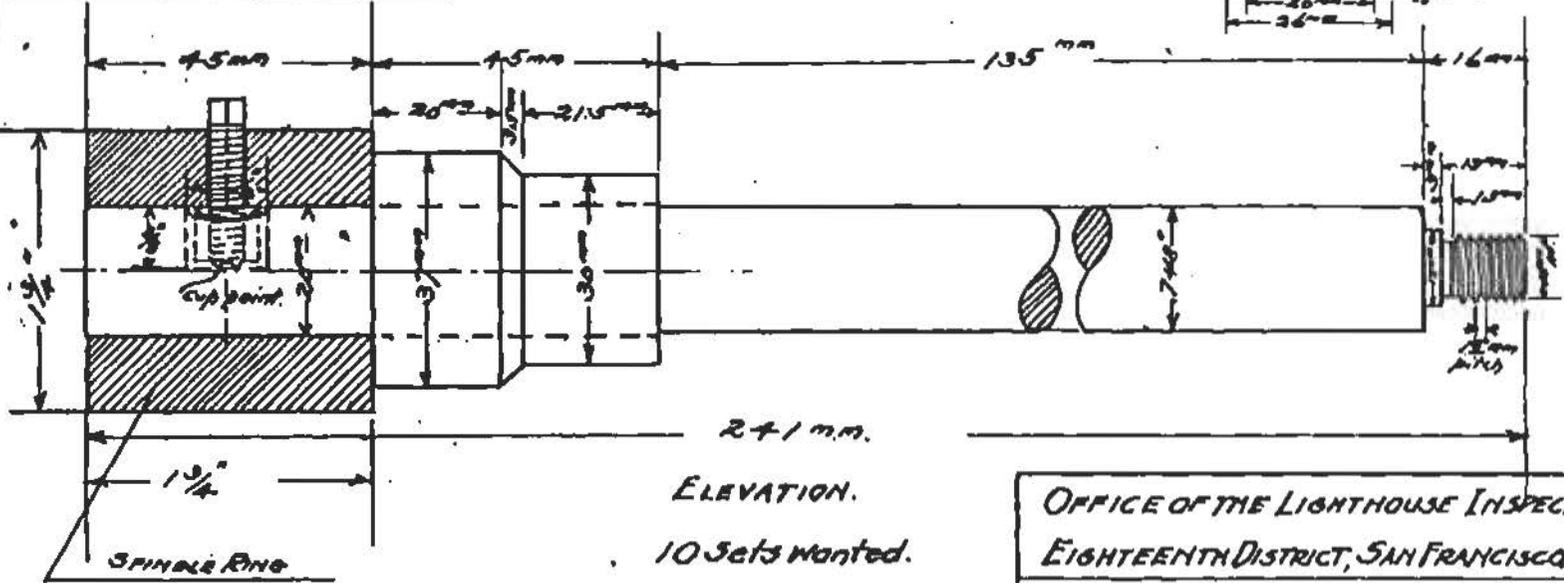
File copy Lee W.O., 8155, 3800-47  
FILE 1 July 19, 1934 DR



LEFT END ELEVATION.



RIGHT END NUT

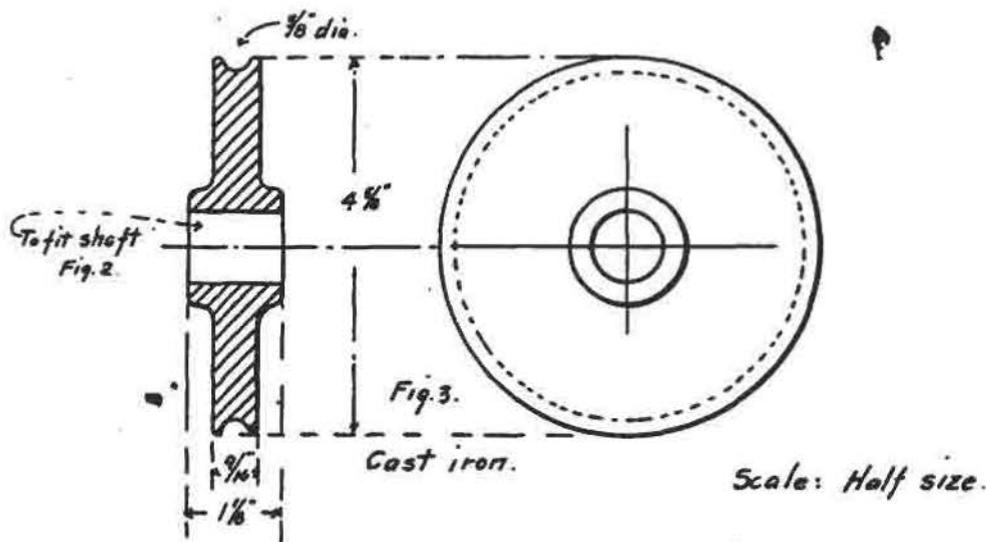
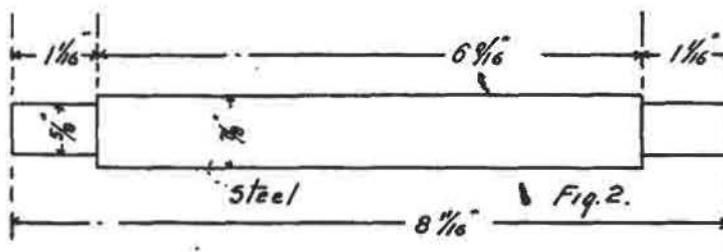
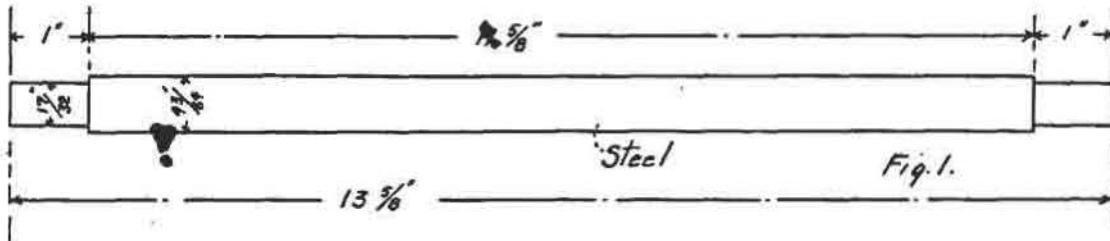


For Erection Instructions,  
 see Letter FJO-Keoper  
 Pt. Reyes File Apr 19, 1917

OFFICE OF THE LIGHTHOUSE INSPECTOR  
 EIGHTEENTH DISTRICT, SAN FRANCISCO CAL.  
 CHARIOT WHEEL SPINDLES.  
 POINT REYES LIGHTSTATION, CAL.  
 SCALE: - FULL SIZE APPROVED 4/8/17  
 G. J. Oster. H. W. V. Rhodes.  
 SUPERINTENDENT INSPECTOR  
 DRAWN R.P.P.  
 TRACED J.R.J. NO 1106  
 CHECKED R.P.P. Pt Reyes B.B.

3800-3

Point Reyes Light Station.



Sheave and shafts for weight cord of lens apparatus.

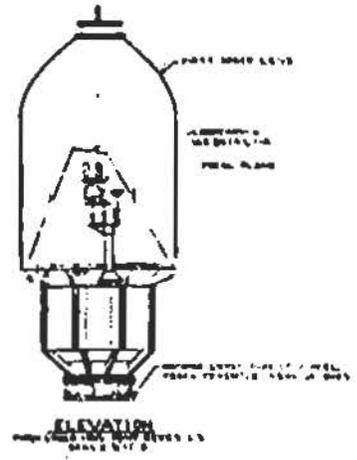
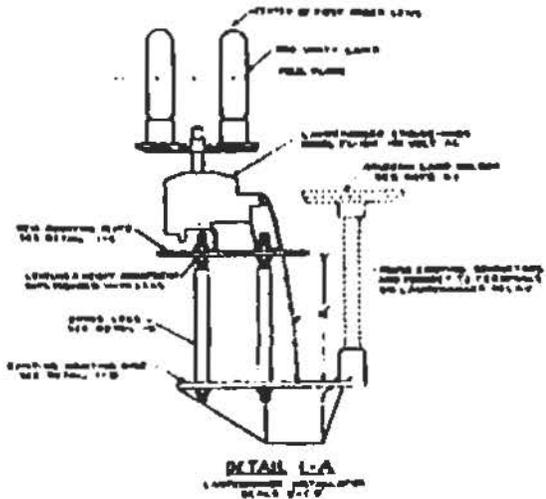
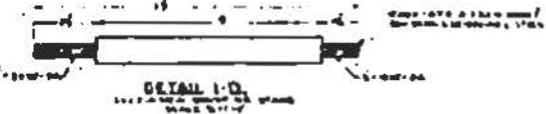
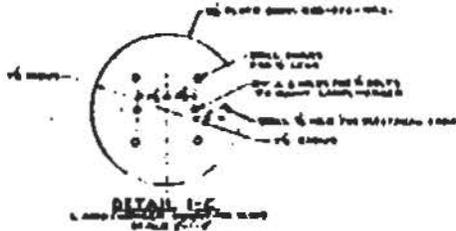
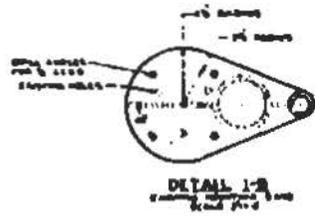
Point Reyes

3800-10

San Francisco, Cal. Mar. 3, 1911.  
Office U. S. Lighthouse Inspector.  
18th Lighthouse District.



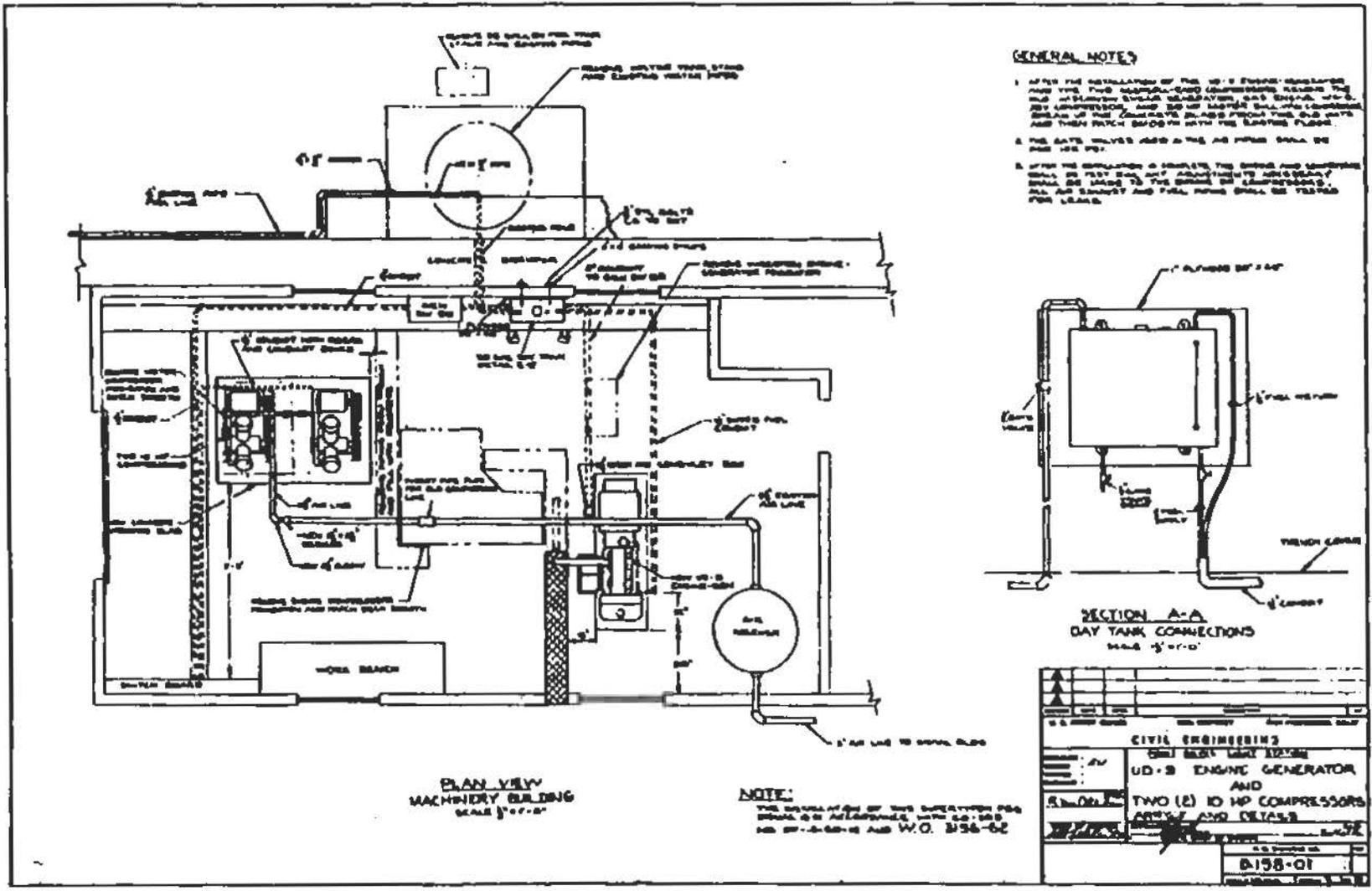




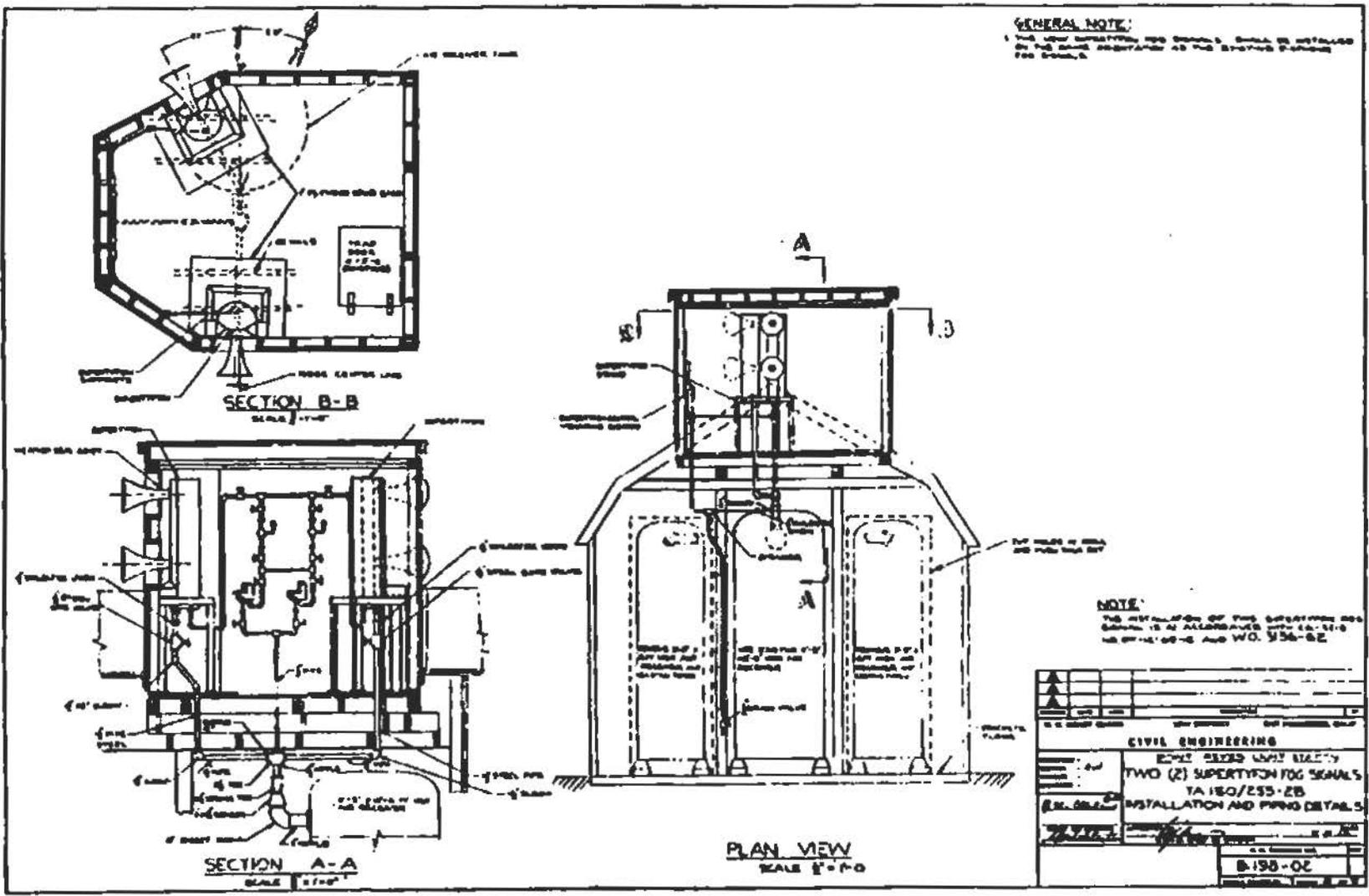
**GENERAL NOTES:**

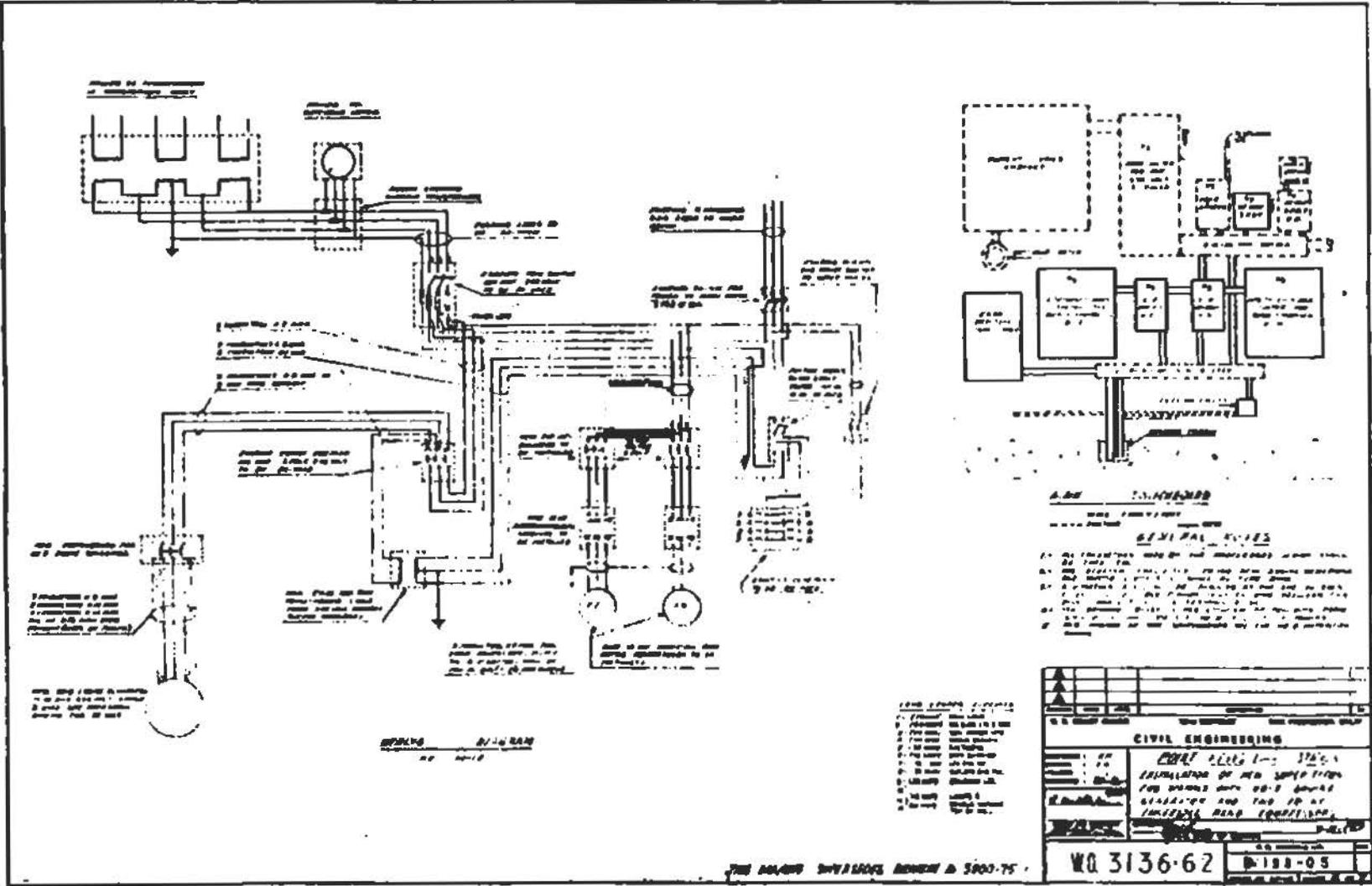
- 1. BEFORE ORDERING LAMP BULBS, CHECK THE MAKE AND MODEL OF THE LAMP TO BE USED.
- 2. TO PLACE THE FILAMENT OF THE LAMP IN THE CORRECT PLANE OF THE LAMP, USE THE ADJUSTING SCREWS ON THE TOP OF THE LAMP TO ADJUST THE POSITION OF THE LAMP.
- 3. THE LAMP SHOULD BE USED ONLY IN THE MOUNTING PLATE AND NOT IN ANY OTHER MOUNTING PLATE TO PREVENT DAMAGE TO THE LAMP.

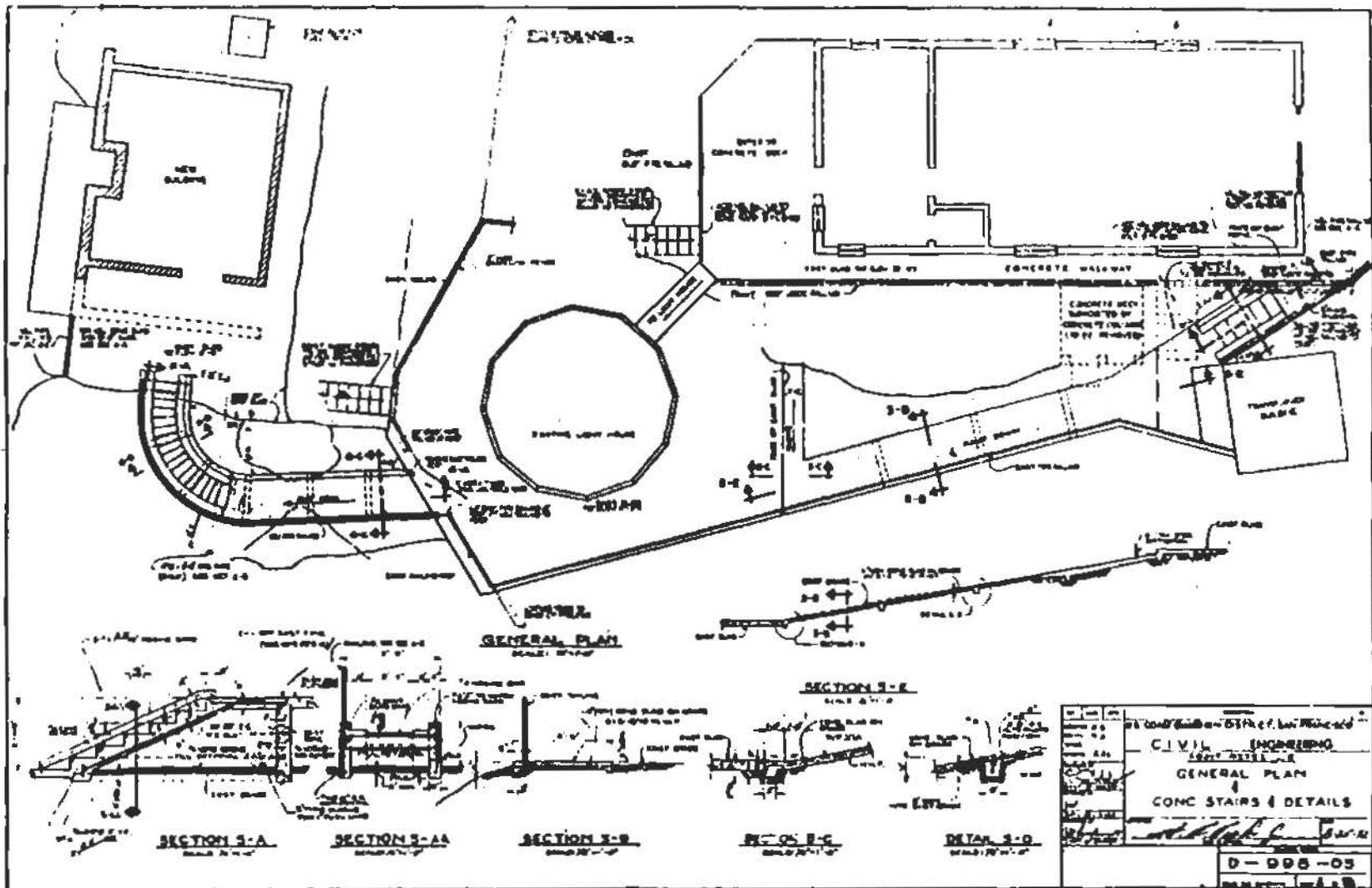
<b>CIVIL ENGINEERING</b> <b>INSTALLATION</b> CRUISE-MINDS LAMPCHANGING MODEL PL-121A (EVAL)	
DATE: 11/11/50 DRAWN BY: [Signature] CHECKED BY: [Signature]	PROJECT NO.: 11-11-50-11 SHEET NO.: 11-11-50-11



Historic Structures Report: Point Reyes Light Station











B. HISTORIC DOCUMENTATION

Point Reyes Light Sta. Cal.  
 April 30<sup>th</sup> 1906.

Major Chas. H. McKinstry  
 Corps of Engineers, U. S. A.  
 Engineer, 12<sup>th</sup> Lighthouse Dist.

Major:

I have the honor to submit the following report of my investigation of the damage from the earthquake at 5:15 A.M. on April 18<sup>th</sup> 1906, at Point Reyes Light Station; also of the general condition of the station concerning necessary repairs. Attached hereto, are rough sketches (not drawn to scale) showing the several subjects under consideration, to which reference will be made throughout this report.

Illuminating Apparatus.

The only damage to this apparatus is the bending of the upper and lower guide-roller spindles; also the displacement, inside of the lens, of the lamp stand, together with the steps and balustrade, (all being riveted together making practically one solid piece) which was doweled to the pedestal with dowels 7/8" long and about 7" apart.

This was lifted sufficiently to clear the dowels, and moved to one side until it touched the stanchions of the lens frame. This piece was replaced by the keepers, and by 10 A.M. April 18<sup>th</sup> the apparatus was in good running order, thus

losing but eleven minutes of the time when the light should be burning,

A solid brass ring, of a general concavo-convex form is securely fastened to the tops of the twenty-four panels of the lens, and set on this ring are the six upper spindles fastened to the ring by nuts on the under side.

The upper guide, to which the chimney cone is fastened, is secured to the spider ring of the dome, and projects down through the top ring of the lens for a distance of about 8 inches. The hole in the ring is  $\frac{1}{8}$ " larger diameter than the guide thus giving  $\frac{1}{4}$ " clearance all around.

By referring to exhibit A it will be seen that on account of the guide projecting through the ring, the spindle nuts are inaccessible and cannot be touched with an ordinary wrench, and it is recommended a socket wrench be made of "double X" gas pipe, about three feet long, to insure against injury to the lens, in removing the old spindles and replacing the new ones. There are six spindles in each set, one of each set being sent for a sample, to have the new ones made from. The spindle having a nut on one end and a hole for a spring cotter at the other, belongs to the upper set. Of this set only the spindles are to be renewed.

The spindle having a cap-nut at either end belongs to the lower set. In addition to renewing the spindles of this

set, one just like the larger cap-out, is, (and for a long time has been) missing and should be renewed.

Attention is called to the fact that the threads on these spindles are the French standard, and can probably not be duplicated in our shops; in this event it will be necessary to renew all the nuts using standard threads.

The lens is now running admirably, within one second of time, to one revolution or twenty-four flashes.

### Fog-Signal

The only damage to the fog-signal apparatus was the breaking of a Welch globe valve in the steam pipe.

For temporary use this was replaced with an old valve by the keepers, and requisition made for a new one.

As to the time of this writing the fog-signal has not been in operation, but the writer is informed that everything at the signal is in good working order.

### Chimneys

The damage to the premises of the Keeper and 3<sup>rd</sup> out. is confined to the chimneys and cisterns.

Referring to exhibit "B" it will be seen that the main bodies of the chimneys, rise above the roof, forming a base for the ornamental top part of the chimney. The north-east

7.

south-east and southwest chimneys of the main building are broken off just above the base, and the north-west chimney is shattered above the base, which is cracked, down for five layers. The other bases are all intact.

The keepers kitchen chimney is unharmed except for a slight crack in the cement covering that connects two old similar cracks, all about two feet above the roof.

The wood covering was partly removed in the keepers bathroom and the brickwork found in perfect condition. A fire in the stove failed to show any smoke or odor of smoke in the house.

Each chimney will require 200 bricks to rebuild the damaged part or 800 bricks in all.

The chimneys of the 1st and 2nd assets cottages are apparently unharmed.

### Cisterns

The cistern for the Keepers dwelling is probably cracked from the earthquake as the water is lowering at the rate of one inch in 48 hours. As the cistern is nearly full it is inadvisable to try to do anything until it is empty, so as not to waste the water.

The cistern of the 3rd assets dwelling leaked considerable after the earthquake but is now practically tight, as the water has lowered but  $\frac{1}{2}$ " in 48 hours including water for household use.

The general household supply cistern is tight as no loss of water occurred in 48 hours.

The large cistern for boiler supply will be treated under the head of "Rain shed".

### Rain shed

The greatest damage to the rain shed as a direct result of the earthquake is shown by the opening of an old crack immediately behind the retaining wall, from the point "A" to point B, as shown in plan on exhibit "C". This crack opened about  $\frac{1}{4}$ " and a new crack extends from point B to point C where it crosses the retaining wall to point D, 66 ft from point A, and is further shown in elevation on exhibit "D".

Also, another new crack  $\frac{1}{4}$ " wide and about 30 ft. long extends to the cistern inlet from a point 9 ft. east of point A on the side wall: also, the cement of the rainshed is parted from the outside of the cistern and is open about  $\frac{1}{16}$  of an inch.

The cistern proper is apparently unharmed and is water tight.

The movement of the top of the retaining wall on the north end appears to be half an inch, gradually lessening towards the south end where it is not over an eighth of an inch.

At the base of the retaining wall, no movement is

6.

discernible and the contact with the conglomerate foundation is apparently undisturbed.

No movement of any part could be discerned during my stay here, and the only repairs to the wall that are recommended, is to clean out the cracks to about  $\frac{1}{2}$  inch wide and pour them full of grout.

The cracks are represented in red ink on exhibit "C" & "D". The foregoing covers the damage as the direct result of the earthquake.

### Rain Shed Repairs

✓ Referring to exhibit "E", that portion included between the dotted red lines, embracing an area of approximately seven hundred square yards, will have to be entirely renewed to make a substantial, b of c, for, apart from its being broken in more than forty places, the ground under many places has disintegrated and settled leaving the shell of concrete without support. This shell is from  $\frac{1}{8}$ " to  $\frac{1}{2}$ " thick and will break when stepped upon. This portion of the shed is the original covering and is little more than a cement wash over the rocks.

All the other portions of the shed, small cracks probably not over  $\frac{1}{2}$ " wide, divide the surface into

1.

small portions of from 9 to 50 sq. ft. These cracks could be helped by chiseling out to sufficient width to permit filling with grout. The practice heretofore has been to apply a cement wash with a brush but this gives no strength whatever.

Sand shed. <sup>1906</sup>  
<sub>1890</sub>

The next item of magnitude is the renewal of the sand shed in front of the cottages. This shed is over sixteen years old, and the boards are rotted entirely through in many places leaving holes where the wind can blow away the sand, and should it start cutting, a few storms may threaten the safety of the cottage foundations.

Many of the boards while apparently good on top, are mere shells, the lower part being rotted away.

This shed could be patched temporarily, but its condition, and its importance fully justifies its renewal.

For this purpose there will be required the following:

- |     |      |                 |                   |               |
|-----|------|-----------------|-------------------|---------------|
| 58  | pcs. | 4 x 6 x 16      | - Bulkhead posts  | } All Redwood |
| 36  | "    | 4 x 6 x 20      | - Sills for cover |               |
| 33  | "    | 2 x 12 x 16     | - Bulkhead facing |               |
| 275 | "    | 1 1/4 x 12 x 16 | - Cover           |               |
- (Continued next page)

3000 - 16d. Galvanized wire nails.  
 300 - 20d. " " "  
 400 - 30d. " " "

Reuces.

1st. Reuce back of Keeper's dwelling.

The boards on the base of this fence, are in very many places rotted so badly at the ends, that nails will not secure them to the rails. This part should be renewed and for this purpose the following is required:-

30 pcs. 1x12x14 Rough Redwood.

750 - 10d. Galvanized wire nails.

2nd. Wind fence between 1st asst's cottage and rain shed fence.

This fence is rotted so much that the pressure of the dirt on the upper side is breaking the boards in two, and it should be renewed. For this purpose is required:-

13 pcs. 1x12x14 Rough Redwood

150 - 10d. Galvanized wire nails.

3rd. Wind fence extending from Keeper's yard, easterly along the wagon road.

Forty-six feet of this fence is old and the boards are badly rotted at the bottom permitting the wind to blow under in places, endangering the roadway

This part of the fence should be renewed and

for this purpose is required the following:-  
 4 pcs 4 x 4 x 16 Posts } Rough Redwood  
 6 " 3 x 4 x 16 Rails }  
 23 pcs 1 x 12 x 12 Fencing }  
 100 - 20 d. galvanized wire nails  
 275 - 10 d. " " "

### Tramway

The wood stringers on the tramway are so badly rotted that <sup>in places</sup> they will not hold the nails that fasten the iron, and they should be renewed.

For this purpose is required the following:  
 22 pcs 4 x 4 x 16 Stringers Rough Redwood  
 300 - 20 d. galvanized wire nails

### Keeper's Dwelling

Redwood siding is on hand here, to renew the bad siding on this building. While the siding on the building has a dilapidated appearance, it is tolerably well preserved, except in numerous spots where it is split or rotted. The whole needs to be renailed to the sheathing, as the nails have rusted off in very many places. One keg of 6 d. galvanized wire nails for that purpose is on hand here. (Continued)

The paint should be scraped off by means of a gasoline lamp, and the wood repainted, as the numerous coats of paint are cracked and rough and give the surface a bad appearance.

My attention was called to the condition of the windows, and I was informed that former Engineers had condemned them. Be this as it may, the sash all over the house are in a more or less dilapidated condition, and to put them all in good order would cost nearly as much as new sash. And then it would not be a first class job.

The easiest and best way is to renew the sash throughout the house, and in the event of this being done I would recommend having the sash made to order with extra heavy ribs or parting pieces, and having four lights to a window (two to a sash) instead of the twelve-light windows now in use.

There are eight 12-light windows having  $10 \times 17$  panes and twelve 12-light windows having  $10 \times 14$  panes, to be renewed.

In the 3rd asset's dwelling the flooring has rotted away leaving a hole 3" wide and about 12" long.

The back steps of the 1st asset's cottage require

supports, or risers, and a saddle board is off in one place on the roof of the 2nd assts cottage.

Several boards were missing from the corner of the old storage tank near the top of the steps leading to the lighthouse. These last three items were minor repairs and can be fixed by the keepers in a few hours.

Old Storage Tank c. 1891

attention was also called to the condition of the old storage tank for boiler supply, but with the exception of one broken hoop it appears to be as good as it was fifteen years ago.

The importance of the water supply at this station, justifies substantial reservoirs, and in the opinion of the writer this tank should be condemned, and a new one provided to hold water from the next rain season.

This tank might last several years more but should any part give away, its condition would not permit of repairs, and it may give out at any time.

With the above mentioned renewals and repairs, this station will be in substantial condition

respectfully submitted  
Frank A. Burt.

5 exhibits enclosed.

2 spindles sent by St. Madrono.

DESCRIPTION OF LIGHT STATION.

1. By whom described Keeper - M. P. K. ones, date April 14<sup>th</sup> 1924

STATION.

2. Name of station, Point Reyes Light station

3. Characteristic of light, Flashing white every 5 seconds

4. Geographical position of light: Latitude, 37° 59' 46"; longitude, 123° 01' 21"

5. Location, on the Pitch of the Westerly head of Point Reyes, Sea Coast of California, 2 1/2 miles Westerly from Pointa Point, L.H. about 1 1/2 mi. N by W 7/8 W from Farallon L.H. and 6 1/2 miles South easterly from Point Arena, L.H.

PREMISES.

6. Origin of title to site of station (public land, purchase, lease, military or naval reservation),

7. Date of reservation, deed, lease, or permission to occupy,

8. Area of the entire site, about 80 A.; (b) area inclosed, 80 A.; (c) type of fence, Barbed Wire

9. Distance of tower from nearest high-water mark, 271 feet

10. Wharf or landing on premises, no

11. Means by which the light station may be reached and distance to nearest post office or town, with name, Reached by Road, 7 1/2 miles to Post office, Point Reyes, California

12. Tower or other means used for supporting the lantern and apparatus, TOWER

13. Number of separate lights, ONE

14. When first built or established, 1870

2

DESCRIPTION OF LIGHT STATION.

PREMISES—Continued.

15. When last thoroughly rebuilt, repaired, or renovated, .....
16. Height of focal plane of lantern above mean high water (on sea and gulf coasts) or mean lake level on northern lakes and rivers, 294 feet
17. Background of the lighthouse, upon which it is projected, as seen from seaward, Rock
18. Color of tower, and how produced, White tower, Black lantern, Paint.
19. Tower—Connected with keeper's dwelling, and how; or detached, Detached
20. Purpose of aid—Seacoast, lake coast, bay, harbor, channel, or range; for general or local navigation, Seacoast
21. Materials of which the tower is built, Steel and Iron
22. Kind of stairway and steps, Iron
23. Size of glass for glazing tower windows, 26" x 30 1/2"
24. Number of windows in tower, and size of sash, Two, 29 1/4" x 33 1/2"
25. Number and size of doors, Two Ground floor 28" x 24", Second Floor 24 1/2" x 65 3/4"
26. General remarks upon tower and site, Good condition

LANTERN AND LANTERN FIXTURES.

27. Order or class of lantern, 1<sup>st</sup> order
28. If polygonal, state number of sides; if cylindrical, state diameter, 16 sided
29. Vertical or helical bars, Verticle Base; height glazed, 9' 7 3/4"
30. Number of plates in height, Three; in each side, Three
31. Thickness and size of plates, 4" x 28" x 31", 4" x 28" x 39 1/8", 4" x 28" x 44 3/4"  
(1) (2) (3. G.P.)
32. Unglazed side of lantern in plates and degrees of arc, none; between what bearings (true and from seaward), .....
33. Materials of which the lantern is constructed, Bronze
34. Roof, Copper

DESCRIPTION OF LIGHT STATION.

3

LANTERN AND LANTERN FIXTURES—Continued.

35. Ventilator ball, Copper
36. Lightning-conductor spindle, \_\_\_\_\_
37. Balustrade and outside gallery, Iron
38. Lantern doors, and how fitted, Iron
39. Floor of lantern—Of what materials, Iron
40. Watch-room door leading into lantern, and how fitted, Iron Hinged trap

VENTILATORS.

41. In parapet, wall, or lower part of lantern, lower part of lantern
42. Lantern ladders for cleaning plate glass, outside, Iron detached
43. Curtain hooks inside of lantern—How fitted, To top of frame

WATCH ROOM.

44. How fitted, Seat, hooks, Sink, no water connections
45. Bell wires, speaking tubes, or telephones for calling relief keepers—Kind, Telephones
46. Where led, To second floor of tower

ILLUMINATING APPARATUS, ETC.

47. Kind of apparatus, Revolving; intensity in English candles, 80,000
48. Name of maker, Barbier and Fenestre, Paris, France; year made, 1867
49. Marks and number on apparatus, None
50. Order of apparatus, 1<sup>st</sup> order; inside diameter (inscribed circle, tangent to glass) of central drum, 73 inches
51. If the apparatus is a parabolic mirror, state (a) diameter of opening, \_\_\_\_\_; (b) depth of mirror, \_\_\_\_\_; (c) its focal length, \_\_\_\_\_; (d) material of which it is made, \_\_\_\_\_
52. If revolving, time of revolution, Two minutes  
 (a) duration of flash, one sec.; (b) duration of eclipse, Low sec.
53. If fixed, or fixed varied by flashes, state arc of each fixed part in degrees, \_\_\_\_\_;  
 (a) duration of fixed light, \_\_\_\_\_ sec.; (b) eclipse, \_\_\_\_\_ sec.; (c) flash, \_\_\_\_\_ sec.

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DESCRIPTION OF LIGHT STATION.

ILLUMINATING APPARATUS, ETC.—Continued.

54. Number of panels in the lens apparatus, 24.
55. Number of flash panels, 24; arc of each, in degrees, Flash 3° Eclipsae 12°
56. Number of elements in each panel of central drum of lens, 17
57. Number of prisms in each panel *above* central drum of lens, 18; are they fixed or flash? Flash.
58. Number of prisms in each panel *below* central drum of lens, 8; are they fixed or flash? Flash.
59. How are the flashes produced—By the whole apparatus revolving .....; by revolving belt only yes; if by panels or vertical elements revolving outside of fixed lens, state the number of such panels, .....
60. If by vertical elements, state (a) the number in each panel, .....; and (b) the number of elements of fixed lens covered by the panel, .....
61. If light is occulting, state (a) the characteristic, .....  
 (b) Between what time limits may characteristic be varied without structural changes in mechanism? .....  
 (c) Are eclipses produced by sleeve, revolving screens, or valve (if gaslight)? .....  
 (d) Size of sleeve and amplitude of movement, .....  
 (e) Axis of rotation of screens, horizontal or vertical, .....; (f) relation of axis to vertical axis of illuminating apparatus, .....  
 (g) Do the screens revolve as parts, or independently, of illuminating apparatus? .....  
 (h) If about vertical axis, how many in circumference, .....; (i) time required for complete revolution, .....; (j) form, .....  
 (k) how mounted (see Questions 62-65), .....  
 (l) if actuated by clockwork, state order and maker, .....  
 (m) date made, .....
- If occultation is effected by valve, state (n) name of maker, .....  
 (o) pattern, .....  
 (p) does it operate reliably? .....
62. If revolving, does the apparatus revolve on chariot wheels, mercury float, or balls? Chariot wheels.
63. If a chariot, describe it and state the number and size of each pattern of wheels in it, 10 wheels, 6" diameter, 3 1/4" thick at hub, 3 1/4" bore.

## DESCRIPTION OF LIGHT STATION.

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## ILLUMINATING APPARATUS, ETC.—Continued.

64. If on mercury float, give (a) inside diameter of trough, .....; (b) inside depth of trough, .....; (c) outside diameter of float, .....; (d) depth of float, .....; (e) weight of mercury required, in pounds, .....; (f) how often mercury is renewed? .....
65. If on balls, (a) describe the construction of the ball-raceways, whether they are flat surface or semicircular or V grooves, .....; (b) is a cage used to separate balls? .....; (c) state number of balls, .....; (d) diameter of balls, .....
66. Clock cord or chain, kind, Clock Cord; size,  $\frac{3}{8}$ "; length, 45 feet  
 how led, to the floor 17' 3", down drop tube; diam. and length of clock drum, 8" x 12"
67. Length and inside dimensions of drop tube or weight box, 11' 11 1/2" long. 9" Diameter  
 clock weight, 175 to 185 pounds.
68. Length of time clock will run after one winding, 2 hours 10 minutes
69. Does clock drive apparatus while being rewound? No
70. How is the machinery protected? By Pedestal
- 71: How regulated? By Fan Governor actuated by weights thrown out by centrifugal force.
72. Describe the pedestal, Heavy cast Iron fitted with 4 doors
73. Lens protector—Is there one? No; kind, .....
74. Draft tube leading into ventilator ball—Of what material, diameter, and how fitted and connected with damper tube when in place, Sheet Iron. 4" height.
75. If colored light, (a) how is the color produced? .....
- (b) state where colored glass is attached, if to illuminating apparatus or to lantern, .....
76. If colored glass is inside of illuminating apparatus, describe its form, .....
77. Red sectors—Between what bearings, true (from seaward), .....

6

DESCRIPTION OF LIGHT STATION.

LAMPS, BURNERS, ETC.

78. Description of lamp: (a) give order, <sup>105</sup> Order *Hood Lamp 1927*; (b) kind of illuminant, Oil Vapor.  
 (c) intensity in English candles, about 600

If oil, or oil vapor:

*Consumption about 2.56 ft. per hr.  
 Keiper report on Apr. 36. Am Reg. p. 41978*

(a) number of wicks, or mantels, to burner, 1 mantle;  
 (b) diameter of outside wick, \_\_\_\_\_; (c) diameter of mantel, 55 mm;  
 (d) if more than one mantel, also diameter of circumscribing circle, \_\_\_\_\_

If gaslight:

(e) state kind, \_\_\_\_\_; (f) number of burners, if more than one burner in group, \_\_\_\_\_; (g) kind of burner, \_\_\_\_\_;  
 (h) candlepower per burner, \_\_\_\_\_; (i) total candlepower of group, \_\_\_\_\_;  
 (j) size of burner in cubic feet of gas per hour, \_\_\_\_\_;  
 (k) consumption of gas per hour, \_\_\_\_\_ cubic feet; (l) how is gas obtained?  
 \_\_\_\_\_

If gas is generated at station:

(m) describe generator, \_\_\_\_\_;  
 (n) state name of maker, \_\_\_\_\_;  
 (o) date of pattern, \_\_\_\_\_; (p) maximum capacity per hour, \_\_\_\_\_  
 \_\_\_\_\_ cubic feet.

If compressed gas is used:

(q) describe container and give number in service, \_\_\_\_\_; spare \_\_\_\_\_;  
 (r) capacity, \_\_\_\_\_ cubic feet of free gas; (s) to what pressure charged, \_\_\_\_\_  
 \_\_\_\_\_ lbs.; (t) how is supply renewed? \_\_\_\_\_;  
 (u) if by substitution of full for empty container, at what intervals? \_\_\_\_\_

79. Number of spare lamps at station, Three

80. Number of spare lamp burners at station, \_\_\_\_\_

DESCRIPTION OF LIGHT STATION.

7

CLOSETS IN TOWER.

81. How fitted and used, 4 Wood Built in Doors for Storage of Cleaning Material tools spare parts Etc.

OIL HOUSE OR ROOM.

82. Describe (a) where placed and how fitted, (a) 54 feet N.E. from light tower metal covered door. Wood Frames for 6 tanks  
 (b) inside dimensions, 9' x 9'; (c) materials of which built, Concrete;  
 (d) capacity in 5-gallon cans, 1200 gallons in 6 sheet iron tanks

CLOSETS AND STOREROOMS.

83. Where placed, how fitted and used, One Store Room 50 feet S.W. from large dwelling fitted with shelves, doors and lock used to store supplies

84. Damp or dry, suited or unsuited to the purpose for which they were designed, Dry  
Suited to purpose for which used.

FOG SIGNAL

85. Kind and character of apparatus, Patent Air Diaphone, Type B. 1017-2 ? Series 281 Canadian Fog Signal Co limited Toronto Canada.

86. How much time is required to sound the signal? about 4 minutes how long may the signal sound its characteristic with the quantity of air stored under pressure? about 3 minutes

87. Characteristic:

If whistle, trumpet, or siren:

$\frac{\text{Blast}}{5 \text{ sec.}}$   $\frac{\text{Silent}}{40 \text{ sec.}}$   $\frac{\text{Blast}}{5 \text{ sec.}}$   $\frac{\text{Silent}}{40 \text{ sec.}}$

If bell:

..... strokes  $\frac{\text{Silent}}{\text{sec.}}$  ..... strokes  $\frac{\text{Silent}}{\text{sec.}}$

88. What parts of the fog-signal machinery are in duplicate? Engines, Compressors, and Crosby Devices.

89. Location, with reference to lighthouse, to a particular danger or channel, or to the special object for which established, about 100 feet below and about 200 feet West of light tower. Extreme Westerly end of Point Reyes.

90. Distance and direction, true, from lighthouse, about 400 feet West

91. Water supply for it, Rain Water, from Stair tank

92. How is it reached from the lighthouse? By Stairs and trail

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DESCRIPTION OF LIGHT STATION.

FOG SIGNAL—Continued.

93: Description of fog-signal building or buildings, Wooden Building Cement floor,  
Shingle roof, 18' 10" x 32' 10" inside. 7 windows, 3 doors.  
patent flush toilet, wash stand

94. If a bell, state (a) weight, \_\_\_\_\_ lbs.; (b) metal, \_\_\_\_\_; (c) diameter, \_\_\_\_\_;  
 (d) height, \_\_\_\_\_; (e) if struck by clockwork, state time it will run with one  
 winding, \_\_\_\_\_; (f) maker and date, \_\_\_\_\_

95. If a steam signal, describe boiler: (a) type, \_\_\_\_\_; (b) length, \_\_\_\_\_; (c) diam-  
 eter, \_\_\_\_\_; (d) horsepower, \_\_\_\_\_; (e) maker and date, \_\_\_\_\_  
 (f) Is there a heater? \_\_\_\_\_; what kind? \_\_\_\_\_; what size? \_\_\_\_\_;  
 how much does its use reduce the time of starting the fog signal? \_\_\_\_\_

96. If a steam engine is used: (a) kind, \_\_\_\_\_; (b) number of revolutions per  
 minute, \_\_\_\_\_; (c) diameter of cylinder, \_\_\_\_\_; (d) stroke of  
 piston, \_\_\_\_\_; (e) horsepower, \_\_\_\_\_; (f) maker and date, \_\_\_\_\_

97. If internal combustion engines are used: (a) kind of engine, Gas Engine \_\_\_\_\_;  
 (b) maker, Douk Gas Engine Co. Oakland California \_\_\_\_\_;  
 (c) date, \_\_\_\_\_; (d) nominal size, <sup>bore stroke</sup> 9 1/2" 16"; (e) horsepower, 20-27 \_\_\_\_\_;  
 (f) fuel used, Distillate \_\_\_\_\_; (g) how started, By hand \_\_\_\_\_;  
 (h) kind of compressor, External Valve \_\_\_\_\_; (i) maker and date, Chicago \_\_\_\_\_  
Pneumatic Tool Co. Chicago and New York. No date available!

State if compressor is on same bed and geared with engine, or separate and belt-driven, or both  
 pistons on same rod, both on same crank shaft \_\_\_\_\_; if geared or belt-driven, state ratio, \_\_\_\_\_

Describe compressor machinery, (a) diameter of cylinder, 10" \_\_\_\_\_; (b) stroke of piston,  
10" \_\_\_\_\_; (c) number of revolutions per minute, 190-240 \_\_\_\_\_; (d) character and size of air-  
 inlet valves, <sup>mushroom</sup> 3" \_\_\_\_\_; (e) kind of unloader, plunger \_\_\_\_\_; (f) diameter of delivery pipe, 3 1/2" \_\_\_\_\_

DESCRIPTION OF LIGHT STATION.

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FOG SIGNAL—Continued. 2-11'9"  
2-3'3"

98. (a) Number air receivers, 3; (b) diameter, 4'; (c) height 12'7"; (d) capacity cubic feet, each, \_\_\_\_\_; (e) pressure in each, 35 lb; (f) make of reducing valve, if used, \_\_\_\_\_; (g) remarks, \_\_\_\_\_
99. If whistle, trumpet, or siren, pressure at which blown, 30 lbs
100. Diameter of whistle, \_\_\_\_\_; height, \_\_\_\_\_; distance between orifice and edge of whistle, \_\_\_\_\_; single tone, \_\_\_\_\_; chime, \_\_\_\_\_
101. If disk or cylindrical siren, \_\_\_\_\_; diameter of revolving part, \_\_\_\_\_; when made, \_\_\_\_\_; by whom made, \_\_\_\_\_; number, width, and length of ports, \_\_\_\_\_; revolutions per minute, \_\_\_\_\_; type of governor, \_\_\_\_\_; condition of revolving part, \_\_\_\_\_
102. If Daboll trumpet: Class, \_\_\_\_\_; reed: length, \_\_\_\_\_; breadth, \_\_\_\_\_; thickness at base, \_\_\_\_\_; thickness at tip, \_\_\_\_\_
103. If trumpet: Length, \_\_\_\_\_; diameters, \_\_\_\_\_; material, \_\_\_\_\_
104. Timing device, Crosby
105. Height of whistle or trumpet above mean high water, about 170 feet
106. Direction, true, in which trumpet points, West
107. Pressure and recording gauge, Ashten Valve Co. Boston Mass. American Steam Gauge & Valve Co. Boston, Mass.
- DWELLINGS FOR KEEPERS.**
108. Location with reference to lighthouse tower, 208 feet above and 1100 feet N.E.
109. Coloring, White head trim Red Roofs.
110. Materials of which built, Wood
111. Number of rooms in each dwelling, 13 in large, 5 in each of two cottages
112. Describe heating plant, Kitchen stoves and small fireplaces
113. Number of keepers and assistants in each dwelling, 2 in large, 1 in each small dwelling.
114. Outhouses, 2 Coal Houses, 1 Blacksmith shop, 1 Barn, 1 Garage, 1 Distillate house
115. Coloring, White head trim Red Roofs
116. Paths or walks on the premises, one to head of stairs, stairs to tower, stairs and  
stairs to signal
117. Area susceptible of profitable cultivation, none
118. Area cultivated or prepared for cultivation, none

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DESCRIPTION OF LIGHT STATION.

DWELLINGS FOR KEEPERS—Continued.

119. Character of adjacent surrounding country—Soil, sandy, clay, marsh, swamp, wood, fast ground, or shifting sands, Soil, Sand and Rock

120. Furnish following data for stoves, kitchen sink, sink pump, and lamps in quarters:

ARTICLES.	KEEPER.	1ST ASSISTANT KEEPER.	2D ASSISTANT KEEPER.	3D ASSISTANT KEEPER.
Stove, maker, <u>1</u>	<u>Walker + Pratt</u> <u>Boston Mass.</u>	<u>Walker + Pratt</u> <u>Boston Mass.</u>	<u>Walker + Pratt</u> <u>Boston Mass.</u>	<u>Walker + Pratt</u> <u>Boston Mass.</u>
Stove, size, <u>1</u>	<u>art Eureka</u> <u>7-18</u>	<u>Eureka</u> <u>7-1891</u>	<u>Eureka</u> <u>No 8-1891</u>	<u>Eureka</u> <u>7-1891</u>
Sink, maker, <u>1</u>	<u>No record</u>	<u>No record</u>	<u>No record</u>	<u>No record</u>
Sink, size, <u>1</u>	<u>28" x 15 1/2"</u>	<u>28" x 15 1/2"</u>	<u>28" x 15 1/2"</u>	<u>28" x 15 1/2"</u>
Pump, maker, <u>1</u>	<u>W + D Douglas</u>	<u>W + D Douglas</u>	<u>W + D Douglas</u>	<u>W + D Douglas</u>
Pump, size, <u>1</u>	<u>2 1/2" No 2</u>	<u>2 1/2" No 2</u>	<u>2 1/2" No 2</u>	<u>2 1/2" No 2</u>
LAMPS. (Give name, number, and make of all lamps in such set of quarters.)	<u>1 table lamp.</u> <u>2 hand lamps</u> <u>No name</u> <u>No number.</u>	<u>1 table lamp.</u> <u>1 hand lamp</u>	<u>1 table lamp.</u> <u>1 hand lamp</u>	<u>1 table lamp.</u> <u>1 hand lamp.</u>

WATER FOR FOG SIGNAL, DRINKING, ETC.

121. How procured, Rain fall from 2 Rain Sheds and 1 Roof.

122. Quality, Fair

123. Quantity ample or not for the station at all seasons of the year, usually ample

124. Liable or not to be injured by the inroads of storm tides and seas, not liable

125. If rain water in tanks or cisterns, what precautions have been taken to insure its purity? Covered, Permeed and lime added

126. Capacity of tanks or cisterns, and where placed, about 175,000 galls. variously

127. Tanks or cisterns—Of what material made, Wood tanks. Concrete cisterns  
4 in number - 5 in number

DESCRIPTION OF LIGHT STATION.

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WATER FOR FOG SIGNAL, DRINKING, ETC.—Continued.

128. Is there a distilling apparatus at the station? no.  
 Name of maker and date, \_\_\_\_\_;  
 capacity, \_\_\_\_\_; when installed, \_\_\_\_\_; condition, \_\_\_\_\_;  
 efficiency, \_\_\_\_\_
129. If from a well, describe and give depth, \_\_\_\_\_
130. Diameter, \_\_\_\_\_; lined or not, \_\_\_\_\_
131. Water obtained by pump or bucket, \_\_\_\_\_; what power is used? \_\_\_\_\_
132. Distance from keeper's dwelling, \_\_\_\_\_

HEALTHFULNESS OF STATION.

133. General opinion in regard to the healthfulness of the light station and vicinity, \_\_\_\_\_  
Generally good
134. Diseases—What are most prevalent at the station and in the vicinity? Ordinary Colds
135. Do they prevail at particular seasons of the year, or not? no. all seasons
136. Are there any local causes, such as swamps, marshes, etc., in the immediate vicinity of the lighthouse which are likely to be the cause of these diseases? no.
137. Would draining or other artificial means employed on the lighthouse premises be likely to improve the sanitary condition of the light station? no.

BOATS.

138. Furnish following data for each boat at station:

NUMBER.	TYPE.	LENGTH.	WIDTH.	WHEN BUILT.	DAYS RECEIVED AT STATION.	IS BOAT FITTED WITH SAILS?	SUITED TO WORK PERFORMED.

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DESCRIPTION OF LIGHT STATION.

BOATS—Continued.

139. If power boat, kind of engine, .....; horsepower, .....; maker of engine, shop number, and date, .....  
 (a) type, size, number, and maker's name of spare coil, .....  
 (b) type, size, number, and maker's name of magneto, .....  
 (c) type and number of batteries, .....  
 (d) propeller wheel, diameter, .....; pitch, .....
140. Where are boats kept at station? .....

LANDING, WHARF, BOATHOUSE, AND ROAD TO THE LIGHTHOUSE.

141. Description, *Beach landing - Road poor. Sand and Hills.*
142. Distance and direction of landing from lighthouse, *about 3 miles - East*
143. Hoisting engine, what kind? *None* .....; diameter of cylinder, .....; number of revolutions per minute, .....; stroke, .....; kind of boiler, .....; maker and date, .....
144. General Remarks: *Patent flush toilets and Enameled Bath tubs are installed one each in each set of Quarters - 4 in number.*

*M. R. Kane.*  
*Keeper.*

# Historic Structures Report: Point Reyes Light Station

NOVA SHEET

DISTRICT 12th Naval District

## SUPPLEMENT TO FORM NO. USO-13

PROPERTY DATA - ITEMIZATION

ACTIVITY Pt. Reyes Light Station  
SHOP 12-084

NO.	TYPE OF PROPERTY	YEAR OF ACQ'N OR CONTRACT	TYPE OF CONSTRUCTION	NO. OF ITEMS	SIZE OF BUILDING OR ITEM	ORIGINAL COST
19	Land	1867	Unimprovement	1	83 acres	Exec. Order
20	Walks	1935	Concrete	1	2640 lin. feet	3,000.00 2
	Steps	1900	Wood	1	692 lin. feet	500.00 2
	Road	1938	Uncompacted granite	1	3 miles or 21,120 sq. yds.	3,882.60
	Fence	1910	# 8 barbed wire	1	7200 ft. x 12 1/2" post	1,617.53 2
	Water tank	1901	Concrete	1	16,000 gal - 20' x 7' high	321.80 2
	Septic tanks	1930	Gen. Equip. Inc.	2		144.96 2
	Electric system	1939	For light	1	P.A. project P-10	302.14
	Telephone, poles	1937	Wood	47		335.00
	Rainshed (upper)	1900	Concrete	1	3750 sq. feet	1,112.50 2
	Rainshed (lower)	1936	Concrete	1	4100 sq. feet	5,441.80 2
	Surfaced yard	1936	Bitumale HMA concrete	1	170 sq. feet	27.23 2
	Water system	1935	Fire protection	1	working 4 7 - 1 1/2" fire hydrant	3,628.98 2
	Tanks, water	1935	Redwood	1	6,000 gal.	68.40 2
	Tanks, water	1907	Redwood	1	32,000 gal.	376.40 2
	Tanks, water	1907		1	28,000 gal.	327.60 2
	Tanks, water	1929		1	1,477 gal.	150.00 2
	Tanks, storage	1929	Concrete	1	115 gal.	15.00 2
	Tanks, water	1929	Redwood	1	1,477 gal.	150.00 2
	Tanks, water	1923		1	42,000 gal.	1,000.00 2
	Tanks, water	1900		1	6,000 gal.	68.40 2
21	Koopers quarters	1882	Frame	1	32' x 46' 1 story, rooms	4,250.00 2
	add. to koopers					
	Quarters	1939	Frame	1	8' x 14' enclosed rear porch	286.44
	Asst. koopers quarters	1870	Frame	1	30' x 49' Duolux, 10 rooms	6,500.00 2
	add. to quarters	1931	Installation of	1	4 lavatories	126.14 2
	Cottage - west	1882	Frame	1	32' x 40', 4 rooms	2,600.00 2
	Cottage - east	1882	Frame	1	32' x 40', 4 rooms	2,600.00 2
28	Garage	1933	Frame	1	14'2" x 19'8" - 1 car	398.30 2
	Garage	1900	Frame	1	18' x 28' - 3 car	726.00 2
	St. r. house	1900	Frame	1	8' x 10'	124.80 2
	Cistern	1900	Concrete	1	52,000 gal.	7,000.00 2
	Carpenter shop	1900	Frame	1	13'6" x 20'	350.00 2
	Old wash house	1900	Frame	1	10'3" x 17'3"	500.00 2
	Paint Locker	1910	Frame	1	9'8" x 8' 1"	207.20 2
	Coal house	1900	Frame	1	9'6" x 26'	292.50 2
	Garage, koopers	1900	Frame	1	16'3" x 20'2"	410.00 2
	Cistern	1882	Coke etc & brick	3	5000 gal. each	2,052.00 2
	Gasoline storage	1936	Frame	1	15'6" x 5'6"	300.00 2
	Light tower	1870	Iron	1	20' x 37' high	7,500.00 2
	Transformer 110	1924	Concrete	1	10' x 11'	57.80 2
	Fl. pole	1926	Iron pipe	1	42'	80.29 2
	Air Receiver house	1936	Frame	1	18' x 24'	2,788.44 2
	Oil storage house	1933	Galv. iron	1	8' x 10'	333.00 2
	Pump house	1935	Frame, concrete floor	1	8' x 10'	300.00 2
	So. Signal Bldg.	1928	Frame	1	30' x 46'	5,541.20 2
	Storage house	1900	Frame	1	13'6" x 20'	325.00 2
	Wash house	1870	Frame	1	14' x 20' 3"	150.00 2
	Flag pole	1870	Pipe	1	2" x 25'	50.00 2
	Coal house	1882	Frame	1	approx 10' x 25'	312.50 2
	Tool et. storage	1930	Frame	1	5' x 9'	75.00 2
	Conical lookout	1942	Frame	1	6'2" x 6'2"	100.00
	Cistern	1900	Concrete	1	5000 gallon	687.00
32	Generator & Motor	1940	Elec. Soc. City Co.	1	#301660, 1800RPM, 5KVA	
	Compressor & Motor	1939	Lebanon AC	1	#61879, 1800RPM, 4 cylinder	849.06
	Compressor & Motor	1939	Julivan #G-6	1	#16192, 3100RPM, 1 c.i., 60lbs.	
	Compressor & Motor	1939	Bestin-house C3	1	#1538, 1170RPM, 220V, 30HP	1,346.00
	Per signal	1914	Trus "G"	1	35 lb. str	1,365.00 2
	Tiger	1939	Diaphone, single	1	5 sec. blast, 40 sec silent	88.10

DATE 5 March, 1946

SHEET NUMBER 1

Historic Structures Report: Point Reyes Light Station

WORK SHEET

DISTRICT 12th Naval District

SUPPLEMENT TO FORM NO. USO-13

PROPERTY DATA - ITEMIZATION

ACTIVITY Pt. Reyes Light Station  
SSOP 12-080

NO.	TYPE OF PROPERTY	YEAR OF ACQ'S OR CONTRACT	TYPE OF CONSTRUCTION	NO. OF ITEMS	SIZE OF BUILDING OR ITEM	ORIGINAL COST
32	Motor	1939	bu line AELB	1	#2454381, 1800RPM, 110V, 1/18HP	85.50
	Light, lens	1869		1	170,000 candle power	750.00 Z
	Motor	1939	bu line NST54P	1	#3359864, 1800RPM, 110V, 1/12HP	102.38 V
	Motor &	1934	Wisconsin AC	1	#AC41264, 1800RPM, 4 cycle	
	Pump, centrifugal	1934	Dayton Dowd Co	1	#33244, 14"	369.50 V
	Motor	1939	General Electric KC	1	#5KC7AB4044, 1725RPM, 1/4HP	100.00
	Compressor &	1915	Chicago Pneumatic	1	#6070, 240RPM, 1 cyl., 80 lbs.	
	Sm line	1915	Dunk Gas Engine Co.	1	#JC892, 240RPM, 30HP	3,244.00 Z
	Receivers, air	1910	Galv. steel	2	39" x 11"	433.65 Z
	Receiving air	1914	Steel	1	55,000 lbs per sq inch	185.00 Z
33	Hose	1940	Cotton, rubber cover	1	200'	120.00
	Extinguisher	1940	Chief Croker Co.	1	#752822	7.58
	Extinguisher	1940	Soda acid	1	#68823	7.58
	Extinguisher	1940	Lux Model 15	1	#079398	7.58
	Extinguisher	1940	Paraon foam	4	#23316, 9.456, 250371, 62414	30.32
	Extinguishers	1940	Airt, foam	2	25 gal. #7818, #7842	15.16
	Extinguishers	1942	CO2, Type 4	6	#40000, 19092, B-15208, B-11874, B-10487, 615713, 61447, 341800	150.50
34	Vise	1940	Pipe	2		5.00
	Vise	1940	Wrench	2	4" machinist	26.00
	Vise	1940	Wrench	2	6" machinist	26.00
	Drill press	1940		1		30.00

DATE 4 March, 1946

SHEET NUMBER 2



DEPARTMENT OF TRANSPORTATION  
UNITED STATES COAST GUARD

EMERGENCY OPERATION OF THE MAIN LIGHT

1. Start Colman lantern and place on pedestal inside lens.
2. Remove drive gear from motor (Motor drive gear North side)
3. Place auxiliary drive gear in position and tighten retainer nut hand tight. (Auxiliary drive gear West side)
4. Open East door to Clock work, release stopper on the governor gear
5. Open chute for ballast weights.
6. It will take one hour for the ballast weight to complete its travel and then must be cranked back up by placing the crank on fitted shaft East side. These processes must be repeated hourly.
7. For securing, reverse the process 5-4-3-2-1.

TIMING THE MAIN LIGHT

The timing Marks are vertical lines inscribed in the flat area directly below the ring gear fixed to the lens structure. These lines are 18° degrees apart. This is to facilitate timing by either one (1) minute for half revolution or two (2) minutes for one full revolution.

CORRECTION OF TIMING WHILE ON EMERGENCY OPERATION

Time in complete revolutions of the lens. Open East door. In the center of the clock work is a fly weight and vane combination directly above that is a set of variable vanes. Depending on speed fast or slow. Set the vanes equally to the amount of incline. If the speed is off more than can be controlled by the vane setting the next action to be taken will be to add weight or reduce weight to the counter weight. (add to increase speed and reduce to reduce speed)

INFO. FOR REPLACEMENT LAMPS

WATTS:	1000
BULB:	T20
BASE:	MAG. BIP.
FINISH:	CLEAR
NO.	Q100T20BR



DEPARTMENT OF TRANSPORTATION  
UNITED STATES COAST GUARD

UNITED STATES COAST GUARD  
LIGHT STATION POINT REYES

INSTRUCTIONS FOR PLACING MAIN LIGHT IN OPERATION

TO PLACE MAIN LIGHT IN OPERATION:

- (a) OPEN CURTAINS:
- (b) CHECK FILAMENT IN LAMP INSIDE LENS FOR BLISTERING; (IF BLISTERED CHANGE)
- (c) PLACE M/L DRIVE MOTOR IN OPERATION; (SINGLE SWITCH TO RIGHT OF VOLTAGE REG.)
- (d) PLACE DUAL SWITCHES, LOCATED OVER CIRCUIT BREAKER BOX, IN UP POSITION.
- (e) CHECK VOLTAGE ON METER; SHOULD READ 120 VOLTS.

VOLTAGE REGULATOR:

- (a) VOLTAGE CAN BE RAISED BY TURNING DIAL ABOVE METER TO LEFT; TO LOWER TURN DIAL TO THE RIGHT
- (b) IF VOLTAGE REGULATOR IS INOPERATIVE M/L LAMP WILL NOT GO ON. BYPASS REGULATOR BY PLACING DUAL SWITCHES IN DOWN POSITION. INFORM STATION EN ROUTE WILL.

TO SECURE MAIN LIGHT

- (a) PLACE DUAL SWITCHES ON CENTER; (OFF) POSITION.
- (b) PLACE DRIVE MOTOR SWITCH IN OFF POSITION.
- (c) CLOSE CURTIAN TO PROTECT LAMP AND WIRING FROM SUN. CHECK TO INSURE ALL ROLLERS ARE ON CURTIANS. IF THEY ARE OFF REPLACE THEM.

A/N CHECKS ON LIGHT WHEN IN OPERATION WILL BE MADE BY THE 16:00-24:00 AND THE 0000-0800 WATCHES .

BM 1 *Paul H. Montgomery*  
Officer in Charge

LIST OF CLASSIFIED STRUCTURES (LCS)  
 PARK HISTORIC ARCHITECTURE DIVISION  
 NATIONAL PARK SERVICE, FTS-345-8149

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 03/11/87

PARK/REGION REPORT

STRC NUM	IDLCS				
		PARK:POINT REYES NATIONAL SEASHORE	(8550)	REGION:WESTERN REGION	
PR-012	09227	NAME:STAIRWAY AND MINCH (LIGHT STATION) COMP:CONCRETE TYPE:OTHER USE:NO POTENTIAL USE LEGL:FEE SIMPLE TRMT:STABILIZATION NPS RESPONSIBILITY CYCLIC MAINT. NPS RESPONSIBILITY ROUTINE MAINT. NPS RESPONSIBILITY APPROV.ULT.TRMT.NPS RESPONSIBILITY MABS: TEXT:RECENT CONSTRUCTION,600X4FT	STAIRWAY/MINCH	PERIOD:HISTORIC MOT.CAT:B SHOULD BE PRESERVED NR STAT:DETERMINED ELIOIBLE - KEEPER 10/23/80 MOT.AGREE:NO MGMT AGREEMENT LEVEL OF EST:C APPROV.ULT.TRMT,PRESERVATION STABIL.COST: 90 1/76 APPROV.TRMT.COST: 60 1/77 APPROV.DOC:OMP NR REFNUM:	
PR-014	14043	NAME:LOWER WATER SHED AND CISTERN (LIGHT STATION) COMP:CONCRETE TYPE:WATER CONTROL USE:NO POTENTIAL USE LEGL:FEE SIMPLE TRMT:STABILIZATION NPS RESPONSIBILITY CYCLIC MAINT. NPS RESPONSIBILITY ROUTINE MAINT. NPS RESPONSIBILITY APPROV.ULT.TRMT.NPS RESPONSIBILITY MABS: TEXT:52,000 GAL.2 WALLS FUNNEL WATER FROM CLIFF ABOVE		PERIOD:HISTORIC MOT.CAT:B SHOULD BE PRESERVED NR STAT:DETERMINED ELIOIBLE - KEEPER 10/23/80 MOT.AGREE:NO MGMT AGREEMENT LEVEL OF EST:C APPROV.ULT.TRMT,PRESERVATION STABIL.COST: 90 1/80 APPROV.TRMT.COST: 925 1/80 APPROV.DOC:OMP NR REFNUM:	
PR-014	09228	NAME:EQUIPMENT SHED (LIGHT STATION) COMP:WOOD TYPE:BUILDING USE:OTHER LEGL:FEE SIMPLE TRMT:STABILIZATION NPS RESPONSIBILITY CYCLIC MAINT. NPS RESPONSIBILITY ROUTINE MAINT. NPS RESPONSIBILITY APPROV.ULT.TRMT.NPS RESPONSIBILITY MABS: TEXT:20X25FT,SHINOLE ROOF,ONE STORY		PERIOD:HISTORIC MOT.CAT:B SHOULD BE PRESERVED NR STAT:DETERMINED ELIOIBLE - KEEPER 10/25/80 MOT.AGREE:NO MGMT AGREEMENT LEVEL OF EST:C APPROV.ULT.TRMT,PRESERVATION STABIL.COST: 90 1/76 APPROV.TRMT.COST: 60 1/77 APPROV.DOC:OMP NR REFNUM:	
PR-017	09229	NAME:MULTI PURPOSE BUILDING (LIGHT STATION) COMP:WOOD TYPE:BUILDING USE:VISITOR CONTACT LEGL:FEE SIMPLE TRMT:STABILIZATION NPS RESPONSIBILITY CYCLIC MAINT. NPS RESPONSIBILITY ROUTINE MAINT. NPS RESPONSIBILITY APPROV.ULT.TRMT.NPS RESPONSIBILITY MABS: TEXT:20X20,HIP ROOF		PERIOD:HISTORIC MOT.CAT:B SHOULD BE PRESERVED NR STAT:DETERMINED ELIOIBLE - KEEPER 10/23/80 MOT.AGREE:NO MGMT AGREEMENT LEVEL OF EST:C APPROV.ULT.TRMT,PRESERVATION STABIL.COST: 90 1/76 APPROV.TRMT.COST: 90 1/77 APPROV.DOC:OMP NR REFNUM:	

LIST OF CLASSIFIED STRUCTURES (LCS)  
 PARK HISTORIC ARCHITECTURE DIVISION  
 NATIONAL PARK SERVICE, FTS-343-8149

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 03/11/87

PARK/REGION REPORT

STRC NUM	ID/LCS				
PR-019	09230	NAME: CONCRETE WATERSHED & CISTERM (LIGHT STATION) COMP: CONCRETE TYPE: OTHER USE: NO POTENTIAL USE LEGL: FEE SIMPLE TRMT: STABILIZATION NPS RESPONSIBILITY CYCLIC MAINT. NPS RESPONSIBILITY ROUTINE MAINT. NPS RESPONSIBILITY APPROV. ULT. TRMT. NPS RESPONSIBILITY HABS: TEXT: CONCRETE DOME 50FT DIAMETER, 50000 GALLON CAPACITY	CISTERM	PERIOD: HISTORIC MGT. CAT: B SHOULD BE PRESERVED NR STAT: DETERMINED ELIGIBLE - KEEPER 10/23/80 MGT. AGREE: NO MGMT AGREEMENT LEVEL OF EST: C APPROV. ULT. TRMT: PRESERVATION STABIL. COST: 00 1/76 APPROV. TRMT. COST: 040,000 1/76 APPROV. DOC: GMP NR REFNUM:	
PR-021	09231	NAME: FUEL AND PAINT STORAGE (LIGHT STATION) COMP: WOOD TYPE: BUILDING USE: MAINTENANCE LEGL: FEE SIMPLE TRMT: STABILIZATION NPS RESPONSIBILITY CYCLIC MAINT. NPS RESPONSIBILITY ROUTINE MAINT. NPS RESPONSIBILITY APPROV. ULT. TRMT. NPS RESPONSIBILITY HABS: TEXT: 6X8FT		PERIOD: HISTORIC MGT. CAT: B SHOULD BE PRESERVED NR STAT: DETERMINED ELIGIBLE - KEEPER 10/23/80 MGT. AGREE: NO MGMT AGREEMENT LEVEL OF EST: C APPROV. ULT. TRMT: PRESERVATION STABIL. COST: 00 1/76 APPROV. TRMT. COST: 00 1/77 APPROV. DOC: GMP NR REFNUM:	
PR-022	09232	NAME: PUMPHOUSE (LIGHT STATION) COMP: WOOD TYPE: BUILDING USE: OTHER LEGL: FEE SIMPLE TRMT: STABILIZATION NPS RESPONSIBILITY CYCLIC MAINT. NPS RESPONSIBILITY ROUTINE MAINT. NPS RESPONSIBILITY APPROV. ULT. TRMT. NPS RESPONSIBILITY HABS: TEXT: 6X8FT, ADJACENT TO RAMP		PERIOD: HISTORIC MGT. CAT: B SHOULD BE PRESERVED NR STAT: DETERMINED ELIGIBLE - KEEPER 10/23/80 MGT. AGREE: NO MGMT AGREEMENT LEVEL OF EST: C APPROV. ULT. TRMT: PRESERVATION STABIL. COST: 00 1/76 APPROV. TRMT. COST: 00 1/77 APPROV. DOC: GMP NR REFNUM:	
PR-025	09235	NAME: LIGHTHOUSE (LIGHT STATION) COMP: CONCRETE TYPE: ENG STRUCTURE USE: VISITOR CONTACT LEGL: FEE SIMPLE TRMT: STABILIZATION NPS RESPONSIBILITY CYCLIC MAINT. NPS RESPONSIBILITY ROUTINE MAINT. NPS RESPONSIBILITY APPROV. ULT. TRMT. NPS RESPONSIBILITY HABS: TEXT: 20FT DIAMETER, 35FT HIGH		PERIOD: HISTORIC MGT. CAT: A MUST BE PRESERVED NR STAT: DETERMINED ELIGIBLE - KEEPER 10/23/80 MGT. AGREE: NO MGMT AGREEMENT LEVEL OF EST: C APPROV. ULT. TRMT: RESTORATION STABIL. COST: 00 1/76 APPROV. TRMT. COST: 014,000 1/77 APPROV. DOC: GMP NR REFNUM:	



VII. BIBLIOGRAPHY

## VIII. BIBLIOGRAPHY

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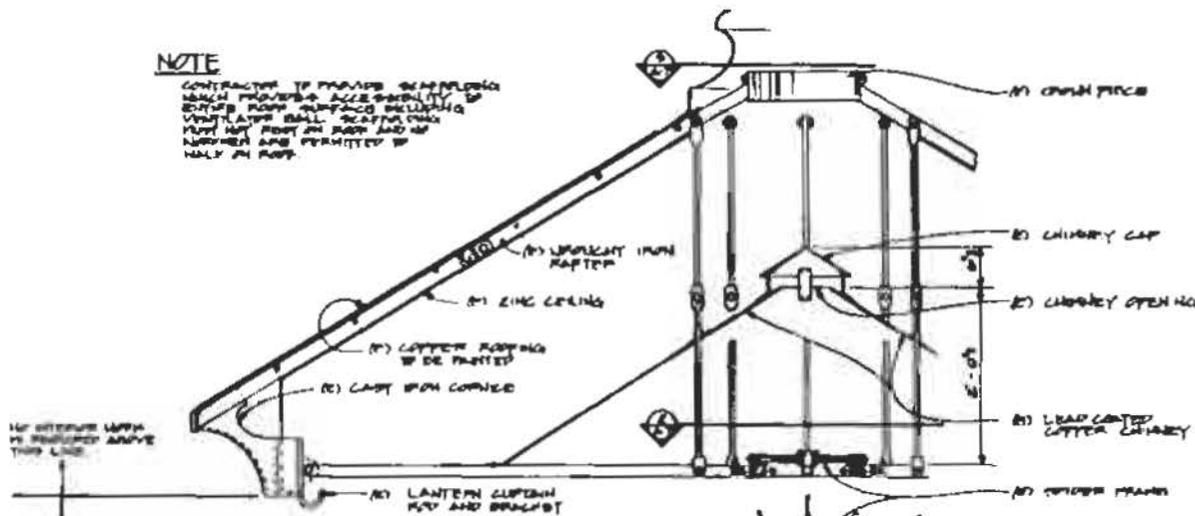
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California Historical Society, San Francisco  
Marin County Historical Society, San Rafael, California  
Marin County Library, Anne Kent California Room, San Rafael, California  
Marin County Recorder's Office, San Rafael, California  
San Francisco Maritime National Historic Park, Shaw Library  
San Rafael Public Library, San Rafael, California  
United States Coast Guard, Aids to Navigation Office, Long Beach, California  
United States Coast Guard, Real Property Division, Alameda, California  
United States Coast Guard, Shore Maintenance Detachment, Alameda, California  
U.S. Lighthouse Society, San Francisco

#### INTERVIEWS AND ORAL HISTORIES

Bm. J.M. Dusch, U.S. Coast Guard  
Mary Giddings, Woodacre, California  
Fred V. Kreth, Stockton, California  
Lt. William Meyn, U.S. Coast Guard, Alameda, California  
William Owens, Little River, California  
Armando Quintero, National Park Service, San Francisco  
Robert Reeves, Tracy, California  
Ralph Shanks, Petaluma, California  
Wayne Wheeler, U.S. Lighthouse Society  
Charles Zetterquist, Inverness Park, California

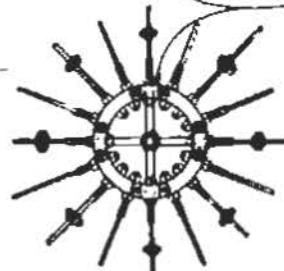
**NOTE**

CONTRACTOR TO PROVIDE SCAFFOLDING WHICH PROVIDES ACCESSIBILITY TO ENTIRE ROOF SURFACE INCLUDING VENTILATOR HALL. SCAFFOLDING MUST NOT REST ON ROOF AND NO NUTS ARE PERMITTED TO HOLD IN ROOF.

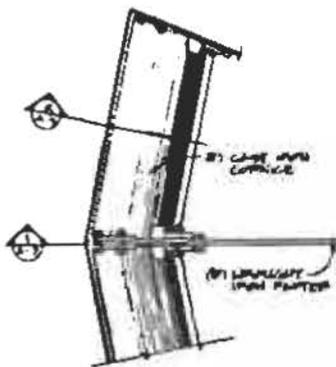


NO UTILITY WORK TO BE PERFORMED ABOVE THIS LINE  
 BREAK WORK TO BE PERFORMED BELOW LINE

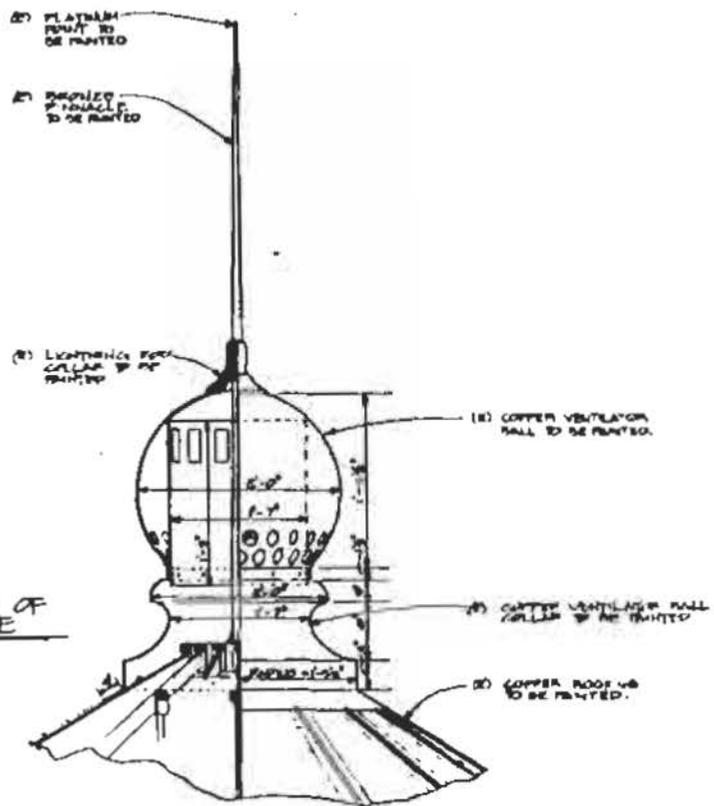
1. ROOF AND CORNICE SECTION  
 SCALE: 1/4" = 1'-0"



2. PARTIAL PLAN OF SPIDER FRAME  
 SCALE: 1/4" = 1'-0"



3. PARTIAL ROOF FRAMING PLAN (ROOFING REMOVED)  
 SCALE: 1/4" = 1'-0"



4. SECTIONAL ELEVATION OF VENTILATOR  
 SCALE: 1/4" = 1'-0"  
 0 1 2 3 4 FEET

REVISIONS NO. 1 DATE 9/60	SHEET NO. A-7	TITLE OF SHEET LIGHTHOUSE ROOF DETAILS PREPARATION OF THESE DETAILS LIGHTHOUSE FACILITY	DRAWING NO. 22 2200
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ON MICROFILM

LIGHTHOUSE PAINT SCHEDULE							
	SURFACE	MATERIAL	PREP METHOD	PAINT SYSTEM	COLOR	REMARKS	
EXTERIOR	PORT. VENTILATOR HALL AND COLLAR, LEATHING PUT AND COLLAR SURFACE CLEAN	COPPER	2	2	MATCH EXISTING		
	CORNICE	COPPER ALLOY	4	4	US PAINT 2020		
	CORNICE	CART IRON	4	4	US PAINT 2020		
	SECOND GALLERY DECK	CART IRON	4	4	FLAT FINISH MANNING N 200 P 20 UP 2027 FLAT FINISH		
	SECOND GALLERY HANDRAIL	WROUGHT IRON	4	4	MANNING N 200 P 20 UP 2027 US PAINT 2020		
	3RD GALLERY DECK	CART IRON	4	4	US PAINT 2020		
	3RD GALLERY HANDRAIL	WROUGHT IRON	4	4	US PAINT 2020		
	SWICH	CART IRON	4	4	WALL SURFACE US PAINT 2020		
						WALL SURFACE US PAINT 2020	
						WALL SURFACE US PAINT 2020	
INT/EXT.	LANTERN ARCHWAYS	CART IRON	4	4	US PAINT 2020		
	ORIGINAL LANTERN GLASS AND FRAME	COPPER ALLOY	4	4	US PAINT 2020		
	NEW LANTERN GLASS AND FRAME	COPPER ALLOY	4	4	US PAINT 2020		
	3RD GALLERY DECK AND DECK CORNICE	CART IRON	4	4	US PAINT 2020		
	SECOND LEVEL SURFACE DECK	CART IRON	4	4	US PAINT 2020		
INTERIOR	ORIGINAL LEVEL DECK AND DECK CORNICE	WOOD	2	2	US PAINT 2020		
	3RD GALLERY HANDRAIL	WOOD	5	5	MANNING N 200 P 20 UP 2027 LACQUER SYSTEM		
	3RD GALLERY HANDRAIL	WOOD	5	5	MANNING N 200 P 20 UP 2027 LACQUER SYSTEM		
	3RD GALLERY HANDRAIL	WOOD	5	5	MANNING N 200 P 20 UP 2027 LACQUER SYSTEM		
	3RD GALLERY HANDRAIL	WOOD	5	5	MANNING N 200 P 20 UP 2027 LACQUER SYSTEM		
	3RD GALLERY HANDRAIL	WOOD	5	5	MANNING N 200 P 20 UP 2027 LACQUER SYSTEM		
	3RD GALLERY HANDRAIL	WOOD	5	5	MANNING N 200 P 20 UP 2027 LACQUER SYSTEM		
	3RD GALLERY HANDRAIL	WOOD	5	5	MANNING N 200 P 20 UP 2027 LACQUER SYSTEM		
	3RD GALLERY HANDRAIL	WOOD	5	5	MANNING N 200 P 20 UP 2027 LACQUER SYSTEM		
	3RD GALLERY HANDRAIL	WOOD	5	5	MANNING N 200 P 20 UP 2027 LACQUER SYSTEM		

EQUIPMENT BUILDING PAINT SCHEDULE						
	SURFACE	MATERIAL	PREP METHOD	PAINT SYSTEM	COLOR	REMARKS
EXTERIOR	MACHINERY ROOM ROOF	WOOD	1	1	US PAINT 2020	
	TIMBER WORKING PLATFORMS, CORNICES, AND DECK CORNICE	WOOD	1	1	US PAINT 2020	
	PIPE WORK CORNICE	WOOD	1	1	MATCH EXISTING	
	ELECTRICAL CABINET AND PANELS	STEEL	4	4	402 MANNING	PAINT COLOR TO MATCH EXISTING CORNICES AND SURROUNDING STRUCTURE
INTERIOR	WROUGHT IRON DECK CORNICES	WOOD	2	2	MATCH EXISTING	
	MACHINERY ROOM FLOOR	WOOD	2	2	MATCH EXISTING	PAINT COLOR TO MATCH AS PAINT COLOR FOR CONCRETE FLOOR
	MACHINERY ROOM FLOOR	CONCRETE	7	7	MATCH EXISTING	
	MACHINERY ROOM FLOOR	STEEL	4	4	MATCH EXISTING	PAINT COLOR TO MATCH AS PAINT COLOR FOR CONCRETE FLOOR

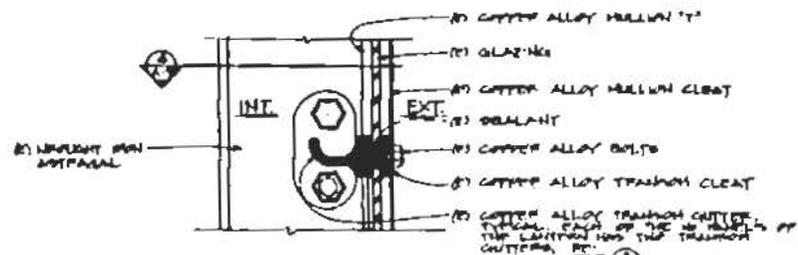
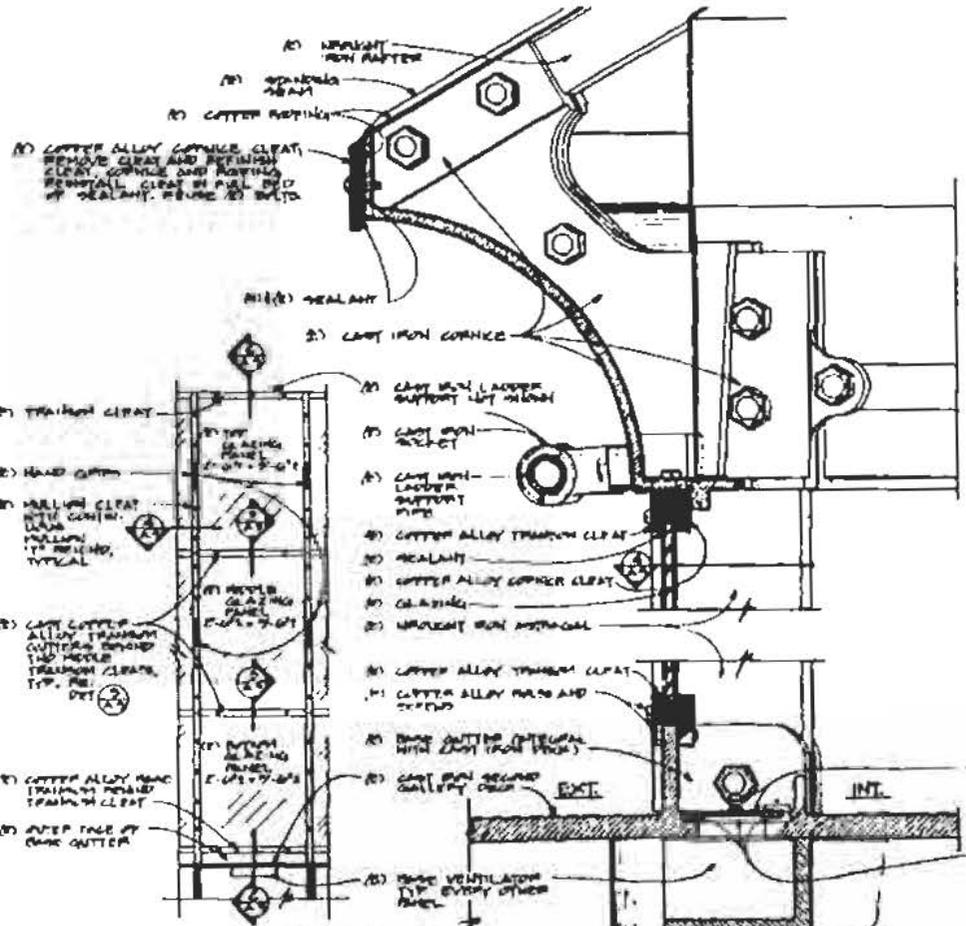
SITE ITEMS PAINT SCHEDULE						
	SURFACE	MATERIAL	PREP METHOD	PAINT SYSTEM	COLOR	REMARKS
EXTERIOR	LIGHTNING RODS	WOOD	1	1	MATCH EXISTING	
	WALL HANDRAIL	WOOD	1	1	MATCH EXISTING	DO NOT PAINT WIRE MESH BARS.
	DECK HANDRAIL	WIRE MESH	2	2	MATCH EXISTING	DO NOT PAINT WIRE MESH BARS.

**NOTE**

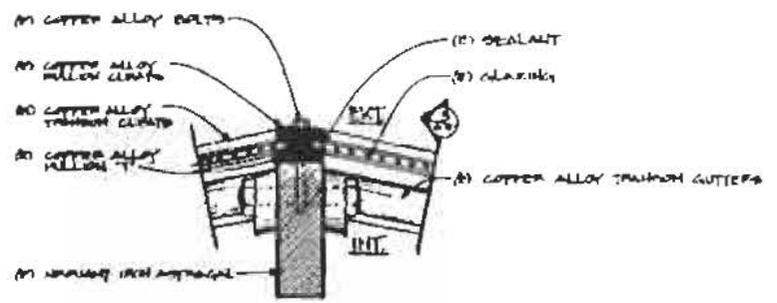
SURFACE PREPARATION METHODS AND PAINT SYSTEMS TO BE COMPLETED ACCORDING TO SPECIFICATIONS PERTAINING THERE TO.

DESIGNED BY MANNING	NO. SHEET OF A-8	TITLE OF SHEET PAINT SCHEDULES	DRAWING NO. 2020
DATE 1950		PREPARED BY MANNING	DATE 1950
PREPARED BY MANNING			DATE 1950

ON MICRO



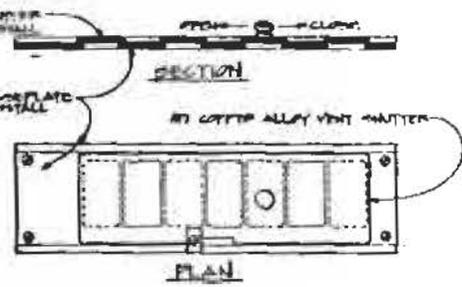
3 TYPICAL TRANSOM GUTTER SECTION  
SCALE: 1/4" = 1'-0" (HALF-SHEET)



4 ASTRAGAL, MULLION & CLEAT SECTION  
SCALE: 1/4" = 1'-0" (HALF-SHEET)

1 EXTERIOR ELEVATION  
TYPICAL GLAZED  
LANTERN PANEL  
SCALE: 3/8" = 1'-0"

2 LIGHTHOUSE LANTERN SECTION  
SCALE: 1/4" = 1'-0" (HALF-SHEET)



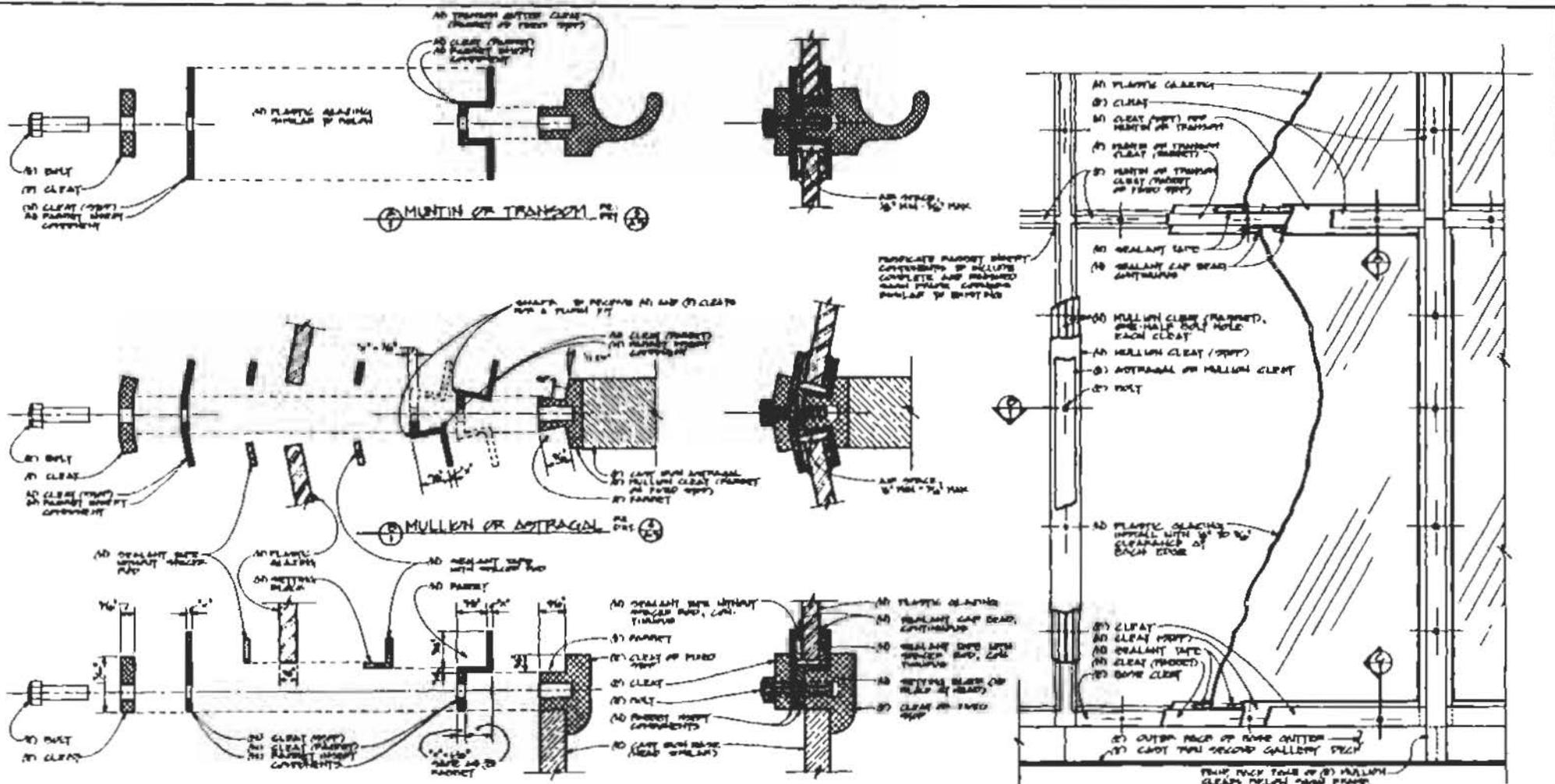
5 VENTILATOR SHUTTER DETAILS  
SCALE: 1/4" = 1'-0"

**GLAZING NOTES:**

1. REPLACE (1) 1/4" THICK PLASTIC GLAZING PANELS BY (2) 3/8" THICK PLASTIC GLAZING FOR ALL LANTERN PANELS
2. REPLICATED AND INSTALL NEW CUPPER ALLOY FRAMEWORK COMPONENT ALL LANTERN PANELS
3. GLAZING CONDITIONS SHOWN ON THIS SHEET ARE EXCEPT FOR NEW DETAILS ON SHEET 2 & 3

REVISED	NO. SHEET OF	TITLE OF SHEET	PROJECT NO.
1	A-5	LIGHTHOUSE LANTERN DETAILS	
DATE		PRESERVATION OF BOSTON PORT LANTERNE FACILITY	
BY			
CHECKED			
APPROVED			

ON MICROFILM



① BASE OR SILL (HEAD SIMILAR) NO. 011

④ GLAZING RABBIT ASSEMBLY DETAILS  
SCALE: FULL SIZE  
4 INCHES

② EXTERIOR ELEVATION - GLAZING PANEL ASSEMBLY SCHEMATIC  
SCALE: 1/4" = 1'-0"  
8 FEET

NOTES

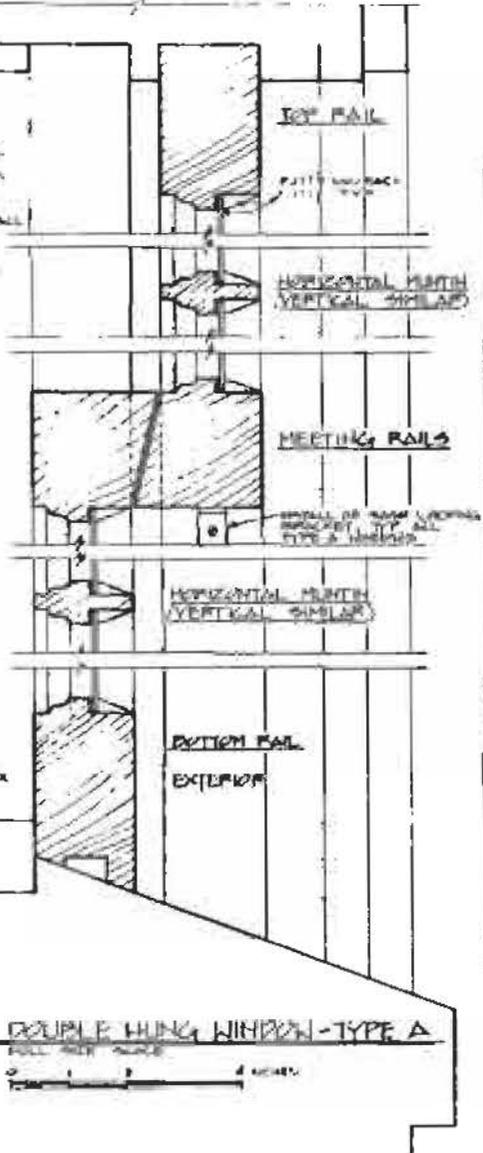
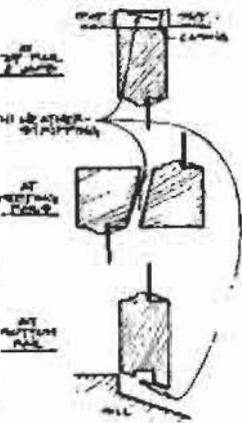
1. DIMENSION 1/2" IS THE 1/2" MIN. OR MORE CLEARANCE.
2. ALL DIMENSIONS ARE APPROXIMATE AND SHALL BE FIELD VERIFIED PRIOR TO SHOP FABRICATION. SHOP AND FIELD FABRICATORS MUST BE ADVISED OF TECHNICAL CORRECTIONS PERTAINING TO SHOP FITTING.

DESIGN NO. A-6	REV. NO. 7	DATE 2-68	PROJECT LANTERN SASH	SCALE A-6	TITLE OF SHEET LANTERN SASH DETAILS	PREPARED BY R. J. PETERSON	CHECKED BY R. J. PETERSON	DATE 2-68	PROJECT NO. 25003	SHEET NO. 7	TOTAL SHEETS 9
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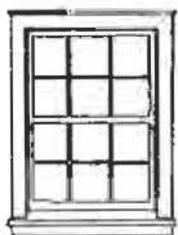
ON MICROFILMS

**WINDOW NOTES**

1. CONTRACTOR TO VERIFY ALL DIMENSIONS AND FINISHES
2. REMOVE EXISTING WINDOW, INCLUDING ALL FINISHES AND MATERIALS AND REINSTALL AS SHOWN WITH FINISHES CLEAR AND REMOVE OTHER HARDWARE
3. INSTALL NEW WINDOW UNIT AT ALL TYPE A AND TYPE B WINDOWS
4. VERIFY SPACER SYSTEMS ARE INSTALLED AS ALL WINDOWS ARE DOUBLE GLAZED



② DOUBLE HUNG WINDOW - TYPE A  
FULL SASH  
SCALE: 1" = 4'-0"



Ⓐ DOUBLE HUNG



Ⓑ DOUBLE HUNG



Ⓒ TYPICAL (TRANSOM)

**NOTE:**  
EXTERIOR FINISHES ARE SHOWN FOR WINDOW TYPES A & B. CONTRACTOR TO VERIFY FINISHES, COLORS AND MATERIALS WITH ARCHITECT FOR FINISHES.

① TYPICAL WINDOW TYPES  
TO HEAD



WINDOW TYPE A - INTERIOR LEFT JAMB



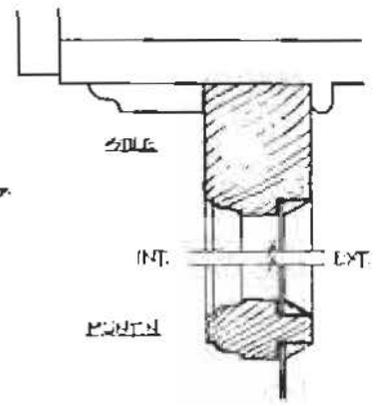
WINDOW TYPE B - BOTTOM RAIL OF LOWER SASH



WINDOW TYPE A - BOTTOM RAIL OF LOWER SASH

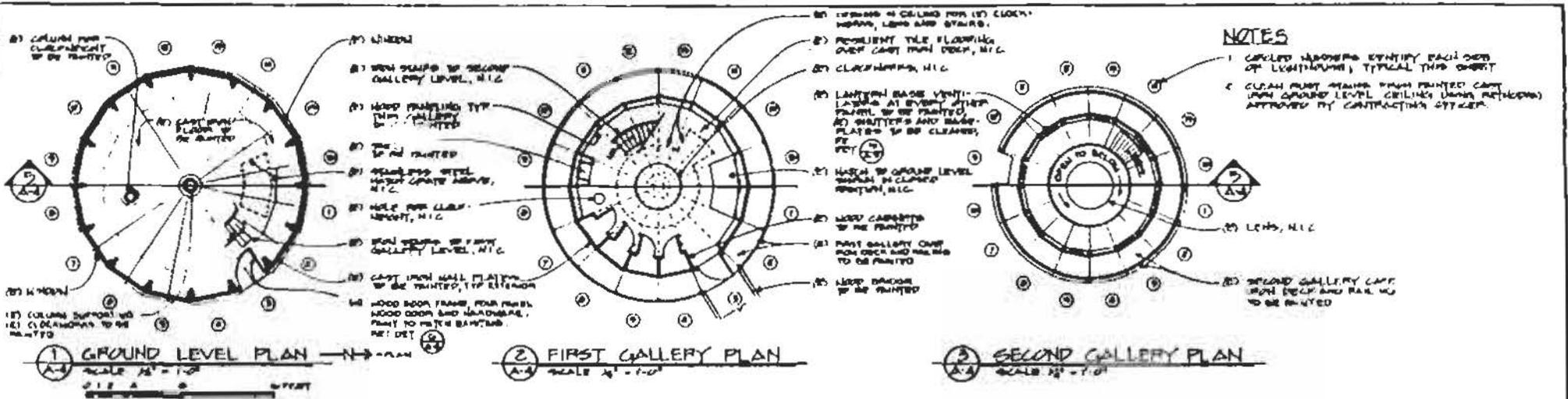
③ EXISTING CONDITION DETAILS - TYPES A & B  
TO HEAD

④ SASH PROFILE - TYPE B  
FULL SASH



PROJECT PERMIT NO. 1/60	THE SHEET NO. <b>A-3</b>	TITLE OF SHEET <b>EQUIPMENT BUILDING WINDOW DETAILS</b>	DRAWING NO. 1/60
PREPARED BY EQUIPMENT FACILITY		SHEET <b>4</b>	OF <b>2</b>

ON MICROFILM

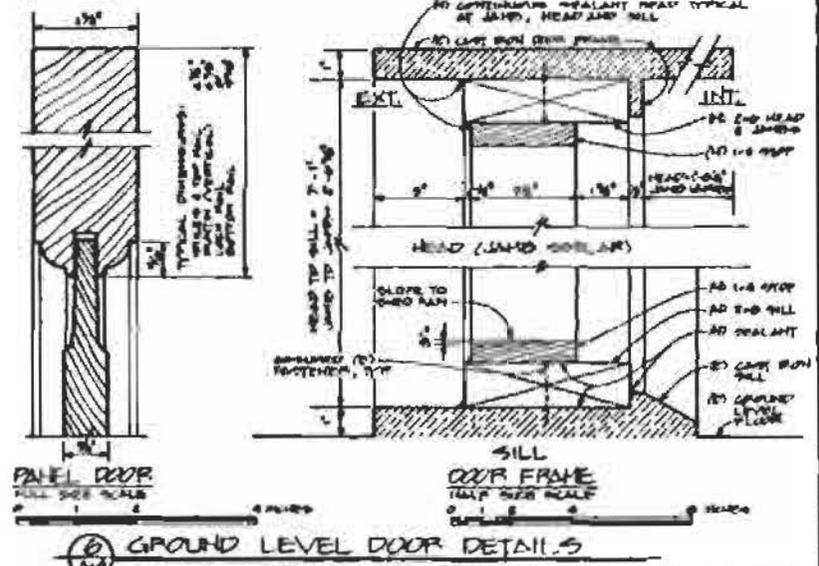
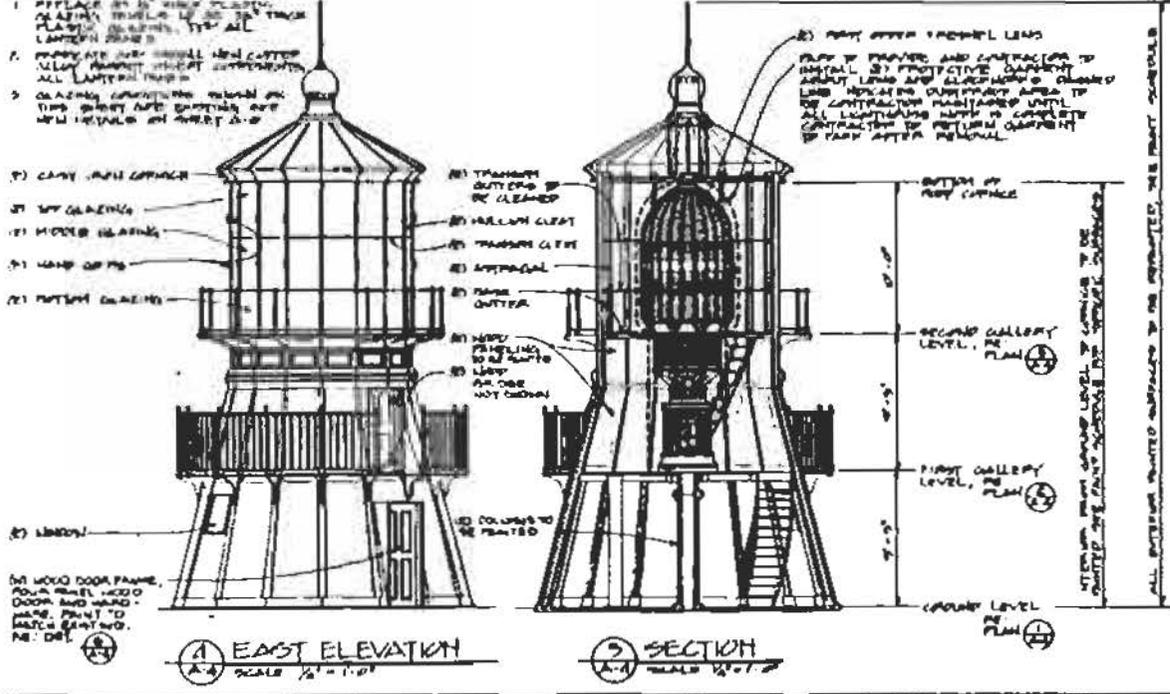


**NOTES**

1. CIRCLED NUMBERS IDENTIFY EACH SET OF LIGHTHOUSE TYPICAL THIS SHEET
2. CLEAN PAINT FINISHES FROM PAINTED CAST IRON GALLERY LEVEL GRILLING (UNDER PATTERNS) APPROVED BY CONTRACTING OFFICER.

**GLAZING NOTES**

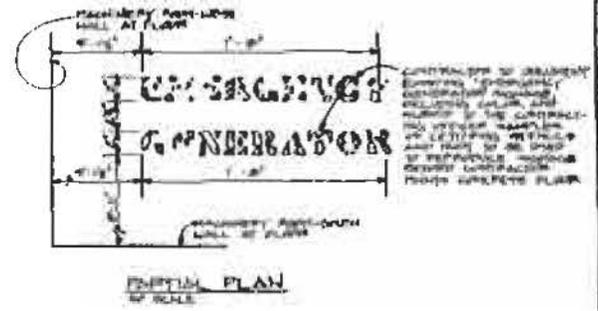
1. REPLACE 30" x 30" WIND GLAZING GLASS WITH TRIPLE LAYER GLAZING TO ALL LANTERN GLAZING
  2. REPLACE ALL SMALL WIND GLAZING WITH LANTERN GLAZING TO ALL LANTERN GLAZING
  3. GLAZING CONTRACTOR TO BE RESPONSIBLE FOR THE GLAZING AND GLAZING ARE NEW DETAILS ON SHEET A-5
2. PAINT OVER TRIMMED LEAD  
PAINT TO PROTECT AND CONTRACTOR TO INSTALL 30" PROTECTIVE GLAZING ABOUT LEAD AND GLAZING TO BE CONTRACTOR RESPONSIBILITY UNTIL ALL LEADWORK IS COMPLETE CONTRACTOR TO RETURN GLAZING TO FACT AFTER REPAIRS



DESIGNED BY MERRILL PARRISH	DRAWN BY MERRILL PARRISH	CHECKED BY MERRILL PARRISH	TITLE OF SHEET <b>LIGHTHOUSE PLANS, SECTION &amp; ELEVATION</b>	PROJECT NO. 21500
SCALE A-4			PREPARED BY MERRILL PARRISH LIGHTHOUSE FACILITY	DATE 1951

ON MICROFILM



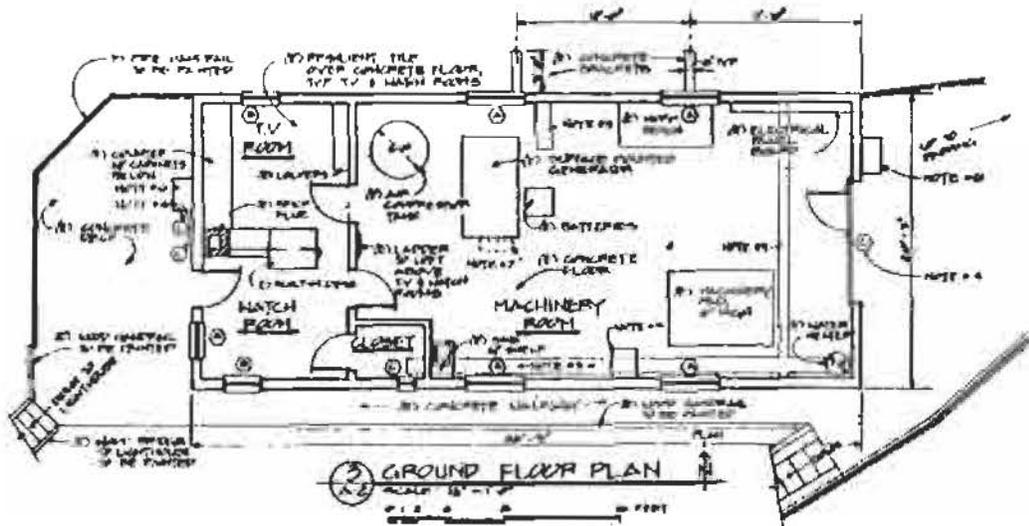


1 INTERIOR ELEVATIONS  
SCALE 1/8" = 1'-0"

# NEERABSON

EXISTING LETTER TYPE  
FULL SIZE SCALE  
0 1 2 3 4 FEET

2 SIGNAGE DETAILS



3 GROUND FLOOR PLAN  
SCALE 1/8" = 1'-0"

- NOTES
1. EQUIPMENT FLOOR PLAN SHOWS EXISTING CONDITIONS ONLY FOR EQUIPMENT BUILDING INTERIOR. REMOVE ALL INTERIOR EXISTING WALLS AND FINISHES EXCEPT FOR TYPE OF STRUCTURE WITH REINFORCEMENT ALONG WALL FOOTING FOUNDATION AND THIS A-1.
  2. ONLY LAMP EQUIPMENT IN TV ROOM, MATCH ROOM, CLOSET AND LEFT IN PLACE. REMOVE ALL EQUIPMENT OF OTHER ROOMS AND FINISHES OF THIS WORK IS PRODUCED IN THESE ROOMS.
  3. 1 1/2" HIGH FLANGE CONCRETE MACHINERY TRACKS.
  4. 12" DIAMETER LOCATED NEAR CABLE TRAYS.
  5. 12" GENERATOR CONTROL PANEL.
  6. 12" HIGH WIRE MESH FENCE RAIL.
  7. 2" DIAMETER HOLES, 12" DIA. (A-2)

REVISED	NO. SHEET NO.	TITLE OF SHEET	DATE OF SHEET
REVISION	A-2	EQUIPMENT BUILDING INTERIOR ELEVATIONS, DETAILS AND PLAN	10/10
DATE		THE UNIVERSITY OF MISSOURI LIGHTHOUSE FACILITY	
SCALE			

ON MICROFILM

## RESTORATION WORK SCHEDULE

WORK ITEM	DETAIL	MATERIAL	TREATMENT	QUANTITY	LOCATION	WORK ITEM	DETAIL	MATERIAL	TREATMENT	QUANTITY	LOCATION
REMOVE COPPER VENTILATOR BALL	4-D	COPPER (L)	REMOVE FROM ROOF PERIOD TEMPORARY WEATHER PROTECTION. CHEMICALLY REMOVE PAINT. CLEAN RESTORE AS PER DRAWING MATERIALS TO MATCH EXISTING. INSTALL NEW COPPER BALL TO MATCH EXISTING. PAINT TO MATCH EXISTING. COLOR. REATTACH TO ROOF COLLAR AS PER DRAWINGS.	1	ROOF	LANTERN GLASS AND WALL PANELS	2-D 2-F	ZINC (L)	REMOVE CEILING DUMP RA FICE AS TO LOCATION. STEP OFF PAINT, CHEMICALLY CLEAN PAINT TO MATCH EXISTING. REINSTALL WITH NEW COPPER ALLOY GUTTERS TO MATCH EXISTING.	20 PLS. EA	LANTERN GLASS
LANTERN ROOF	2-A	COPPER (L)	PAINT TO MATCH EXIST AS DIRECTED BY CONTRACTING OFFICER. REMOVE AND GRIND AS TO LOCATION. STEP OFF PAINT AND CHEMICALLY CLEAN MECHANICALLY CLEAN ROOF TO MATCH EXISTING. COLLECTION BOARD GUTTERS APPLY SEALANT. INSTALL GUTTERS WITH NEW COPPER ALLOY BOLTS TO MATCH EXIST. PAINT TO MATCH EXIST.	120	ROOF	UN-PAINTED BRASS AND COPPER ROOF. HORIZONTAL TO BODY. HORIZONTAL MIDDLE CHANNEL	1-D, 5-D, 6-A, 6-C 2-A, 2-E	UNPAINTED BRASS (U) LEAD COATED COPPER (L)	REMOVE ZINC CEILING TO EXPOSED ZINC. FIRST MEMBRANE CLEAN LANTERN ROOF FINISHING AND COGNAC PAINT TO MATCH EXISTING.	150 PLS.	LANTERN ROOF
CORNICE GUTTERS	5-B	BRASS (L)	REMOVE AND GRIND AS TO LOCATION. STEP OFF PAINT AND CHEMICALLY CLEAN MECHANICALLY CLEAN ROOF TO MATCH EXISTING. COLLECTION BOARD GUTTERS APPLY SEALANT. INSTALL GUTTERS WITH NEW COPPER ALLOY BOLTS TO MATCH EXIST. PAINT TO MATCH EXIST.	16	CORNICE	REMOVE EXISTING CORNICIA	2-E	CORNICIA (L)	REMOVE CORNICIA FROM JUNCTION ROOF TO SECOND GALLERY LEVEL.	1 UNIT	SECOND GALLERY LEVEL
CORNICE	5-B	CAST IRON (L)	REMOVE AND GRIND AS TO LOCATION. STEP OFF PAINT AND CHEMICALLY CLEAN MECHANICALLY CLEAN ROOF TO MATCH EXISTING. COLLECTION BOARD GUTTERS APPLY SEALANT. INSTALL GUTTERS WITH NEW COPPER ALLOY BOLTS TO MATCH EXIST. PAINT TO MATCH EXIST.	16	CORNICE	WOOD PANELLING (WAINSCOTS)	2-B, 2-D	WOOD (L)	REMOVE CORNICIA FROM JUNCTION ROOF TO SECOND GALLERY LEVEL.	1000	SECOND GALLERY LEVEL
WOOD PANELLING 1/2" BOARD	5-B	CAST IRON (L)	REMOVE AND GRIND AS TO LOCATION. STEP OFF PAINT AND CHEMICALLY CLEAN MECHANICALLY CLEAN ROOF TO MATCH EXISTING. COLLECTION BOARD GUTTERS APPLY SEALANT. INSTALL GUTTERS WITH NEW COPPER ALLOY BOLTS TO MATCH EXIST. PAINT TO MATCH EXIST.	16	CORNICE	WOOD PANELLING (WAINSCOTS)	2-B, 2-D	WOOD (L)	REMOVE CORNICIA FROM JUNCTION ROOF TO SECOND GALLERY LEVEL.	1000	SECOND GALLERY LEVEL
MILLION GUTTERS, TANKROOM GUTTERS, HANDGRIPS, COXIE TANKROOM, DRUM TANKROOM, AND MILLION T.B.	2-A, 5-B, 5-C, 5-D, 5-A	BRASS (L)	REMOVE AND GRIND AS TO LOCATION. STEP OFF PAINT, CHEMICALLY CLEAN MECHANICALLY CLEAN ROOF TO MATCH EXISTING. COLLECTION BOARD GUTTERS APPLY SEALANT. INSTALL GUTTERS WITH NEW COPPER ALLOY BOLTS TO MATCH EXIST. PAINT TO MATCH EXIST.	140 PLS	LANTERN ROOF	WOODWORK ON FLOOR AND CEILING TO FIRST LEVEL	2-B, 2-E	CAST IRON (L)	REMOVE CORNICIA FROM JUNCTION ROOF TO SECOND GALLERY LEVEL. FLOOR AND CEILING ON ALL EXPOSED SURFACES PAINT TO MATCH EXISTING.	1400	GROUND LEVEL
LANTERN GLASS	2-A, 2-E 2-F	TEMPERED GLASS, SIZE: 11" x 6" x 1/8" 11" x 6" x 1/8" 11" x 6" x 1/8"	REMOVE ALL GLAZING AND REGLAZE WITH TEMPERED GLASS. SIZE AND THICKNESS SHALL MATCH EXISTING.	40 PLS.	LANTERN ROOF	CORNICE GUTTERS REPAIRS	6-A, 6-B, 6-C	SPRINKLER STEEL (L)	REPAIR BROKEN CORNICIA GUTTERS AS PER DRAWINGS. REPAIRATIONS PAINT TO MATCH EXIST.	6 LOCATIONS	UPPER FENCE WING
BRASS GUTTERS, ASTRAGALS	5-A, 2-B, 2-F	CAST IRON (L)	REMOVE AND GRIND AS TO LOCATION. STEP OFF PAINT, CHEMICALLY CLEAN MECHANICALLY CLEAN ROOF TO MATCH EXISTING. COLLECTION BOARD GUTTERS APPLY SEALANT. INSTALL GUTTERS WITH NEW COPPER ALLOY BOLTS TO MATCH EXIST. PAINT TO MATCH EXIST.	1000	LANTERN SIDES	MATCH GUTTERS	6-D, 6-E	SPRINKLER STEEL (L)	INSTALL MATCH GUTTERS FROM GALLERY STAIR MATCH AFTER FABRICATOR FABRICATE AS PER DRAWINGS.	2 UNITS	FIRST GALLERY LEVEL
TRANSOM GUTTERS	5-D	BRASS (L)	REMOVE AND GRIND AS TO LOCATION. STEP OFF PAINT, CHEMICALLY CLEAN MECHANICALLY CLEAN ROOF TO MATCH EXISTING. COLLECTION BOARD GUTTERS APPLY SEALANT. INSTALL GUTTERS WITH NEW COPPER ALLOY BOLTS TO MATCH EXIST. PAINT TO MATCH EXIST.	50 PLS.	LANTERN SIDES	LANTERN GUTTER HOODS / VALVES	5-D, 5-E	CANNING (L) COPPER (L)	FABRICATE GUTTERS AND HOODS. EXISTING GUTTERS TO BE REMOVED. NEW CLEANED / PAINTED TO MATCH EXIST. PAINT TO MATCH EXISTING. INSTALL GUTTERS WITH NEW COPPER ALLOY BOLTS.	1500	LANTERN ROOF
WIRE VENTILATORS	5-A	CAST IRON (L)	REMOVE AND GRIND AS TO LOCATION. STEP OFF PAINT, CHEMICALLY CLEAN MECHANICALLY CLEAN ROOF TO MATCH EXISTING. COLLECTION BOARD GUTTERS APPLY SEALANT. INSTALL GUTTERS WITH NEW COPPER ALLOY BOLTS TO MATCH EXIST. PAINT TO MATCH EXIST.	5 UNITS	SECOND GALLERY LEVEL						
WIRE VENTILATORS AND SHUTTERS	5-B, 5-C	COPPER ALLOY (L)	REMOVE AND GRIND AS TO LOCATION. STEP OFF PAINT, CHEMICALLY CLEAN MECHANICALLY CLEAN ROOF TO MATCH EXISTING. COLLECTION BOARD GUTTERS APPLY SEALANT. INSTALL GUTTERS WITH NEW COPPER ALLOY BOLTS TO MATCH EXIST. PAINT TO MATCH EXIST.	20 UNITS	SECOND GALLERY LEVEL						
SECOND GALLERY VALVE / COXIE WING	2-A, 2-E, 3-A	CAST IRON (L) TIMBER (W)	REMOVE AND GRIND AS TO LOCATION. STEP OFF PAINT, CHEMICALLY CLEAN MECHANICALLY CLEAN ROOF TO MATCH EXISTING. COLLECTION BOARD GUTTERS APPLY SEALANT. INSTALL GUTTERS WITH NEW COPPER ALLOY BOLTS TO MATCH EXIST. PAINT TO MATCH EXIST.	1000	SECOND GALLERY LEVEL						
GROUND LEVEL DOOR	2-A, 2-E	WOOD (L)	REMOVE AND GRIND AS TO LOCATION. STEP OFF PAINT, CHEMICALLY CLEAN MECHANICALLY CLEAN ROOF TO MATCH EXISTING. COLLECTION BOARD GUTTERS APPLY SEALANT. INSTALL GUTTERS WITH NEW COPPER ALLOY BOLTS TO MATCH EXIST. PAINT TO MATCH EXIST.	1500	GROUND LEVEL						
GROUND LEVEL WINDOW	2-E	CAST IRON (L)	REMOVE AND GRIND AS TO LOCATION. STEP OFF PAINT, CHEMICALLY CLEAN MECHANICALLY CLEAN ROOF TO MATCH EXISTING. COLLECTION BOARD GUTTERS APPLY SEALANT. INSTALL GUTTERS WITH NEW COPPER ALLOY BOLTS TO MATCH EXIST. PAINT TO MATCH EXIST.	2 UNITS	GROUND LEVEL						

**NOTES**

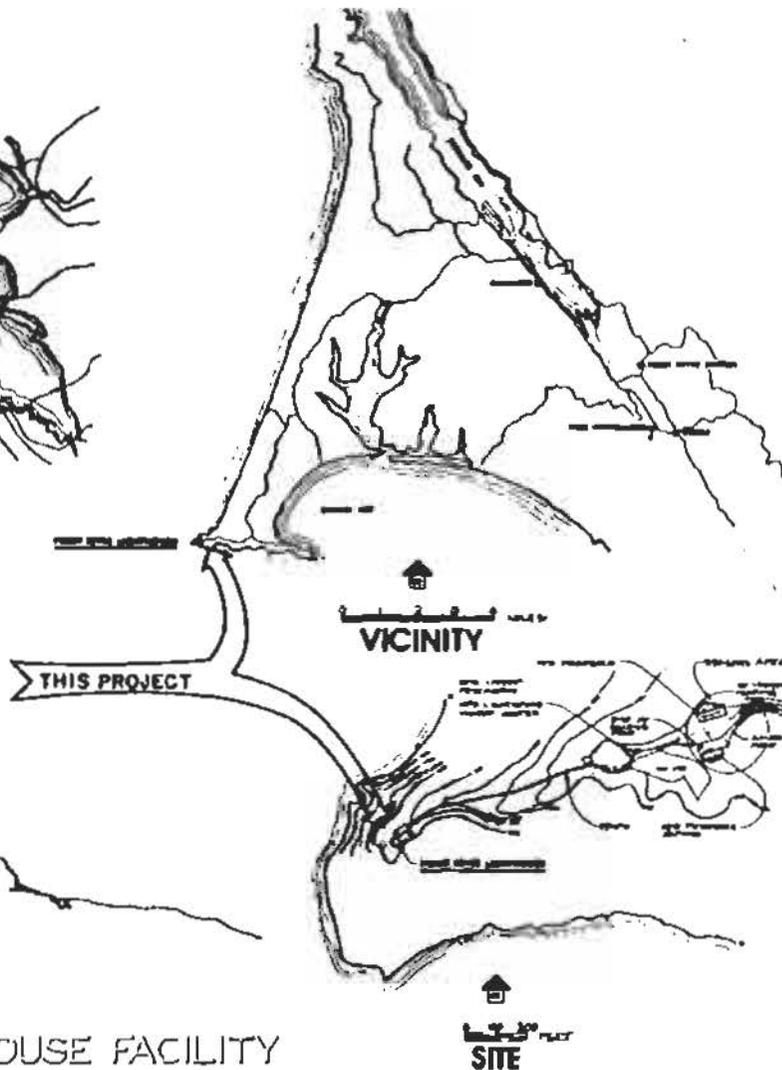
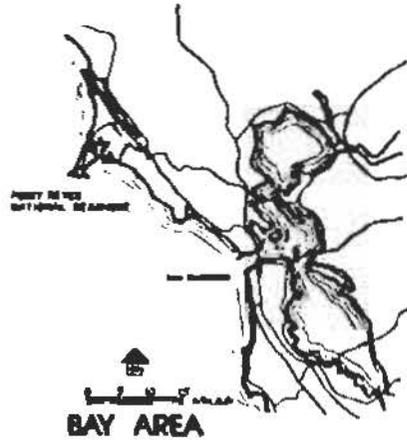
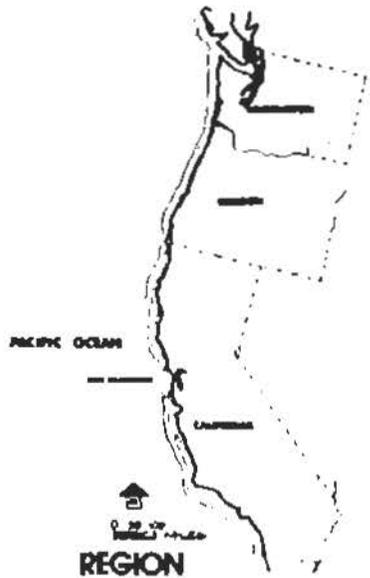
VALVE WORK SHALL BE NEW AND BOLTS AND NUTS SHALL HAVE THE EXISTING CAPTOPPED NUTS TO INSTALLATION

2) NEW PROTECTIVE CASING SHALL BE IN PLACE MAINTAINING A DRY FREE ENVIRONMENT THROUGHOUT DURING ALL WORK AS PER CONTRACT.

**POINT REYES LIGHTHOUSE - RESTORATION OF METAL WORK**

PREPARED BY	DATE
DESIGNED BY	DATE
CHECKED BY	DATE
APPROVED BY	DATE

ON MICROFILM



# PRESERVATION OF POINT REYES LIGHTHOUSE FACILITY

IFB - PORE - 198

BASIC DATA, EXISTING CONDITIONS DOCUMENTED BY LEAH KENZEL ON-SITE IN FEBRUARY '86 AND MARCH '86. BRAY USA DRAWINGS PREPARED BY HENRY LEO HAVE BEEN USED AS BASE DRAWINGS.

NO.	DATE	REVISION

*Wayne B. Holloman*  
*John L. Garrison*  
 ARCHITECT

CONSTRUCTION DRAWINGS  
 UNITED STATES  
 DEPARTMENT OF THE INTERIOR  
 NATIONAL PARK SERVICE  
 SERVICE CENTER

SCALE  
 1" = 20' PLAN  
 1" = 40' ELEVATION

TITLE OF PROJECT  
 PRESERVATION OF POINT REYES  
 LIGHTHOUSE FACILITY  
 LOCATION BY HIGHWAY  
 POINT REYES  
 NAME OF PARK  
 POINT REYES NATIONAL SEASHORE  
 COUNTY  
 CALIFORNIA

DATE OF SHEET  
 812  
 23,003  
 SHEET NO.  
 1  
 OF 9

SHEET INDEX		
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2	A-1	SITE PLAN & DETAILS EQUIPMENT BASED ON ELEVATIONS
3	A-2	EQUIPMENT BUILDING INTERIOR ELEVATIONS, DETAILS AND PLAN
4	A-3	EQUIPMENT BUILDING WINDOW DETAILS
5	A-4	LIGHTHOUSE PLANS, SECTION, ELEVATION
6	A-5	LIGHTHOUSE LANTERN DETAILS
7	A-6	LIGHTHOUSE LANTERN SASH DETAILS
8	A-7	LIGHTHOUSE ROOF DETAILS
9	A-8	PLANT SCHEDULES

LEGEND	
	BRICK
	CAST IRON
	CONCRETE
	COPPER ALLOY EXISTING
	COPPER ALLOY NEW
	GLAZING
	GLAZING TAPE OR SEALANT
	ROCK
	WOOD
	WROUGHT IRON

ABBREVIATIONS	
DET	DETAIL
EXIST	EXISTING
ELEV	ELEVATION
ELEV	ELEVATION
EST	ESTIMATED
F.S.	FEDERAL SPECIFICATIONS
H.S.R.	HISTORICAL STRUCTURES REPORT
INT	INTERIOR
MAX	MAXIMUM
MIN	MINIMUM
N	NORTH
NEW	NEW
N.I.C.	NOT IN CONTRACT, NO WORK REQUIRED
NO	NUMBER
REF	REFER
SHT	SHEET
TYP	TYPICAL
&	AND
@	AT
Ø	DRAWN
W/	WITH

ON MICRO...