Fire Protection Study for Historic Buildings Kalaupapa National Historical Park Molokai, Hawaii

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PART I Introduction

Summary

Kalaupapa National Historical Park is located on Molokai in the Hawaiian Islands. It was established in order to preserve the story of the separation of victims of Hansen's disease from the general population. There are still about 75 patients living in the park.

The historic structures in the park are all threatened to some degree by fire. Historically many structures have been lost to fire and most recently (July 1990) the old hospital, an 18,000 square foot structure of extreme significance to the site, burned. The purpose of this study is to assist managers in setting priorities for protecting the historic structures with automatic fire detection and suppression systems. Protection for a minimum of 12 structures is recommended for an initial program. In accordance with *NPS 50, Loss Control Management Guideline*, all structures should, unless exempt, eventually receive automatic fire suppression systems.

A fire protection need rating of the structures is illustrated in this study. Estimated costs and a description of the methods used to arrive at conclusions and recommendations are provided.

Park and regional management are requested to approve the recommendations found here as the basis for development of a task directive and scope of work for Package KALA 107E, Fire Protection for Historic Buildings.

Problem Statement

One of the principal purposes of Kalaupapa National Historical Park as set forth in the enabling legislation is ". . . to preserve and interpret the Kalaupapa settlement for the education and inspiration of present and future generations." More than four hundred structures contributing to this purpose stand on the peninsula that comprises Kalaupapa National Historical Park.

The National Park Service responsibility at Kalaupapa includes preserving some of the historic building resources. Funding limitations suggest that not all these structures will be preserved; however, the historic character can be retained through the preservation of a representative cross section of structures including churches, meeting halls, group residences, cottages, administrative buildings, wash houses, tool sheds, and garages. The current proposal as found in the March 1990 Resources Management Plan calls for preservation of 195 buildings. Management and ownership of these structures is a combination of NPS, Hawaii Department of Health, and private, including church-owned structures. The National Park Service actually owns only a few structures. This document focuses on the fire protection of all the historic structures regardless of their actual ownership. Recommendations are based on treating all structures as though they were owned by the National Park Service, thus applying NPS policy to all of them. The implementation of the fire protection recommendations will be greatly affected by the ownership issue. This aspect must be addressed at the time of implementation on a case-by-case basis.

Current NPS policy calls for all NPS facilities to have fire sprinkler systems. Many of the Kalaupapa structures are of such significance and importance to the park mission that they require the highest priority for immediate automatic fire protection. The remaining buildings also warrant such protection but at a lower priority and as funding becomes available. The current need is to identify those structures that warrant the highest priority for immediate protection.

Figure 1 Remains of old hospital, building no 282, formerly an 18,000 sf building.

Objectives of this study

The purpose of this study is to provide

1 a criteria/risk analysis/rationale for creating a priority list reflecting fire protection needs for the 130 Kalaupapa buildings considered under this study. The cutoff recognizes that the top 130 buildings on the park priority list include most of the substantial and occupied buildings in the park. Buildings further down the list are typically unused housing, storage structures, and sheds which will be considered for fire protection at a later date.

2 more accurate class C construction cost estimates for this work

3 cost and staffing estimates for support of operation and maintenance of the proposed systems

4 proposals for the design and construction of this project

PART II Background

In the early 1980s the need for rehabilitating the water supply system and providing fire protection was identified, and resulted in the development of package KALA 107. The original premise for fire protection was to provide adequate water flows and hydrant locations to fight structural fires with the volunteer fire crew. However, the design analysis for the "D" phase of package 107 concluded that "hose streams alone will not provide adequate fire protection for the larger historic buildings."

In July 1990 the old hospital, a prime component in the interpretation of the story of Kalaupapa, was completely lost. The approximately 18,000-square-foot structure was totally consumed by fire in less than 45 minutes. Beyond the loss of a prime resource, the estimated monetary loss for the old hospital was placed at $1.5 million for the structure and $.5 million for the contents.

The approved task directive for KALA 107 D (approved by the regional director on January 15, 1991) states, "Fire sprinklers should be installed in prime resources. However, these historic buildings are unstable and must be (structurally) stabilized before the fire sprinklers can be installed."

Due to lack of phase "D" funding, the fire sprinkler portion of the project had to be deferred to a later date. Early estimates were made without adequate existing condition data to determine the fire protection need. Those early estimates ranged from $36 to $128 per square foot. This report provides recommendations based on risk analysis and additional research into the existing conditions and construction costs.

Policies, Codes, and Standards

Prior to 1991 the guidance provided by NPS policies and national model building codes related primarily to fire protection for human life and secondarily to protection of building contents such as museum collections. Human safety remains the foremost concern, but protection of the historic structures and their contents is also a purpose of this project.

In 1991 and 1992 NPS guidelines and a memorandum regarding fire sprinkler systems were issued that added emphasis to the property protection/cultural resource protection aspect. In 1992 the *Federal Fire Safety Act* was signed. This bill requires automatic suppression and detection systems in federal offices and employee housing, and includes historic structures.

This document acknowledges that structures vital to the Kalaupapa National Historical Park mission have an unacceptable fire risk without automatic fire suppression systems. This would be true, given the fire risk to the buildings, regardless of improvements in fire fighting personnel, fire detection, fire trucks, or manual fire suppression equipment.

Appendix A provides excerpts from NPS policies that relate to this issue.

In September 1991 a revised version of *NPS 50, Loss Control Management Guideline*, was issued. NPS 50 now mandates that new and existing structures, including historic structures, are to have fire suppression systems. In March 1992 memos were issued by Ken Reuff, Denver Service Center safety engineer and Jack Davis, associate director for operations, WASO, to clarify the intent of NPS policies and reiterate the requirement for automatic fire suppression systems. These memos recognize that property protection and preservation of cultural resources must be considered in the structural fire safety program. Copies of these memos are included in appendix B.

NPS 28, Cultural Resources Management Guideline, mandates fire detection systems. It states, "Service policy requires that fire detection systems be used to protect historic structures . . ."

Appendix C provides excerpts from National Fire Protection Association (NFPA) publications related to this topic.

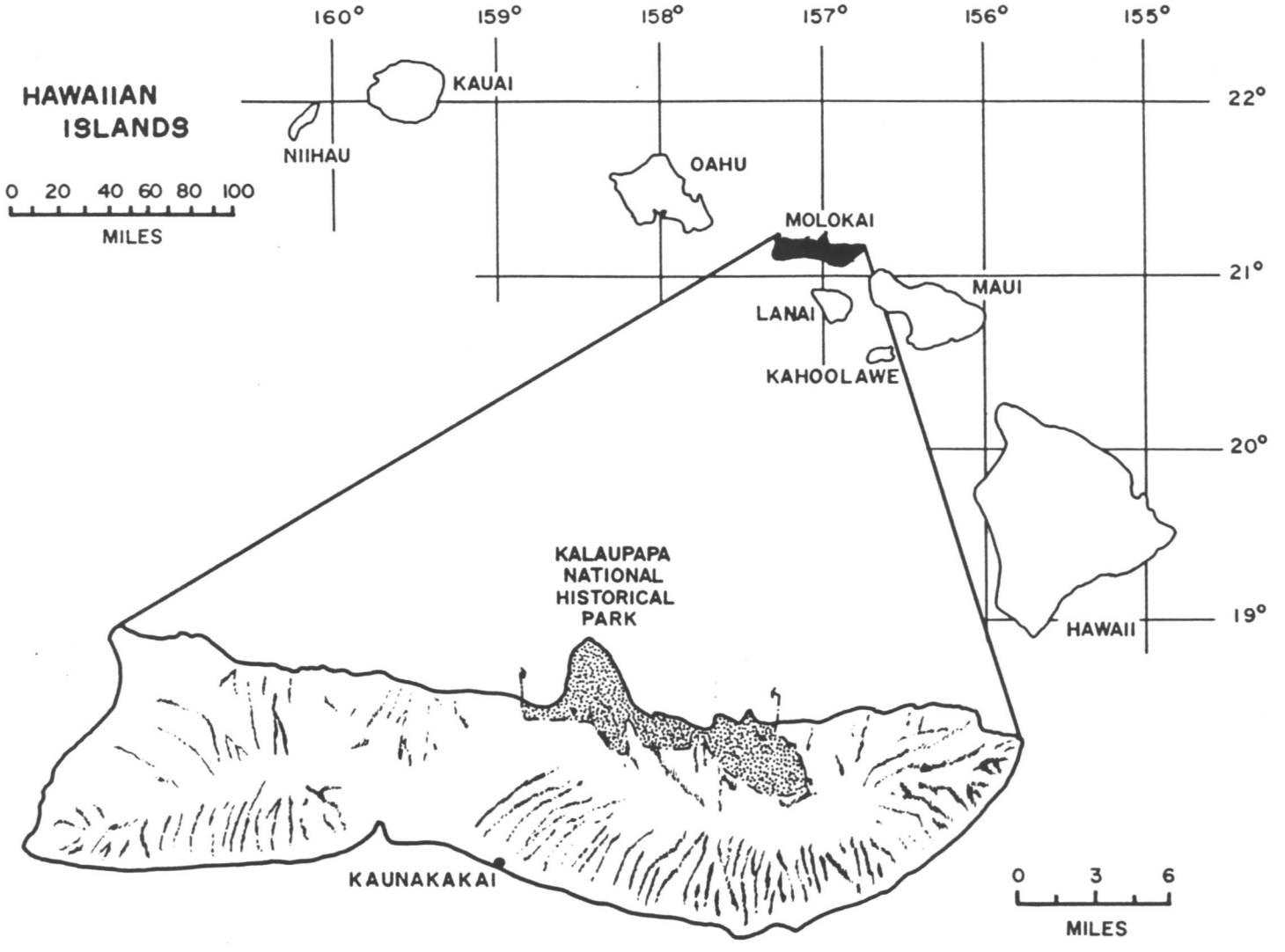


Figure 2 Island of Molokai and location of Kalaupapa National Historical Park.

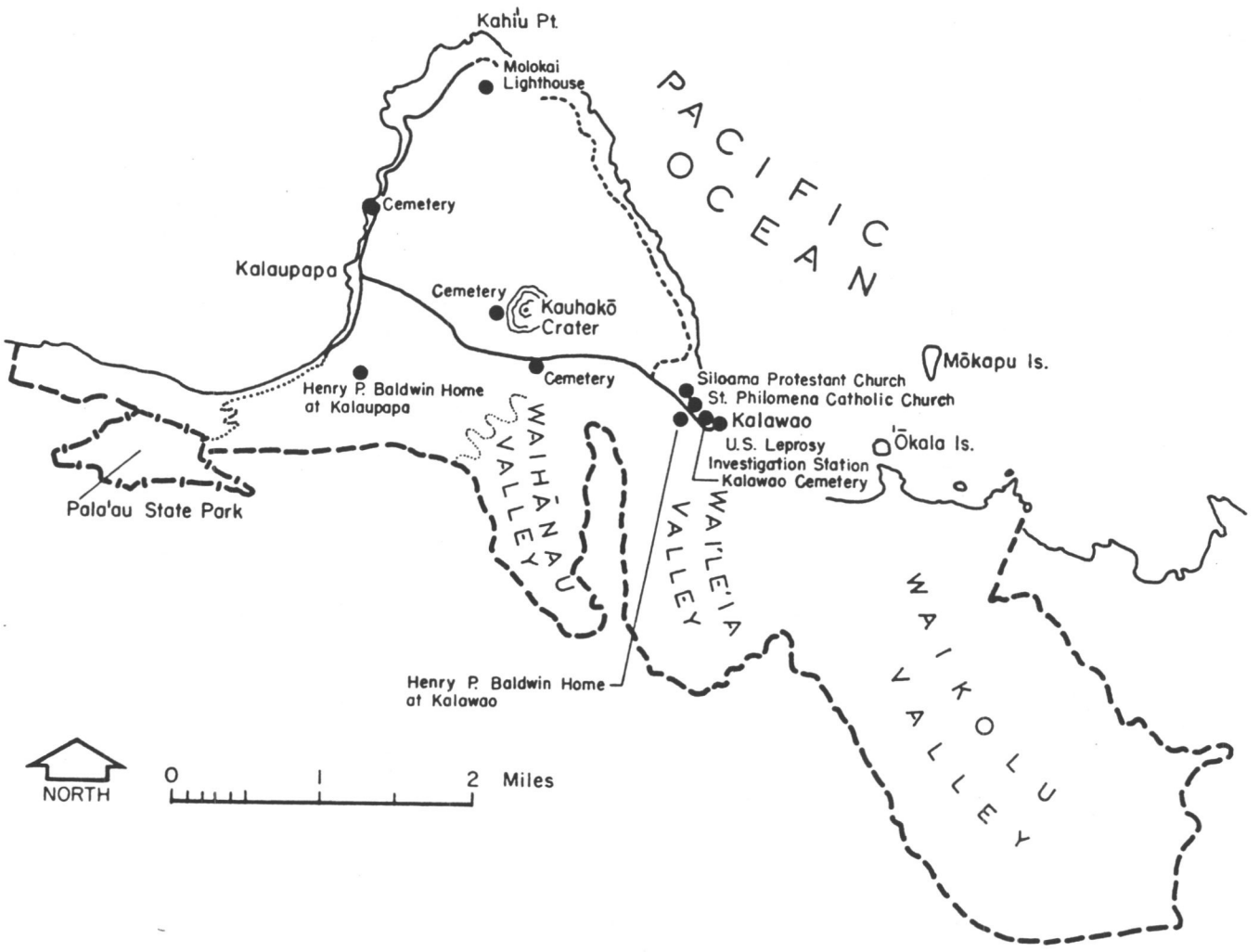


Figure 3 Kalaupapa National Historical park

Figure 4 View of Kalaupapa Peninsula from the west.

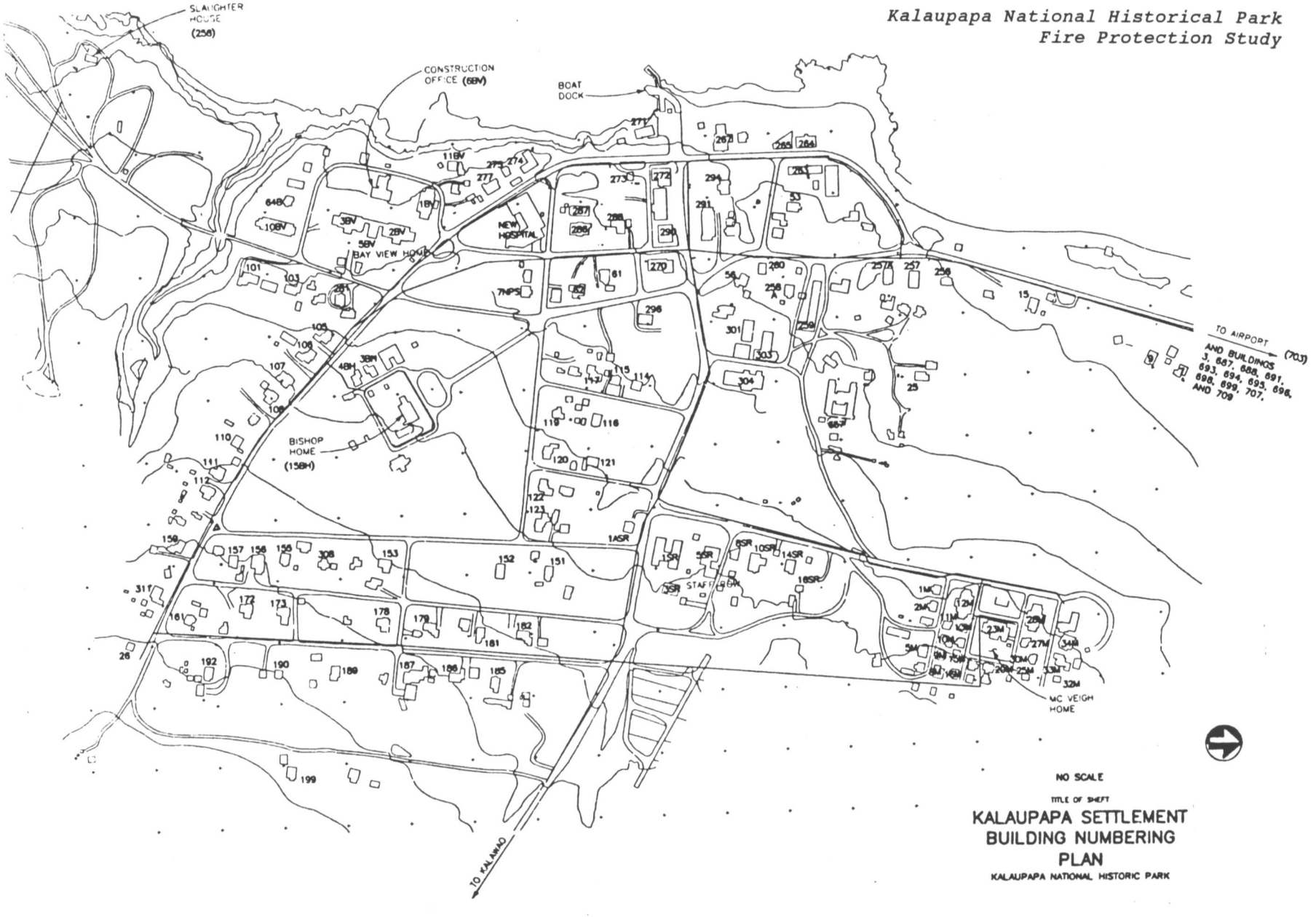


Figure 5 Kalaupapa Settlement, building numbering plan, drawing number 491/41,012

Section 106 Compliance

The 1990 Servicewide Programmatic Agreement (PA) tailors the section 106 process to NPS program needs. It recognizes that the National Park Service has qualified cultural resource specialists on staff and uses policies and guidelines as well as *The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* to manage cultural resources in a manner consistent with the National Historic Preservation Act.

Under this PA, specific types of undertakings are considered programmatic exclusions. Although they are called exclusions, they are only excluded from review from outside the National Park Service. They must still be reviewed and documented by the Park Service on the 106 (xxx) form. Among the exclusions listed are ". . . installation of fire detection and suppression systems, security alarm systems, and upgrading of HVAC systems."

While this project type is a listed exclusion, the project would require structural intervention in nearly all cases, and extreme structural intervention in some cases. This project will be subject to full 106 review, including review by the State Historic Preservation Officer (SHPO) and Advisory Council on Historic Preservation (ACHP).

Installation of these systems would entail removal of some historic structural and finish fabric, replacement in kind of that fabric, and introduction of modern structural fabric, including electrical and sprinkler lines. This normally would be regarded as an adverse effect, but as the project would comply with the secretary of the interior's standards, there would be no adverse effect.

Methodology

In 1991 automatic fire suppression systems were proposed for an initial list of 12 structures. This list was based on criteria that included remoteness from fire fighting personnel, life safety, historical/architectural significance, building size, adjacency, and future adaptive use.

In April 1992 a visit to the site was conducted by a project scoping team to refine this initial list and to address the objectives listed above.

The scoping team consisted of General Engineering Section Chief Addison Hulse, Structural Engineering Section Chief Terry Wong, Project Manager Paul Kalkwarf, and Historical Architect Paul Cloyd (all from the Denver Service Center Western Team); Kalaupapa NHP Facility Manager Neal Borgmeyer; and Western Region Safety Officer William Cecil. An orientation tour of the park and the historic structures was taken. Later some of the specific structures

initially proposed for fire suppression were inspected, including attic and crawl spaces. The degree of structural deterioration and the feasibility of installing sprinkler mains and branch lines within attic spaces were considered. The existing automatic fire suppression system at the new hospital was also inspected. Condition and quantity of the fire fighting equipment was reviewed along with availability of fire fighting personnel. Discussions also addressed detection and alarm systems and construction estimates.

The initial proposal had assumed that small structural fires could be extinguished by the volunteer fire department using hose streams, and that only the larger structures had to be considered for automatic fire suppression. For reasons explained in the section on emergency response, that assumption is no longer considered valid. The group revised the proposal because the fire fighters would, in most cases, be limited to providing exposure protection to the structures adjacent to the burning building.

New criteria for rating the automatic fire protection need were developed on site at this time. Additional aspects of fire risk were brought into the equation. The new criteria are listed and further explained on pages 29 and 30. The criteria revisions dramatically altered the scope of the project from the 1991 proposal. The new criteria were applied to 130 structures as listed in table 1, the 1984 park priority list. Structures below park priority 130 (considering their type and condition) are not considered at this point. The park priority rating list is on page 19 with an explanation of its purpose and origin.

Table 2, automatic fire protection need, considers risk factors that have been applied, weighted, and summed for each building. This process is illustrated on page 31 with a sample calculation for one building. Table 2 lists the buildings in descending order of need priority.

Life Safety Code Compliance

Life safety is the foremost concern. The Life Safety Code (NFPA 101) for the most part addresses the safe exit of occupants from the structure. Most structures at Kalaupapa are single story and have more than an adequate number of exits. Most structures already comply with the **minimum** life safety code requirements.

While the majority of the structures are single story, the nun's residence at the Bishop home (St. Elizabeth's Convent) and Paschaol Hall are exceptions. Choir lofts are found at St. Francis and Kanaana Hou churches.

Many historic sites do not comply with today's egress standards. In some of those cases automatic fire suppression installation is used to meet code requirements or create equivalencies while avoiding major structural modifications. This is not the case at Kalaupapa. **Here the purpose of automatic fire suppression is to provide life safety beyond minimal code requirements and to provide fire protection for the structures themselves.**

1992 Conditions

Most of the buildings date from the 1930s when large territorial appropriations funded a facilities improvement program. The buildings are typically one story with belled hip roofs (sometimes called Hawaiian or plantation style roofs). This style and most of the materials listed below are well suited to the climate, but the materials also make the structures extremely susceptible to fire.

Construction Type/UBC Classification

Three construction types as classified by the 1991 Uniform Building Code are found at Kalaupapa. Predominately, they are type V-N, nonrated. These buildings are wood frame, usually single-wall construction. There are literally dozens of structures of this construction type. They range from simple detached residences to the ornate Kanaana Hou Church.

The next most common are wood framed roofs and ceilings supported by exterior bearing walls of stucco on rubble masonry or tile. St. Francis Church and the industrial area buildings have reinforced concrete walls. These buildings are classified as type III-N. There are no more than 12 of this type within the settlement. There are a few additional structures of construction type III-N, such as the lighthouse and its associated residences, located about 1.5 miles outside the settlement.

There are three quonset hut metal structures in use at the settlement. One hut (Bay View building number 10) has combustible

floors and interior partitions and is type V-N construction. The other quonset huts have concrete floors and are not partitioned. These are classified as type II-N.

Roof Materials/UBC Classification

Most structures have asphalt shingle roofs that are assumed to be class C. The next most common roof material is wood shingle, which is considered non-rated by the UBC. There are corrugated metal roofs that are considered class A. The food warehouse building 271 is a unique example of a built-up roof at Kalaupapa. It is presumed to be unrated.

NFPA 13 Hazard Classification

The National Fire Protection Association (NFPA) classifies structures according to the quanity and combustibilty of contents, expected rates of heat released and total potential for energy release based on the occupancy of the structure. This classification is to ensure that the fire protection system will be capable of suppressing the anticipated fire intensity. Classifications in order of increasing potential fire intensity are:
Light Hazard, Ordinary Hazard (groups 1 and 2), Extra hazard (groups 1 and 2), Special Occupancy Hazard.
The Kalaupapa buildings fall into the first two classifications. The offices, residences, churches, hospital, meeting halls and the library would be classified Light Hazard. The maintenance shops, patient store, storage buildings and the staff row dining hall are classified as Ordinary Hazard Group 1.

Interior Finish Materials

Ceilings are typically plywood. Some buildings have what appears to be celotex on the ceilings and walls. More typical are exposed vertical wooden wall planks that are outlined on the exterior with girts, sole plates, and corner boards. Floors are wood framed with wood strip flooring. A few structures have vinyl floor tile.

The industrial area buildings have concrete floor slabs.

The celotex type material on walls and ceilings is found in such buildings as Paschoal Hall, McVeigh Hall, and the patient/visitor meeting pavilion.

NFPA 914, Rehabilitation and Adaptive use of Historic Structures, article 2-32.2, cautions, "Flame spread in low-density cellulosic materials (celotex) used extensively in some older buildings for ceiling tile and wall panels may be faster than people can run."

Removal of cellulosic finish material is advisable. In the case of the patient/meeting hall this would return the structure to an

earlier historic appearance. At Paschoal Hall replacement of wall and ceiling acoustic tiles with a fire resistant material similar in appearance (to retain its historic character) may be preferable.

Electrical Systems

Most of the buildings on this list have active electrical systems. In a few cases these have been recently upgraded to meet current safety standards, but most have old systems that may constitute a serious risk. In a few cases such as the St. Philomena and Siloama churches, there are no existing electrical systems. In these cases some power would have to be provided to operate detection and alarm systems.

Seismic Zone

Molokai is located in seismic zone 2-B. Sprinkler systems are required to be braced to withstand lateral loads.

Climatic & Vegetation Fire Risk Factors

The strong trade winds common to the peninsula enhance the fire risk. These winds are normally out of the northeast.

The park maintenance crew has an active program of clearing fire breaks and clearing vegetation away from structures. The program focuses on the upwind side of the settlement and individual structures.

Lightning is a minimal fire risk at this site.

Existing Automatic Fire Suppression

The new hospital is the only structure at Kalaupapa with an automatic fire sprinkler system in place. This a wet pipe system and appears to be in reasonably good condition after 12 years in service. There were some indications, such as sticking valves and rusting pressure gauges, that maintenance of the system was less than ideal.

Hydrants/Water Supply/Fire Trucks

The completion of package 107 C/D has provided installation of fire hydrants with adjacent hoses and hose houses. These can provide reliable and effective hose streams in the shortest possible time, but require crews trained in the use, cyclic inspection, and replacement of the hoses. Personal injury and/or building damage could be caused by indiscriminate use. The damaged appearance of some hose houses and the deteriorated condition of the hoses within them indicate that regular maintenance is needed.

The water used to fight the 1990 hospital fire severely depleted the settlement's water supply, and most homes in Kalaupapa were without water the evening of the fire. Package 107 C/D would also provide water storage tanks that would alleviate this problem. Automatic fire suppression systems typically can control or extinguish a fire with considerably less water than hose streams.

There are three fire fighting vehicles at Kalaupapa. Prior to July 1990 (before the old hospital fire) there were only two trucks. During the hospital fire, one truck failed to start and the other's water pump failed. A modern water cannon type truck was shipped by the state to Kalaupapa within a month after the fire. This truck can be used with water on structural fires. In addition, it is a

four-wheel drive vehicle, which is important for access to the Kalowao churches three miles away over a primitive dirt road. It has been proposed that the park acquire a new truck and another used truck, which would bring to five the total of fire fighting vehicles. Park staff are uncertain about training and scheduling personnel to maintain and operate this equipment.

Fire Detection Capability

The new hospital is equipped with automatic fire detection and a manual pull station. The detection is photoelectric with detectors in each room tied to an eight-zone Simplex fire alarm panel. The detection/alarm system appears to be in good condition, but it is unknown how regularly it is maintained.

Package 107 C/D will provide photoelectric fire detection and local alarm systems for all occupied residences in Kalaupapa National Historical Park.

The immediate installation of fire detection in the remaining undetected structures is warranted.

Emergency Response

The settlement is served by a volunteer fire department. Currently fires are visually detected and the alarm is given by patients or staff. The disaster siren located in front of Paschoal Hall (roughly a central location in the settlement) alerts the volunteers. The volunteers respond, assemble at the fire house (building 301), and then proceed to the fire with equipment. Even with a very quick alarm and response time, a fire underway for just a few minutes can cause very severe damage to these buildings.

Newspaper reports of the 1990 old hospital fire indicated that 40 state workers and 10 NPS employees responded to the fire. The alarm siren failed in this instance, and the volunteers were literally alerted by personnel who drove around the settlement and shouted out the alarm. The volunteers were hampered by the failure of the state fire truck to start and failure of the water pump on the NPS truck. Eight professional fire fighters were flown in from Maui and from "topside" Molokai after receiving an alarm but ". . . the building was in ashes by the time they arrived."

The volunteer force probably could respond within 10 to 15 minutes for the structures in town. For the outlying buildings at Kalawao, such as the St. Philomena and the Siloama churches, the response could be no less than 20 minutes. Without automatic sprinkler systems, this emergency response time is inadequate. Severe damage or total loss of the structure is likely unless automatic sprinkler systems are in place.

Structural Fire History

The 1985 historic resource study *Exile in Paradise* recounts several fires at the settlement. "Fire, a recurring problem at the settlement, destroyed the first Bay View home in the 1914-15 period. . . The [old] McVeigh home was also destroyed by fire in November 1928. . . . On July 5, 1929, the resident physician's dwelling was partially destroyed by fire. . . The tragedy of the accidental burning of the structure (old St. Francis Church) on August 12, 1906 . . . The structure burned to the ground in thirty-five minutes. The Kalaupapa bakery burned on March 8, 1948. On June 11, 1950, a fire broke out in the kitchen of the brothers' quarters (at the new Baldwin home) . . . destroyed most of the kitchen and inflicted heavy damage to adjacent dining room and bedroom."

In the 1970s a small fire was ignited by candles in the sacristy of St. Philomena's, fortunately causing little damage, but the scorched wall planks remain as a reminder.

The cause of the 1990 burning of the old hospital remains unknown; however, Alvin Agawa, Maui County fire battalion chief, agreed with witnesses that it could have been caused by an electrical defect. The historical causes of fires typically related to cooking activities or lighting before the days of electrification.

The historic resource study notes that electrical lighting at the settlement was not in place until the 1920s. Today electrical systems are a significant fire risk as many structures have outdated and deteriorated systems that are still active. Since the burning of the old hospital, the state has disconnected electrical service to buildings not in use. The state and the park service have replaced or upgraded electrical systems at some, but not most, of the buildings still in use.

Electrical power is disconnected to the interior of Paschoal Hall, but there are live wires right up to the service box mounted on the building, and this box is in very poor condition. To adequately shut off the power it must be disconnected from the structure.

Table 1 1984 Park Priority List

This table is found in the March 1990 Resources Management Plan. It sets priorities for stabilization and/or maintenance work on the structures. This was compiled from earlier priority lists and further developed in 1984 by park Superintendent Henry Law and Area Office Director Bryan Harry. The list reflects the interpretive value, historical significance, and utility value of the structure. For further information regarding the origin of the list and the criteria used for its development see the 1990 Resource Management Plan.

park priority	building name	building number
1	ST.PHILOMENA	711
2	SILOAMA CHURCH	710
3	PATIENT/VISITOR MEETING HALL	278
4	VISITOR QUARTERS	274BV
5	WILCOX MEMORIAL (VISITOR QRTRS)	277BV
6	PATIENT RESTROOM	523BV
7	SILOAMA CHURCH RESTROOMS	720
8	FUMIGATION HALL	283BH
9	PATIENT'S STORE	272
10	POST OFFICE / COURT HOUSE	290
11	OLD STONE CHURCH	301
12	RESIDENCE (MALAKAUA) 43 KAMEHAMEHA	56
13	SOCIAL HALL (ST. FRANCIS)	292
14	ST.FRANCIS CATHOLIC CHURCH	291
15	AJA BUDDHIST HALL	308
16	NUNS RESIDENCE	15BH
17	JAIL/POLICE HQ	302/3
18	BAY VIEW BLDG 2 RESIDENCE	2BV
19	BAY VIEW BLDG 3 RESIDENCE	3BV
20	RESIDENCE (SEKI) 281 PUAHI ST.	281 (104-A)
21	STAFF ROW DINING HALL AND CENTRAL KITCHEN	5SR
22	STAFF ROW ADMINISTRATOR'S RESIDENCE	10SR
23	OLD HOSPITAL (BURNED 1990)	282
24	BAY VIEW BLDG 5 PATIENT DINING HALL	5BV
25	STAFF ROW BLDG 8 GUEST QRTRS	8SR
26	BUTCHER SHOP AND FREEZER	267/8
27	MAINTENANCE SHOP	265
28	CARPENTER'S SHOP	264
29	GAS STATION	273
30	PASCHOAL HALL	304
31	STAFF ROW BLDG 1	1SR
32	BAY VIEW BLDG 10a	10aBV
33	CRAFT AND STORAGE BLDG	300
34	RESIDENCE 26 DAMIEN ROAD	26
35	McVEIGH BLDG 12 APTS (LADIES DORMITORY)	12
36	McVEIGH BLDG 24 POOL HALL (PAVILION)	24M
37	McVEIGH BLDG 23 REC HALL (DINING HALL AND KITCHEN)	23M
38	ADMINISTRATION BUILDING	270-61
39	KALAUPAPA MEMORIAL HOSPITAL	814

park priority	building name	building number
40	RESIDENCE SOUTH OF ADMIN BLDG	61-71
41	REA'S BAR	62
42	CALVINIST MISSION (KANAANA HOU CHURCH)	286
43	FOOD WAREHOUSE	271
44	McVEIGH BLDG 27 COTTAGE	27M
45	McVEIGH BLDG 13 COTTAGE	13M
46	McVEIGH BLDG 15 COTTAGE	15M
47	CALVINIST MISSION RESIDENCE	288
48	NPS OFFICE (OUT PATIENT CLINIC)	7BH
49	LDS CHURCH	257
50	LDS PARISH HALL	257a
51	REA'S BAR RESTROOM	624
52	BAY VIEW BLDG 1 RESIDENCE	1BV
53	BISHOP HOME ST. ELIZABETH'S CHAPEL	16BH
54	RESIDENCE SCHOOL ST.	119-60
55	RESIDENCE (NAIA) GOODHUE ST.	114
56	RESIDENCE (NONO) GOODHUE ST.	115
57	RESIDENCE (REMIGIO) GOODHUE ST.	116
58	BAY VIEW BLDG 10 QUONSET HUT	10BV
59	RESIDENCE GOODHUE ST.	118
60	BAY VIEW BLDG 8 CHAPEL/MORGUE/RECREATION	8BV
61	MOLOKAI LIGHTHOUSE	715
62	RESIDENCE LIGHTHOUSE	706
63	LIGHTHOUSE GENERATOR BLDG	713
64	LIGHTHOUSE WATER TANK	712
65	LIGHTHOUSE ABANDONED STRUCTURE	714
66	AIRPORT TERMINAL	703
67	BEACH HOUSE AIRPORT ROAD	699
68	BEACH HOUSE AIRPORT ROAD	695
69	LIBRARY	296
70	BAY VIEW BLDG 522 PHONE DISTRIBUTION STA.	522BV
71	BAY VIEW BLDG 11 RESIDENCE	11BV
72	RESIDENCE (SAGADRACA) GOODHUE ST.	117-62
73	STAFF ROW BLDG 14 INTERMITTENT RESIDENCE	14SR
74	BAY VIEW BLDG 6 NPS MAINTENANCE OFFICE (KITCHEN/DINING)	6BV
75	STAFF ROW BLDG 1a GUEST COTTAGE	1aSR
76	BAY VIEW BLDG 64 RESIDENCE	64BV
77	STAFF ROW BLDG 6 FREEZER SHELTER	6SR
78	SLAUGHTER HOUSE	630
79	ROCK CRUSHER	635
80	STAFF ROW BLDG 16 ELECTRICIAN'S RESIDENCE	16SR
81	ABANDONED STORE KAMEHAMEHA ST.	260
82	MOTOR POOL GAS STATION	258a
83	LUMBER WAREHOUSE QUONSET HUT	263a
84	PLUMBING WAREHOUSE	263
85	MOTOR POOL GARAGE	259
86	RESIDENCE (KILOHAMAI) KILOHANA ST.	53
87	ELECTRIC SHOP (DEMO'D?)	266
88	CREMATORY	262
89	McVEIGH BLDG 1 RESIDENCE	1M
90	McVEIGH BLDG 2 RESIDENCE	2M
91	PICNIC PAVILION AIRPORT ROAD	688
92	PAVILION RESTROOM AIRPORT ROAD	687
93	STORAGE SHED KAMAHAMAHA ST.	664
94	STAFF ROW BLDG 11 GARAGE	11SR
95	ST. FRANCIS RECTORY	294
96	BAY VIEW BLDG 275 VISITOR QRTRS KITCHEN/DINING	275

park priority	building name	building number
97	BAY VIEW BLDG 519 ELECTRICAL TRANSFORMER	519
98	LDS CHURCH GUEST HOUSE	256
99	RESIDENCE (KEKAHUNA) KAMEHAMEHA ST.	15
100	RESIDENCE (KEAO) KAMEHAMEHA ST.	9
101	RESIDENCE 7 (SILVA) KAMEHAMEHA ST.	7
102	McVEIGH BLDG 33 RESIDENCE	33M
103	McVEIGH BLDG 32 RESIDENCE	32M
104	McVEIGH BLDG 34 RESIDENCE	34M
105	McVEIGH BLDG 30 RESIDENCE	30M
106	BAY VIEW LANAI	528
107	WAREHOUSE QUONSET HUT	272a
108	McVEIGH BLDG 20 RESIDENCE	20M
109	McVEIGH BLDG 11 RESIDENCE	11M
110	RESIDENCE (BROWN) KAMEHAMEHA ST.	3a
111	RESIDENCE (CAMBRA) KAMEHAMEHA ST.	4
112	RESIDENCE (FERNANDEZ) KAIULANI ST.	192
113	RESIDENCE (BENJAMIN) BALDWIN ST.	181
114	RESIDENCE (NAKANISHI) DAMIEN ROAD	311-64
115	RESIDENCE (YONEMORI) BALDWIN ST.	179-62
116	RESIDENCE (REA) BALDWIN ST.	172-56
117	RESIDENCE (McCARTHY) BALDWIN ST.	173-56
118	RESIDENCE (BELL) KAIULANI ST.	189
119	RESIDENCE (SORIA) KAIULANI ST.	190-66
120	RESIDENCE (KALIKO) KAIULANI ST.	186-64
121	RESIDENCE (CHOW) KAIULANI ST.	185-71
122	RESIDENCE (KALA) KAPIOLANI ST.	199
123	BEACH HOUSE AIRPORT ROAD	691
124	BEACH HOUSE AIRPORT ROAD	693
125	LIGHTHOUSE GARAGE	709
126	LIGHTHOUSE RESIDENCE	707
127	RESIDENCE (AI) BALDWIN ST.	178-56
128	McVEIGH BLDG 28 APARTMENTS (MEN'S DORM)	28
129	McVEIGH BLDG. RESIDENCE	9M
130	AJA STORAGE	309

Fire Management Plan

The 1990 Resource Management Plan (p. 70) indicates that in March 1989 a fire management plan prepared by Jack Minassian was approved. This document is not found at the Technical Information Center (TIC) in Denver and has not been reflected in this draft. Mr. William Cecil, Western Regional Office (WRO) Safety Officer recently discussed this with Mr. Minassian and advises that the park does not have a fire protection plan at this time.

There is a need for regional office and park personnel to develop a parkwide fire management plan that would include fire management objectives, park policies impacting fire prevention and fire risk, personnel training, equipment needs, and other related topics. Such a document would identify existing fire management deficiencies and provide strategies for rectifying the deficiencies.

Documents recommended for park acquisition are *NFPA 913, Protection of Historic Structures and Sites*, and *NFPA 914, Rehabilitation and Adaptive Reuse of Historic Structures*. These documents provide strategies and solutions for fire prevention and fire protection for historic structures to managers, staffs, and design professionals involved with historic sites and structures. These documents should be helpful in the development of the fire management plan.

The fire management plan is a broad umbrella plan of which this specific fire sprinkler and fire detection/alarm project is only one component.

PART III Fire Protection Systems, Ratings, & Estimates

Detection and Alarm Systems

A description of the principal kinds of detection and alarm systems available today is found in appendix D.

Currently only the new hospital is equipped with fire detection and local alarm systems. Package 107 C/D would soon provide all occupied residences with battery-powered fire detection and local alarm devices. Nonresidential structures located in the Kalaupapa settlement area are proposed by this document to receive local alarms as the logical initial step. These would be bell or horn devices mounted on the exterior to alert the volunteer fire fighters. Remote structures such as the airport terminal and the churches at Kalawao should have some type of alarm transmitted to a downtown Kalaupapa location. It should sound an alarm audible to staff offices and residences. The airport alarm could be established via existing telephone lines or a new radio device. The churches at Kalawao would require the installation of telephone lines or radio devices. The Kalowao detection and alarm systems would require a power source, possibly some type of photovoltaic source.

There is no 24-hour manned location on the peninsula to serve as a central alarm station.

A 24 hour manned station need not prevent the installation of a central staion alarm system. Klondike Gold Rush National Historical Park is protecting their historic strcutures in cooperation with the City of Skagway, Alaska volunteer fire department. The Skagway alarm system has no 24 hour manned station, however the historic buildings both park and privately owned have fire detection systems which are monitored through a computer network via telephone lines. The system is maintained by volunteer personnel during business hours. The system runs a check signal on each system twice daily. If the check signal is not sucessful, the volunteer personnel are notified by the computor during business hours. In the event of an alarm the computer immediatley activates a radio paging sytem summoning the volunteers to the fire house where the computor identifies the buildng and zone within the building that is signaling the alarm. The biggest obstacle to installing such a system at Kalupapa today is probably the limted telephone system.

The detection and alarm systems proposed for Kaluapapa should have the capability for a future central alarm system. Such a system is mandated by NPS 58.

Detector types include rate of rise/fixed temperature, ionization, and photoelectric types. The ionization type has the best (shortest) response reaction. The ionization type may be sensitive to airborne dust, which may be a problem at Kalaupapa because of the trade winds. Under package KALA 107 C/D, photoelectric detectors are being installed in the residences. This type is

recommended for future installations in the nonresidential buildings. A description of the different types of detection systems is found in appendix D.

The appearance of detectors in most of the structures would typically be an acceptable visual intrusion. Some structures have architecturally significant interiors where visual intrusions from the detectors is less acceptable. A detector system compatible to these more significant interiors is the "sniffer" type. This entails a series of 1/2 inch diameter openings (about 16 to 20 feet on center) in the ceiling surface for a lead tube (located in the attic space) that conducts air samples back to a central analyzing chamber located in a secondary space. These systems are more expensive to install and maintain and would only be considered where interior significance warrants the extra cost and maintenance.

Automatic Suppression Systems

Accidental Discharge - Concerns have been voiced that a sprinkler system could accidentally discharge and cause serious damage. Such concerns might easily be allayed by asking the Kalaupapa hospital staff about their experience with accidental discharges in the 12 years since the automatic system was installed there. Studies by the National Fire Protection Association (NFPA) have shown that such accidental discharges are an insignificant risk relative to the benefits of automatic fire suppression.

Another concern relates to damage by water from sprinklers in the event of an actual fire. NFPA 914 makes the point that water released by automatic systems causes much less damage than hose streams. First, when the fire brigade arrives it has a much smaller fire, if any, to fight. Second, each hose line the fire brigade puts on the fire would place 250 gallons/minute (gpm) of water into the building versus 25 gpm for each sprinkler head.

The following is excerpted from NFPA 913.

" Automatic fire suppression systems that discharge water or other extinguishing agents are a primary means of protection of historic structures. It should be remembered that extinguishing agents typically are discharged only in the immediate fire area. For example, the operation of only one sprinkler head may extinguish or control the fire until fire fighters and equipment arrive. Often such automatic extinguishing systems make the use of hose lines unnecessary and thus reduce the extent of water damage. Many structures have been protected with automatic suppression systems without seriously detracting from their historic appearance. In most cases concealment of discharge heads and piping is possible. Automatic sprinklers have proven their value in the reduction of fire losses throughout the country and their value should not be overlooked for historic structures. Automatic sprinkler systems may perform several functions to protect the structure, occupants, and contents:

(a) detect fires at night
(b) cause the sounding of alarms
(c) control or extinguish the fire
(d) alert a central, auxiliary, proprietary, or remote station fire alarm system to summon fire department assistance immediately

Managers of historic structures traditionally have been reluctant to install automatic sprinklers for fear of water damage to their collections. ***Yet in actual practice, heavy water damage often results from fire department operations using high volume hose lines.*** *Sprinkler protection helps avoid this by placing a controlled amount of water directly on the fire and alerting the fire department at the same time. Sprinkler systems can control fires early and reduce the need for a full scale attack by the fire service.*

*There are several methods for dealing with conservator concerns about accidental operation of sprinklers and for minimizing the amount of water that flows after the fire is extinguished. For example, automatic cycling (on/off) sprinkler heads terminate water flow after the fire is extinguished. When a fire occurs in an area protected by an automatic fire sprinkler system, heat opens the sprinkler or sprinklers nearest the fire. **Only the units heated to the predetermined rating of the sprinkler by the fire will discharge water. Records show that in 94% of fires in automatic fire suppression system high rise office buildings, the fire has been controlled or extinguished by three sprinklers or less."***

System Types - There are a variety of automatic fire suppression systems available. Non-water systems include carbon dioxide, foam, and dry chemical. Water systems include wet pipe, dry pipe, deluge, and preaction. A description of the principal kinds of suppression systems is found in appendix A. The most cost effective of the systems for this site and this function would be a simple wet pipe system such as already exists at the new hospital. In this type of system lines are continuously full and only those heads activated by heat discharge water.

Piping Material - This is a salt water environment. Consequently ferrous metal piping is subject to corrosion. The large systems for multi-residential buildings, administrative offices, and public use buildings should use galvanized pipe and fittings or copper piping. There are fire risks associated with the soldering of copper joints, so soldered joints are not recommended for this application. The existing system at the new hospital is of galvanized steel and appears to have weathered the climate reasonably well.

Plastic pipe (both CPVC and polybutylene) has been tested and accepted under the requirements of NFPA 13 and 13 - D for wet pipe systems in strcutures classified as either light or ordinary hazards. See appendix F for additional information on this product. The flexibility of this plastic pipe may be an advantage in retrofitting existing structures with a suppression system. The ambient high temperature limitations on the CPVC and polybutylene piping materials are 150°F and 120°F respectively. This restriction may must be considered before their use in the attic spaces.

The piping where concealed at attic and crawl spaces can be left unpainted. Exterior risers should be painted to match the building. It would be easier to paint galvanized than plastic pipe to match exterior color at the risers.

Residences also could use galvanized pipe, but use of plastic pipe may offer advantages in ease of installation.

Sprinkler Heads - Sprinkler heads may be rated to activate at 135°F for normally occupied areas and up to 165°F or higher for attic locations where such ambient temperatures are possible. Sprinkler heads would be of the concealed type at the more significant interiors such as St. Philomena's. The concealed heads are nearly

flush with the finish and are concealed by a metal cover plate that pops off when the head activates. The cover plates can be specially ordered from the factory to match the adjoining paint finish, but absolutely cannot be painted over on site as this significantly reduces their sensitivity to heat. More economical recessed heads could be used on less significant interiors. The residential systems will utilize the residential quick response sprinklers in accordance with NFPA 13 - D.

NFPA 913 notes, *"A listed sprinkler with an automatic cycling on/off feature can greatly reduce the amount of water discharged after the fire has been extinguished."* On/off sprinkler heads reduce potential water damage. These are activated by heat like conventional heads, but will close when temperatures have dropped and the fire has been extinguished. Should the fire rekindle, the heads will reopen. However, these are not available in the concealed head configuration, and would be more visually intrusive. The concealed heads are preferable for the significant interiors because response to alarms would permit the system to be shut off after the fire is controlled or extinguished. This would minimize water damage from sprinkler discharge. The catalog cut for this is in appendix E.

Installation - Lines should be concealed wherever possible. This is limited for risers in many cases by single plank wall construction. Typically there are no wall stud cavities in which to conceal risers. Exposure of domestic plumbing riser lines at the exterior is a common historic method and would be the more compatible installation method in most cases. Main and branch lines would be concealed within attic spaces rather than exposed in building interiors where possible. Sprinkler valves could be located on the exterior in a discrete location. This was done for the system at the new hospital.

Package 107 C/D is providing new service laterals for most of the structures in use. These are 3/4- or 1-inch laterals suitable for residential systems. Larger public or multi-residential buildings would require the installation of new 3- or 4-inch water service laterals from the water main to the building to serve fire sprinkler systems.

Areas of Protection - The large systems for multi-residential, administrative, and public use buildings would be designed in full compliance with NFPA 13. Systems under this standard will provide protection to attic, main level, and enclosed crawlspace areas. Single family residences would be protected by residential systems designed in accordance with NFPA 13 D. These systems would protect only the living areas with no sprinkler heads in attics or enclosed crawl spaces. System under this standard provide enhanced life safety with some economy for system installation. An NFPA 13 - D system will not provide property protection to the same degree as system meeting NFPA 13 requirements.
NFPA also has a standard for economical system for multi residentila buildings under 4 stories - NFPA 13 - R. Again these system are directed primarly towards life safyt and do not provide

property protection to the same degree as NFPA 13. of the multi-residential buildings are recommended to have the higher level of property protection afford by the NFPA 13 systems because of their significance and few number (relative to the number of single family dwellings).

Sprinkler systems should be augmented by placing and maintaining fire extinguishers in the buildings.

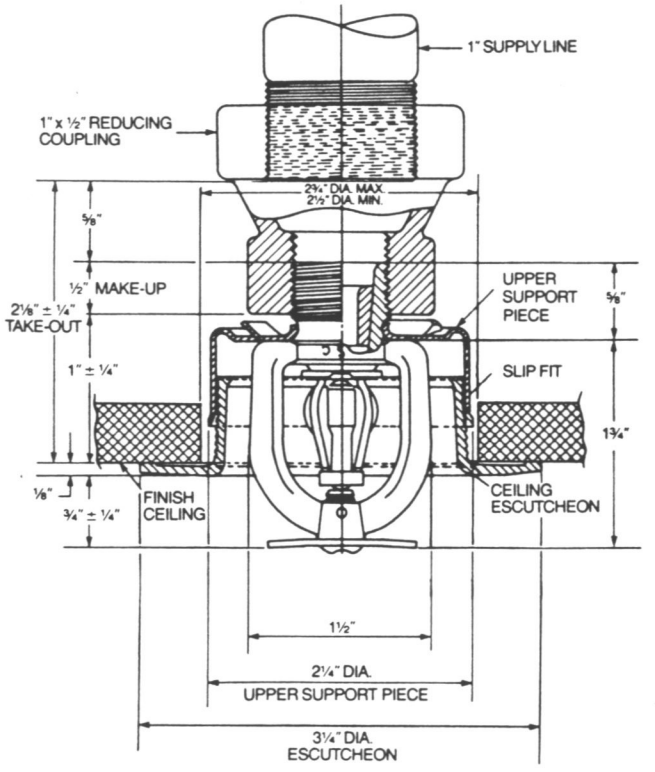


Figure 6 cross section of recessed head

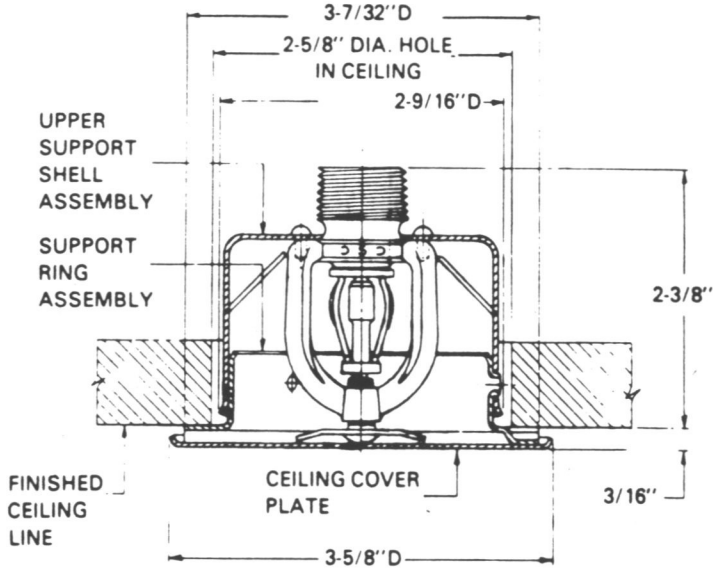


Figure 7 cross section of concealed type sprinkler head

Criteria for Fire Protection Rating

This criteria was developed on site in April of 1992 by Bill Cecil, WRO safety officer, Neal Borgmeyer, facilities manager, KALA, Paul Cloyd, historical architect, Addison Hulse, general engineering section chief, Terry Wong, structural engineering section chief, all of DSC-TWE. Discussions, building inspections, and history of fire response were considered in the criteria development process. The criteria were reviewed with Peter Thompson, park superintendent, and refinements were made.

The criteria in weighted order are:

1. Occupancy/internal fire risk factors/life safety
2. Historical significance and utility value in accordance with the park priority list
3. Adjacency (exposure fire risk) to other buildings
4. Construction type

This table is limited to the top 130 (out of more than 400) structures on the park priority list (table 1). This number includes McVeigh building 28, which is park priority 128. This is a large multi-residential structure, currently occupied, and considered at high risk for fire. The priority list was extended to 130 simply to create an even number cutoff point.

The table provides a numerical rating for each structure to determine its priority ranking for fire suppression and detection systems. The occupancy/fire risk factors, adjacency factor, and construction type criteria are weighted 20, 5, and 5 respectively. Each factor is applied for each structure on a 1 to 5 scale. The weight and rating are multiplied and the resulting figures summed for each building. To reflect the 1984 park priority ranking (table 1) an additional figure is added to this sum that is derived from the formula of criteria weight (5) times the total number of buildings studied (130) divided by the building's park priority.

These calculations create a range of point totals from 807 to 0.

Explanation of Fire Protection Criteria

1. Occupancy/Internal Fire Risk Factors/Life Safety
Criteria weight = 20

a. **Cooking:** Self explanatory, this includes permanent residential, guest quarters, and assembly buildings such as McVeigh. Where cooking is done by transient occupants, such as in the visitor quarters kitchen, the risk is somewhat higher.

b. **Electrical systems:** Structures without electricity rate 0 while those with very old and active systems rate a 5. Where systems have been rehabilitated, a 3 or 4 rating applies. Any building with an active electrical system is inherently more at risk than a structure without electrical power.

c. **Day use/24 hour:** This applies to non-residential versus residential/guest housing (smoking in bed risk) use of structure. Day-use only buildings rate a 1, 24- hour use rate a 5, intermittently used structures such as the beach houses are given a 3, unused/abandoned structures rate a 0.

d. **Multi-residential:** Addresses structures such as McVeigh apartments, visitors quarters and Bay View quarters where risks from multiple residential use are significantly increased. These would be rated 5. All other structures, both nonresidential and single resident types rate 0.

e. **Other use risks:** This is the catch all factor and would address life safety issues such as occupants of Bay View who are not fully ambulatory, use of candles in an assembly such as at St. Francis Church. Nonambulatory occupants at Bay View indicate a 5 rating. The once per year use of St. Philomena's for services rates a 2 or 3, where as the weekly use of St. Francis would rate a 5. Assembly use at McVeigh and Paschoal halls rates a 5. Twenty-four hour operation of heavy electrical equipment such as at the freezer building would rate a 3 or 4.

f. **Visitor exposure:** This would address the number of visitors who could enter or would approach closely the exterior of a structure, and who may smoke or pose some other fire risk. An example is St. Philomena's, which has a relatively high number of visitors entering the structure and rates a 5.

2. Historical significance/park priority list

Criteria weight = 5

Criteria found in the park priority listing (table 1) also applies in this category. In order to reflect those concerns, each structure will be assigned points by the equation of criteria weight (5) x 130/park priority. Thus, St.Philomena's will receive 5 x 130/1 or 650 points. This is summed with the other criteria point totals.

3. Adjacency

Criteria weight = 5

This refers to the risk of exposure to fire due to proximity to other structures. It also reflects the level of importance (park priority) of the adjoining structures placed at risk. An example would be the kitchen (bldg. 275 BV) at the visitor quarters. Although this structure is a very low park priority, (priority 98), it is a high fire risk due to its use, and it adjoins buildings that are park priorities 3, 4, and 5. The automatic suppression system offers protection primarily to the interior with little protection from exposure fire. Fire protection for the less significant structure posing an exposure risk to highly significant adjoining structures must be considered. Outside sprinklers would protect structures from the exposure risk but would be extremely detrimental to the historic appearance.

4. Construction type

Criteria weight = 5

This recognizes that there are different construction types and these may be combined within a single building. In increasing fire susceptibility order they are single-wall wood frame, double-wall wood frame, stucco on hollow tile, rubble masonry with or without stucco finish, and reinforced concrete. Roof types include wood shingle, asphalt shingle, and metal. The 1 to 5 rating (5 being highest risk) reflects both general building materials and roofing materials.

For example, single plank wall construction with wood shingle roof rated 5, while the same structure with a corrugated metal roof would be rated 4.5.

The criteria ratings assigned are based upon ratings by facility manager Neal Borgmeyer, additional information from the 1977 architectural evaluation by Henry Law and Laura Soulliere, and from more recent site visits. These ratings reflect current 1992 conditions; they do not reflect other potential actions for reducing fire risk such as disconnecting electrical power or providing fire resistant finishes. The visitor/patient meeting hall, building 278, is a prime example. Removal of electrical power would reduce fire risk, and may be a reasonable alternative to installation of a sprinkler system.

2. **OCCUPANCY /FIRE RISK FACTORS** - These factors are individually rated as describe above from 0 to 5. The individual ratings are summed and then multiplied by the weight factor of 20. Table 2 shows Building 274 is rated as follows: cooking - 0, electrical - 5, day/24 hr use - 5, multi-residential - 5, other risks- 3, visitor exposure - 5. This totals to 23. This is figured as 23 times 20 equals 460. The 460 is summed with the 162.5 from the park priority factor giving a running total of 622.5 points.

4. **CONSTRUCTION MATERIALS** - Building 274 is a wood frame building with a composition shingle roof. These materials have little fire resistance. 274 is rated at 4 for this criteria. This is figured at 4 times the criteria weight factor 5 equaling 20. This is summed with the previous total of 647.5 for a final point total of 667.5.

1. **PARK PRIORITY** - This is figured into the rating by the following formula: 130 divided by the park priority times 5. 130 is the total number of buildings being rated and 5 is the weight for this factor. Table 1 shows Bay View building 274 is park priority 4. The formula is 5*130/4. This equals 162.5 points which will be summed with the other factor ratings.

3. **ADJACENCY** - This criteria is rated as noted above. 274 is in very close proximity to Bay View buildings 278 and 277.These are very high park priorities - 3 and 5 respectively. 274 places 278 and 277 at very high risk to exposure fire and consequently is rated 5. The calculation is 5 times the weight factor of 5 equaling 25. Summing with the above factors the running total is 647.5 points.

BUILDING NAME	BLDG NO.	PARK PRIORITY FROM TABLE 1	OCCUPANCY AND FIRE RISK FACTORS - WEIGHT = 20						ADJACENCY WEIGHT = 5	CONSTRUCTION MATERIALS WEIGHT = 5	FIRE PROTECTION PRIORITY/ RATING
			COOKING	ELECTRICAL SYSTEM	DAY USE 24 HOUR	MULTI-RESIDENTIAL	OTHER USE RISKS	VISITOR EXPOSURE			
VISITOR QUARTERS	274BV	4	0	5	5	5	3	5	5	4	2/ 667.50

Table 2 Fire Protection Need Priority List

BUILDING NAME	BLDG NO.	PARK PRIORITY FROM TABLE 1	OCCUPANCY AND FIRE RISK FACTORS - WEIGHT = 20						ADJACENCY WEIGHT = 5	CONSTRUCTION MATERIALS WEIGHT = 5	FIRE PROTECTION PRIORITY/ RATING
			COOKING	ELECTRICAL SYSTEM	DAY USE 24 HOUR	MULTI-RESIDENTIAL	OTHER USE RISKS	VISITOR EXPOSURE			
ST. PHILOMENA	711	1	0	0	1	0	1	5	0	3.5	1/ 807.50
VISITOR QUARTERS	274BV	4	0	5	5	5	3	5	5	4	2/ 667.50
BAY VIEW BLDG 10 QUONSET HUT	10BV	58	5	5	5	5	5	2	3	3	3/ 581.21
★BAY VIEW BLDG 1 RESIDENCE	1BV	52	0	5	5	5	5	1	4.5	5	4/ ★480.00
STAFF ROW BLDG 1	1SR	31	5	5	5	5	3	1	3	4	5/ 535.97
BAY VIEW BLDG 275 VISITOR QRTRS KITCHEN/DINING	275	96	5	5	5	0	5	4	5	4.5	6/ 534.27
BAY VIEW BLDG 3 RESIDENCE	3BV	19	0	5	5	5	5	3	3.5	4.5	7/ 534.21
McVEIGH BLDG 12 APARTMENTS (LADIES DORMITORY)	12	35	5	5	5	5	3	0	5	4.5	8/ 526.07
WILCOX MEMORIAL (VISITOR QRTRS)	277BV	5	3.5	5	5	0	1	3	3.5	5	9/ 522.50
McVEIGH BLDG 28 APARTMENTS (MEN'S DORMITORY)	28	128	5	5	5	5	3	0	5	4.5	10/ 512.58
SILOAMA CHURCH	710	2	0	0	1	0	2	5	0	3	11/ 500.00
NUNS RESIDENCE	15BH	16	3	5	5	5	2	1	4	3.5	12/ 498.13
PATIENT/VISITOR MEETING HALL	278	3	0	3.5	2	0	2	4	5	4	13/ 491.67

★ Bay uildings 1 and 2 have reversed positions on this priority list based on review comments fi park. See park review comments in appendix H

Table 2 Fire Protection Need Priority List

BUILDING NAME	BLDG NO.	PARK PRIORITY FROM TABLE 1	OCCUPANCY AND FIRE RISK FACTORS - WEIGHT = 20						ADJACENCY WEIGHT = 5	CONSTRUCTION MATERIALS WEIGHT = 5	FIRE PROTECTION PRIORITY/ RATING
			COOKING	ELECTRICAL SYSTEM	DAY USE 24 HOUR	MULTI-RESIDENTIAL	OTHER USE RISKS	VISITOR EXPOSURE			
McVEIGH BLDG 23 RECREATION HALL (DINING HALL AND KITCHEN)	23M	37	5	5	3	0	5	3	5	5	14/ 487.57
★BAY VIEW BLDG 2 RESIDENCE	2BV	18	0	0	0		0	3	5	4.5	15/ ★143.61
PASCHOAL HALL	304	30	0	5	4.5	0	5	5	4.5	5	16/ 459.17
ST.FRANCIS CATHOLIC CHURCH	291	14	0	5	3.5	0	5	5	3.5	3.5	17/ 451.43
CALVINIST MISSION KANAANA HOU CHURCH	286	42	0	5	3.5	0	5	5	4	5	18/ 430.48
McVEIGH BLDG 33 RESIDENCE	33M	102	4	5	5	0	3	2	4	4.5	19/ 428.87
McVEIGH BLDG 32 RESIDENCE	32M	103	4	5	5	0	3	2	4	4.5	20/ 428.81
McVEIGH BLDG 34 RESIDENCE	34M	104	4	5	5	0	3	2	4	4.5	21/ 428.75
STAFF ROW BLDG 8 GUEST QRTRS	8SR	25	4	5	5	0	3	1	3.5	4	22/ 423.50
McVEIGH BLDG 27 COTTAGE	27M	44	4	5	5	0	3	1	4.5	5	23/ 422.27
McVEIGH BLDG 13 COTTAGE	13M	45	4	5	5	0	3	1	4.5	5	24/ 421.94

★ Bay View buildings 1 and 2 have reversed positions on this priority list based on review comments from the park. See park review comments in appendix H

Table 2 Fire Protection Need Priority List

BUILDING NAME	BLDG NO.	PARK PRIORITY FROM TABLE 1	OCCUPANCY AND FIRE RISK FACTORS - WEIGHT = 20						ADJACENCY WEIGHT = 5	CONSTRUCTION MATERIALS WEIGHT = 5	FIRE PROTECTION PRIORITY/ RATING
			COOKING	ELECTRICAL SYSTEM	DAY USE 24 HOUR	MULTI-RESIDENTIAL	OTHER USE RISKS	VISITOR EXPOSURE			
BISHOP HOME ST. ELIZABETH'S CHAPEL	16BH	53	0	5	4	0	5	4	5	4.5	25/ 419.76
McVEIGH BLDG 15 COTTAGE	15M	46	4	5	5	0	3	1	4	5	26/ 419.13
RESIDENCE LIGHTHOUSE	706	62	5	1	5	0	5	3	2.5	3	27/ 417.98
RESIDENCE (NONO) GOODHUE ST.	115	56	4	5	5	0	3	1	4	4.5	28/ 414.11
RESIDENCE (KEKAHUNA) KAMEHAMEHA ST.	15	99	4	5	5	0	4	1	1	4.5	29/ 414.07
RESIDENCE (KEAO) KAMEHAMEHA ST.	9	100	4	5	5	0	4	1	1	4.5	30/ 414.00
McVEIGH BLDG 30 RESIDENCE	30M	105	4	5	5	0	3	1	5	4.5	31/ 413.69
RESIDENCE (NAIA) GOODHUE ST.	114	55	4	5	5	0	3	1	4	4	32/ 411.82
OLD STONE CHURCH (FIRE HOUSE)	301	11	0	5	3	0	5	3	3.5	3	33/ 411.59
RESIDENCE (REMIGIO) GOODHUE ST.	116	57	4	5	5	0	3	1	3.5	4.5	34/ 411.40
CALVINIST MISSION RESIDENCE	288	47	4	5	5	0	3	1	3.5	4	35/ 411.33

Table 2 Fire Protection Need Priority List

BUILDING NAME	BLDG NO.	PARK PRIORITY FROM TABLE 1	OCCUPANCY AND FIRE RISK FACTORS - WEIGHT = 20						ADJACENCY WEIGHT = 5	CONSTRUCTION MATERIALS WEIGHT = 5	FIRE PROTECTION PRIORITY/ RATING
			COOKING	ELECTRICAL SYSTEM	DAY USE 24 HOUR	MULTI-RESIDENTIAL	OTHER USE RISKS	VISITOR EXPOSURE			
RESIDENCE SOUTH OF ADMIN BLDG	61-71 (71R-61)	40	4	5	5	0	3	1	3	4	36/ 411.25
BAY VIEW BLDG 64 RESIDENCE	64BV	76	4	5	5	0	3.5	1	2.5	4	37/ 411.05
RESIDENCE (KALA) KAPIOLANI ST.	199	122	4	5	5	0	4	1	0	4.5	38/ 407.83
McVEIGH BLDG RESIDENCE	9M	129	4	5	5	0	3	1	4	4.5	39/ 407.54
STAFF ROW ADMINISTRATOR'S RESIDENCE	10SR	22	3	5	5	0	3	1	3.5	4	40/ 407.05
STAFF ROW BLDG 14 RESIDENCE	14SR	73	4	3	5	3	2	1	3.5	4	41/ 406.40
RESIDENCE (KILOHAMAI) KILOHANA ST.	53	86	4	5	5	0	3	1	2.5	5	42/ 405.06
LDS CHURCH GUEST HOUSE	256	98	5	5	5	0	2	1	2.5	4.5	43/ 401.63
RESIDENCE (BENJAMIN) BALDWIN ST.	181	113	4	5	5	0	3	1	2.5	4.5	44/ 400.75
McVEIGH BLDG 20 RESIDENCE	20M	108	4	5	5	0	3	1	2	4.5	45/ 398.52
RESIDENCE 7 (SILVA) KAMEHAMEHA ST.	7	101	4	5	5	0	3	1	1.5	4.5	46/ 396.44

Table 2 Fire Protection Need Priority List

BUILDING NAME	BLDG NO.	PARK PRIORITY FROM TABLE 1	OCCUPANCY AND FIRE RISK FACTORS - WEIGHT = 20						ADJACENCY WEIGHT = 5	CONSTRUCTION MATERIALS WEIGHT = 5	FIRE PROTECTION PRIORITY/ RATING
			COOKING	ELECTRICAL SYSTEM	DAY USE 24 HOUR	MULTI-RESIDENTIAL	OTHER USE RISKS	VISITOR EXPOSURE			
REA'S BAR	62	41	3.5	5	3	0	2.5	3.5	2	4	47/ 395.85
RESIDENCE (BELL) KAIULANI ST.	189	118	4	5	5	0	3	1	0	4.5	48/ 388.01
RESIDENCE (SAGADRACA) GOODHUE ST.	117-62 (62-117)	72	4	3	5	0	4	1	3.5	4	49/ 386.53
STAFF ROW DINING HALL AND CENTRAL KITCHEN	5SR	21	4	3	1	0	3	5	4	3	50/ 385.95
RESIDENCE (SEKI) 281 PUAHI ST.	281 104-A	20	2	4	5	0	4	1	1	5	51/ 382.50
RESIDENCE (YONEMORI) BALDWIN ST.	179-62 (62-179)	115	4	3	5	0	4	1	2.5	4.5	52/ 380.65
McVEIGH BLDG 1 RESIDENCE	1M	89	4	5	5	0	2	1	2	4.5	53/ 379.80
ST. FRANCIS RECTORY	294	95	4	5	5	0	2	1	2	4.5	54/ 379.34
RESIDENCE (CHOW) KAIULANI ST.	185-71 (210) (71R-185)	121	4	5	5	0	2	1	2	4.5	55/ 377.87
BAY VIEW BLDG 11 RESIDENCE	11BV	71	4	5	5	0	2	1	1	4	56/ 374.15
RESIDENCE (AI) BALDWIN ST.	178-56 (56-178)	127	4	5	5	0	2	1	1	4	57/ 370.12

Table 2 Fire Protection Need Priority List

BUILDING NAME	BLDG NO.	PARK PRIORITY FROM TABLE 1	OCCUPANCY AND FIRE RISK FACTORS - WEIGHT = 20						ADJACENCY WEIGHT = 5	CONSTRUCTION MATERIALS WEIGHT = 5	FIRE PROTECTION PRIORITY/ RATING
			COOKING	ELECTRICAL SYSTEM	DAY USE 24 HOUR	MULTI-RESIDENTIAL	OTHER USE RISKS	VISITOR EXPOSURE			
RESIDENCE GOODHUE ST.	118	59	4	3	5	0	3	1	2.5	5	58/ 368.52
RESIDENCE (FERNANDEZ) KAIULANI ST.	192	112	4	5	5	0	2	1	0	4.5	59/ 368.30
STAFF ROW BLDG 16 ELECTRICIAN'S RESIDENCE	16SR	80	4	4	5	0	2	1	3.5	4.5	60/ 368.13
STAFF ROW BLDG 1a GUEST COTTAGE	1aSR (SR-1-A)	75	4	5	5	0	2	0	2	4.5	61/ 361.17
LIGHTHOUSE RESIDENCE	707	126	5	3	5	0	3	1	2	1	62/ 360.16
RESIDENCE (NAKANISHI) DAMIEN ROAD	311-64 (64-311)	114	4	3	5	0	3	1	2	4.5	63/ 358.20
RESIDENCE (REA) BALDWIN ST.	172-56 (56-172)	116	4	3	5	0	3	1	2.5	3.5	64/ 355.60
BEACH HOUSE AIRPORT ROAD	699	67	3	5	5	0	3	0	0	4	65/ 349.70
BAY VIEW BLDG 5 PATIENT DINING HALL	5BV	24	4	5	1	0	3	1	4.5	4	66/ 349.58
BEACH HOUSE AIRPORT ROAD	691	123	3	5	5	0	3	0	0	4.5	67/ 347.78
PICNIC PAVILION AIRPORT ROAD	688	91	4	5	1	0	3	3.5	0	2	68/ 347.14

Table 2 Fire Protection Need Priority List

BUILDING NAME	BLDG NO.	PARK PRIORITY FROM TABLE 1	OCCUPANCY AND FIRE RISK FACTORS - WEIGHT = 20						ADJACENCY WEIGHT = 5	CONSTRUCTION MATERIALS WEIGHT = 5	FIRE PROTECTION PRIORITY/ RATING
			COOKING	ELECTRICAL SYSTEM	DAY USE 24 HOUR	MULTI-RESIDENTIAL	OTHER USE RISKS	VISITOR EXPOSURE			
JAIL/POLICE HQ	302/3	17	0	5	1	0	5	3	2	3	69/ 343.24
RESIDENCE (KALIKO) KAIULANI ST.	186-64 (64-186)	120	4	3	5	0	2	1	2.5	4.5	70/ 340.42
RESIDENCE (McCARTHY) BALDWIN ST.	173-56 (56-173)	117	4	3	5	0	2	1	3	3.5	71/ 338.06
BEACH HOUSE AIRPORT ROAD	695	68	3	5	5	0	2	0	1.5	4	72/ 337.06
RESIDENCE (MALAKAUA) 43 KAMEHAMEHA	56	12	2	4	5	0	2	0	1	3	73/ 334.17
RESIDENCE SCHOOL ST.	119-60 (60R-119)	54	4	3	5	0	2	1	0	4	74/ 332.04
RESIDENCE 26 DAMIEN ROAD	26	34	4	1	5	0	3	1	0	5	75/ 324.12
BAY VIEW BLDG 8 CHAPEL/MORGUE /RECREATION	8BV	60	0	5	1	0	5	3	1	4.5	76/ 318.33
NPS OFFICE (OUT PATIENT CLINIC)	7BH	48	0	3	1	0	3.5	5	5	5	77/ 313.54
SOCIAL HALL (ST. FRANCIS)	292	13	0	5	1	0	4	1	3	4	78/ 305.00
McVEIGH BLDG 2 RESIDENCE	2M	90	4	1	5	0	2	1	2.5	4.5	79/ 302.22
POST OFFICE /COURT HOUSE	290	10	0	5	1	0	1	3	3	3	80/ 295.00

Table 2 Fire Protection Need Priority List

BUILDING NAME	BLDG NO.	PARK PRIORITY FROM TABLE 1	OCCUPANCY AND FIRE RISK FACTORS - WEIGHT = 20						ADJACENCY WEIGHT = 5	CONSTRUCTION MATERIALS WEIGHT = 5	FIRE PROTECTION PRIORITY/ RATING
			COOKING	ELECTRICAL SYSTEM	DAY USE 24 HOUR	MULTI-RESIDENTIAL	OTHER USE RISKS	VISITOR EXPOSURE			
CRAFT AND STORAGE BLDG	300	33	0	5	1	0	5	1	2.5	4	81/ 292.20
MOTOR POOL GARAGE	259	85	0	5	1	0	5	1	3.5	4.5	82/ 287.65
CARPENTER'S SHOP	264	28	0	5	1	0	5	1	2.5	2	83/ 285.71
LUMBER WAREHOUSE QUONSET HUT	263a	83	0	5	1	0	5	1	4	3	84/ 282.83
PLUMBING WAREHOUSE	263	84	0	5	1	0	5	1	4	2.5	85/ 280.24
MAINTENANCE SHOP	265	27	0	5	1	0	5	1	2	1	86/ 279.07
AJA BUDDHIST HALL	308	15	0	1	1	0	3	5	2	5	87/ 278.33
PATIENT'S STORE	272	9	0	5	1	0	1	2	2.5	2	88/ 274.72
FUMIGATION HALL	283BH	8	0	3	1	0	1	3	2.5	4	89/ 273.75
MOTOR POOL GAS STATION	258a	82	0	5	1	0	5	1	2	2.5	90/ 270.43
AIRPORT TERMINAL	703	66	0	3	1	0	2	5	3	4	91/ 264.85
SLAUGHTER HOUSE	630	78	0	5	1	0	4	2	1	2	92/ 263.33
PAVILION RESTROOM AIRPORT ROAD	687	92	0	3	1	0	3	5	0	1.5	93/ 254.57
McVEIGH BLDG 11 RESIDENCE	11M	109	0	5	1	0	3	1	3.5	4.5	94/ 245.96
GAS STATION	273	29	0	3	1	0	5	1	2	2.5	95/ 244.91

Table 2 Fire Protection Need Priority List

BUILDING NAME	BLDG NO.	PARK PRIORITY FROM TABLE 1	OCCUPANCY AND FIRE RISK FACTORS - WEIGHT = 20						ADJACENCY WEIGHT = 5	CONSTRUCTION MATERIALS WEIGHT = 5	FIRE PROTECTION PRIORITY/ RATING
			COOKING	ELECTRICAL SYSTEM	DAY USE 24 HOUR	MULTI-RESIDENTIAL	OTHER USE RISKS	VISITOR EXPOSURE			
BAY VIEW BLDG 6 NPS MAINTENANCE OFFICE (KITCHEN/DINING)	6BV	74	0	1	1	0	4	3	4	4.5	96/ 231.28
BUTCHER SHOP AND FREEZER	267/8	26	0	4	1	0	4	1	0	1	97/ 230.00
STORE WAREHOUSE QUONSET HUT	272a	107	0	5	1	0	3	1	3.5	1	98/ 228.57
RESIDENCE (BROWN) KAMEHAMEHA ST.	3a (65R-3)	110	0	5	1	0	3	1	0	4.5	99/ 228.41
LDS PARISH HALL	257a	50	0	5	1	0	2	1	3	4	100/ 228.00
ROCK CRUSHER	635	79	0	5	1	0	3	1	0	3	101/ 223.23
ADMINISTRATION BUILDING	270-61 (61-270)	38	0	3	1	0	2	3	3	2	102/ 222.11
FOOD WAREHOUSE	271	43	0	5	1	0	3	1	0	1	103/ 220.12
RESIDENCE (SORIA) KAIULANI ST.	190-66 (66R-190)	119	0	5	1	0	2	1	1.5	4.5	104/ 215.46
SILOAMA CHURCH RESTROOMS	720	7	0	0	0	0	0	5	0	3	105/ 207.86
AJA STORAGE	309	130	0	0	0	0	2	5	5	5	106/ 195.00
LIBRARY	296 (65-296)	69	0	1	1	0	4	2	2	3	107/ 194.42
LDS CHURCH	257	49	0	3	1	0	2	1	3.5	3	108/ 185.77

Table 2 Fire Protection Need Priority List

BUILDING NAME	BLDG NO.	PARK PRIORITY FROM TABLE 1	OCCUPANCY AND FIRE RISK FACTORS - WEIGHT = 20						ADJACENCY WEIGHT = 5	CONSTRUCTION MATERIALS WEIGHT = 5	FIRE PROTECTION PRIORITY/ RATING
			COOKING	ELECTRICAL SYSTEM	DAY USE 24 HOUR	MULTI-RESIDENTIAL	OTHER USE RISKS	VISITOR EXPOSURE			
BAY VIEW BLDG 10a (house NW of 1BV)	10aBV	32	0	0	0	0	5	1	5	4	109/ 185.31
STAFF ROW BLDG 6 FREEZER SHELTER	6SR	77	0	3	1	0	2	1	4.5	2.5	110/ 183.44
BAY VIEW BLDG 519 ELECTRICAL TRANSFORMER DUE EAST OF 2BV	519	97	0	1	0	0	5	1	3.5	3	111/ 179.20
ABANDONED STORE KAMEHAMEHA ST.	260	81	0	0	1	0	5	1	2.5	3	112/ 175.52
RESIDENCE (CAMBRA) KAMEHAMEHA ST.	4	111	0	5	0	0	3	0	0	0	113/ 165.86 Building presumed abandoned
PATIENT RESTROOM	523BV	6	0	0	1	1	0	0	0	3.5	114/ 165.83
MOLOKAI LIGHTHOUSE	715	61	0	1	1	0	3	1	4	1	115/ 155.66
McVEIGH BLDG 24 POOL HALL (PAVILION)	24M	36	0	0	1	0	3	1	3.5	3	116/ 150.56
BAY VIEW BLDG 522 TELEPHONE DISTRIBUTION STATION	522BV	70	0	1	1	0	2	1	3	4.5	117/ 146.79

Table 2 Fire Protection Need Priority List

BUILDING NAME	BLDG NO.	PARK PRIORITY FROM TABLE 1	OCCUPANCY AND FIRE RISK FACTORS - WEIGHT = 20						ADJACENCY WEIGHT = 5	CONSTRUCTION MATERIALS WEIGHT = 5	FIRE PROTECTION PRIORITY/ RATING
			COOKING	ELECTRICAL SYSTEM	DAY USE 24 HOUR	MULTI-RESIDENTIAL	OTHER USE RISKS	VISITOR EXPOSURE			
STAFF ROW BLDG 11 GARAGE	11SR	94	0	3	0	0	2	0	3	2.5	118/ 134.41
LIGHTHOUSE GARAGE	709	125	0	0	1	0	3	1	1	4.5	119/ 132.70
BEACH HOUSE AIRPORT ROAD	693	124	0	0	1	0	2	1	0	4.5	120/ 107.74
LIGHTHOUSE GENERATOR BLDG	713	63	0	0	1	0	0	2	2	3.5	121/ 97.82
REA'S BAR RESTROOM	624	51	0	1	0	0	0	2	3	0	122/ 87.75
STORAGE SHED KAMEHAMEHA ST.	664	93	0	0	0	0	2	0	2 Unable to locate on map.Photo indicates residence nearby.	4.5	123/ 79.49
CREMATORY	262	88	0	0	0	0	1	1	3	2	124/ 72.39
BAY VIEW LANAI	528	106	0	1	1	0	0	0	1.5	2	125/ 63.63
LIGHTHOUSE WATER TANK	712	64	0	0	0	0	0	2	2	0	126/ 60.16
LIGHTHOUSE ABANDONED STRUCTURE	714	65	0	0	0	0	0	0	0	0	127/ 10.00
OLD HOSPITAL (BURNED 1990)	282	23	0	0	0	0	0	0	0	0	128/ 0.00

Table 2 Fire Protection Need Priority List

BUILDING NAME	BLDG NO.	PARK PRIORITY FROM TABLE 1	OCCUPANCY AND FIRE RISK FACTORS - WEIGHT = 20						ADJACENCY WEIGHT = 5	CONSTRUCTION MATERIALS WEIGHT = 5	FIRE PROTECTION PRIORITY/ RATING
			COOKING	ELECTRICAL SYSTEM	DAY USE 24 HOUR	MULTI-RESIDENTIAL	OTHER USE RISKS	VISITOR EXPOSURE			
ELECTRIC SHOP (DEMOLISHED POST 1977-PRE 1989)	266	87	0	0	0	0	0	0	0	0	129/ 0.00 This Building has been demolished
KALAUPAPA MEMORIAL HOSPITAL	814	39	0	1	5	4	5	1			130/ 0.00 Building already has sprinkler & detection systems

Structural Repair and Fire Protection Systems Fy 93 Cost Estimate

Two previous estimates for this project have been done. Package KALA 107 C/D Design Analysis, November 1990 estimated $37 per square foot. Another done in August 1991 estimated $98 net or $128 gross per square foot ($5.9 million total gross). The latter was a class C estimate by DSC for 13 structures totaling 46,000 square feet. The selection of the buildings and the cost estimates were based on inadequate data and relied upon assumptions and criteria that should have been verified and corrected.

The April 1992 site visit allowed personnel to refine the criteria and gather more accurate existing condition data. **However, time constraints permitted only cursory inspection of no more than 10% of the 130 structures addressed here. The cost estimates shown here have been extrapolated from this 10% sample. In the future preliminary design stage throrough inspections of all buildings concerned will be done. Consequently, accurate estimates specific to each structure will be produced at that time. The purpose of these class C estimates is to provide a ball park range of costs. These costs are considered valid for FY 93.**

The sprinkler and detection systems would require support from the building's structural system. Investigations conducted during the site visit indicated that some degree of structural rehabilitation should be assumed for all buildings. Costs for structural rehabilitation would vary from structure to structure. **The cost range for structural work is $40 to $65 per square foot. The structural work amounts to 75 to 80% of the entire project cost .**

Cost estimates shown on the next page are split between single residences and larger multi-residential, assembly, and public buildings. The requirements for detection and suppression systems differ greatly between NFPA 13 - D systems to be used at the single residences and the more complex the NFPA 13 systems to be used at offices, multi-residential and assembly buildings.

Some structures are estimated at $30 per square foot, as they are in relatively good repair. This estimate includes repair of architectural finishes incidental to the structural work.

COST ESTIMATE for FY 93

RESIDENTIAL		**PUBLIC AND MULTI-RESIDENTIAL**	
Structural	40	Structural	65
Fire Sprinkler	10	Fire Sprinkler	15
Fire Detection *	0	Fire Detection	5
Total net per square foot	**$50**	**Total net per square foot**	**$85**

* single residences will receive fire detectors under package 107 C/D

Based on the above figures we can provide automatic fire protection for the:

top 12 priorities for a net estimate of $2,465,380
top 25 priorities for a net estimate of $4,444,380
top 50 priorities for a net estimate of $5,849,480
top 100 priorities for a net estimate of $9,040,580
top 130 priorities for a net estimate of $9,869,420

Table 3 FY 93 Estimates for Structural Repairs and Automatic Fire Protection Systems

BUILDING NAME	BLDG NO.	PARK PRIORITY	SQUARE FOOTAGE	NET ESTIMATED COST	FINAL FIRE PROTECTION PRIORITY
**ST.PHILOMENA	711	1	2,520	75,600.00	1
VISITOR QUARTERS	274BV	4	1,900	161,500.00	2
**BAY VIEW BLDG 10 QUONSET HUT	10BV	58	4,600	138,000.00	3
BAY VIEW BLDG 1 RESIDENCE	1BV	52	3,700	314,500.00	4
STAFF ROW BLDG 1	1SR	31	4,900	416,500.00	5
BAY VIEW BLDG 275 VISITOR QRTRS KITCHEN/DINING	275	96	468	39,780.00	6
BAY VIEW BLDG 3 RESIDENCE	3BV	19	3,700	314,500.00	7
McVEIGH BLDG 12 APARTMENTS (LADIES DORMITORY)	12	35	3,500	297,500.00	8
WILCOX MEMORIAL (VISITOR QRTRS)	277BV	5	1,600	80,000.00	9
McVEIGH BLDG 28 APARTMENTS (MEN'S DORMITORY)	28	128	3,500	297,500.00	10
** SILOAMA CHURCH	710	2	800	24,000.00	11
NUNS RESIDENCE	15BH	16	3,600	306,000.00	12
SUBTOTAL PRIORITIES 1 - 12			34,788.00	2,465,380.00	
PATIENT/VISITOR MEETING HALL	278	3	408	20,400.00	13
McVEIGH BLDG 23 RECREATION HALL (DINING HALL AND KITCHEN)	23M	37	4,000	340,000.00	14
BAY VIEW BLDG 2 RESIDENCE	2BV	18	3,700	314,500.00	15
PASCHOAL HALL	304	30	6,000	510,000.00	16
ST.FRANCIS CATHOLIC CHURCH	291	14	3,800	323,000.00	17

** Structural rehabilitation work is largely complete or unneeded. Costs for installation of systems with minor structural work calculated at $30/sf.

Table 3 FY 93 Estimates for Structural Repairs and Automatic Fire Protection Systems

BUILDING NAME	BLDG NO.	PARK PRIORITY	SQUARE FOOTAGE	NET ESTIMATED COST	FINAL FIRE PROTECTION PRIORITY
CALVINIST MISSION KANAANA HOU CHURCH SEVERE INSECT DAMAGE, FIGURED AT $100/SF	286	42	2,040	204,000.00	18
McVEIGH BLDG 33 RESIDENCE	33M	102	750	37,500.00	19
McVEIGH BLDG 32 RESIDENCE	32M	103	750	37,500.00	20
McVEIGH BLDG 34 RESIDENCE	34M	104	1,050	52,500.00	21
STAFF ROW BLDG 8 GUEST QRTRS	8SR	25	1,250	62,500.00	22
McVEIGH BLDG 27 COTTAGE	27M	44	420	21,000.00	23
McVEIGH BLDG 13 COTTAGE	13M	45	450	22,500.00	24
BISHOP HOME ** ST. ELIZABETH'S CHAPEL	16BH	53	672	33,600.00	25
SUBTOTAL PRIORITIES 13-25			25,290.00	1,979,000.00	
RUNNING TOTAL PRIORITIES 1 -25			60,078.00	4,444,380.00	
McVEIGH BLDG 15 COTTAGE	15M	46	550	27,500.00	26
RESIDENCE LIGHTHOUSE	706	62	800	40,000.00	27
RESIDENCE (NONO) GOODHUE ST.	115	56	1,000	50,000.00	28
RESIDENCE (KEKAHUNA) KAMEHAMEHA ST.	15	99	1,100	55,000.00	29
RESIDENCE (KEAO) KAMEHAMEHA ST.	9	100	900	45,000.00	30

** Structural rehabilitation work is largely complete or unneeded. Costs for installation of systems with minor structural work calculated at $30/sf.

Table 3 FY 93 Estimates for Structural Repairs and Automatic Fire Protection Systems

BUILDING NAME	BLDG NO.	PARK PRIORITY	SQUARE FOOTAGE	NET ESTIMATED COST	FINAL FIRE PROTECTION PRIORITY
McVEIGH BLDG 30 RESIDENCE	30M	105	420	21,000.00	31
RESIDENCE (NAIA) GOODHUE ST.	114	55	840	42,000.00	32
** OLD STONE CHURCH (FIRE HOUSE)	301	11	2,850	85,500.00	33
RESIDENCE (REMIGIO) GOODHUE ST.	116	57	884	44,200.00	34
CALVINIST MISSION RESIDENCE	288	47	1000	50,000.00	35
RESIDENCE SOUTH OF ADMIN BLDG	61-71 (71R-61)	40	1,000	50,000.00	36
BAY VIEW BLDG 64 RESIDENCE	64BV	76	624	31,200.00	37
RESIDENCE (KALA) KAPIOLANI ST.	199	122	1,000	50,000.00	38
McVEIGH BLDG 9 RESIDENCE	9M	129	500	25,000.00	39
STAFF ROW ADMINISTRATOR'S RESIDENCE	10SR	22	2,200	110,000.00	40
STAFF ROW BLDG 14 INTERMITTENT RESIDENCE	14SR	73	900	45,000.00	41
RESIDENCE (KILOHAMAI) KILOHANA ST.	53	86	900	45,000.00	42
LDS CHURCH GUEST HOUSE	256	98	600	30,000.00	43
RESIDENCE (BENJAMIN) BALDWIN ST.	181	113	1,000	50,000.00	44
McVEIGH BLDG 20 RESIDENCE	20M	108	520	26,000.00	45
RESIDENCE 7 (SILVA) KAMEHAMEHA ST.	7	101	800	40,000.00	46

** Structural rehabilitation work is largely complete or unneeded. Costs for installation of systems with minor structural work calculated at $30/sf.

Table 3 FY 93 Estimates for Structural Repairs and Automatic Fire Protection Systems

BUILDING NAME	BLDG NO.	PARK PRIORITY	SQUARE FOOTAGE	NET ESTIMATED COST	FINAL FIRE PROTECTION PRIORITY
REA'S BAR	62	41	1,640	139,400.00	47
RESIDENCE (BELL) KAIULANI ST.	189	118	936	46,800.00	48
RESIDENCE (SAGADRACA) GOODHUE ST.	117-62 (62-117)	72	880	44,000.00	49
STAFF ROW DINING HALL AND CENTRAL KITCHEN	5SR	21	2500	212,500.00	50
SUBTOTAL PRIORITIES 26-50			**26,344.00**	**1,405,100.00**	
RUNNING TOTAL PRIORITIES 1-50			**86,422.00**	**5,849,480.00**	
RESIDENCE (SEKI) 281 PUAHI ST.	281 104-A	20	800	40,000.00	51
RESIDENCE (YONEMORI) BALDWIN ST.	179-62 (62-179)	115	1,100	55,000.00	52
McVEIGH BLDG 1 RESIDENCE	1M	89	500	25,000.00	53
ST. FRANCIS RECTORY	294	95	1,200	60,000.00	54
RESIDENCE (CHOW) KAIULANI ST.	185-71 (210) (71R-185)	121	936	46,800.00	55
BAY VIEW BLDG 11 RESIDENCE	11BV	71	672	33,600.00	56
RESIDENCE (AI) BALDWIN ST.	178-56 (56-178)	127	792	39,600.00	57
RESIDENCE GOODHUE ST.	118	59	1,000	50,000.00	58

** Structural rehabilitation work is largely complete or unneeded. Costs for installation of systems with minor structural work calculated at $30/sf.

Table 3 FY 93 Estimates for Structural Repairs and Automatic Fire Protection Systems

BUILDING NAME	BLDG NO.	PARK PRIORITY	SQUARE FOOTAGE	NET ESTIMATED COST	FINAL FIRE PROTECTION PRIORITY
RESIDENCE (FERNANDEZ) KAIULANI ST.	192	112	816	40,800.00	59
STAFF ROW BLDG 16 ELECTRICIAN'S RESIDENCE	16SR	80	350	17,500.00	60
STAFF ROW BLDG 1a GUEST COTTAGE	1aSR (SR-1-A)	75	675	33,750.00	61
LIGHTHOUSE RESIDENCE	707	126	1,200	60,000.00	62
RESIDENCE (NAKANISHI) DAMIEN ROAD	311-64 (64-311)	114	1,200	60,000.00	63
RESIDENCE (REA) BALDWIN ST.	172-56 (56-172)	116	792	39,600.00	64
BEACH HOUSE AIRPORT ROAD	699	67	750	37,500.00	65
BAY VIEW BLDG 5 PATIENT DINING HALL	5BV	24	1,344	114,240.00	66
BEACH HOUSE AIRPORT ROAD	691	123	750	37,500.00	67
PICNIC PAVILION AIRPORT ROAD	688	91	1,000	50,000.00	68
** JAIL/POLICE HQ	302/3	17	3,208	96,240.00	69
RESIDENCE (KALIKO) KAIULANI ST.	186-64 (64-186)	120	1,200	60,000.00	70
RESIDENCE (McCARTHY) BALDWIN ST.	173-56 (56-173)	117	792	39,600.00	71
BEACH HOUSE AIRPORT ROAD	695	68	800	40,000.00	72
RESIDENCE (MALAKAUA) 43 KAMEHAMEHA	56	12	800	40,000.00	73

** Structural rehabilitation work is largely complete or unneeded. Costs for installation of systems with minor structural work calculated at $30/sf.

Table 3 FY 93 Estimates for Structural Repairs and Automatic Fire Protection Systems

BUILDING NAME	BLDG NO.	PARK PRIORITY	SQUARE FOOTAGE	NET ESTIMATED COST	FINAL FIRE PROTECTION PRIORITY
RESIDENCE SCHOOL ST.	119-60 (60R-119)	54	1,050	52,500.00	74
RESIDENCE 26 DAMIEN ROAD	26	34	500	25,000.00	75
BAY VIEW BLDG 8 CHAPEL/MORGUE /RECREATION	8BV	60	800	40,000.00	76
** NPS OFFICE (OUT PATIENT CLINIC)	7BH	48	572	17,160.00	77
SOCIAL HALL (ST. FRANCIS)	292	13	896	76,160.00	78
McVEIGH BLDG 2 RESIDENCE	2M	90	500	25,000.00	79
POST OFFICE /COURT HOUSE	290	10	2,150	182,750.00	80
CRAFT AND STORAGE BLDG	300	33	1,000	50,000.00	81
MOTOR POOL GARAGE	259	85	3,800	190,000.00	82
CARPENTER'S SHOP	264	28	2,244	112,200.00	83
** LUMBER WAREHOUSE QUONSET HUT	263a	83	4,600	138,000.00	84
PLUMBING WAREHOUSE	263	84	2,120	106,000.00	85
MAINTENANCE SHOP	265	27	2,244	112,200.00	86
** AJA BUDDHIST HALL	308	15	900	27,000.00	87
PATIENT'S STORE	272	9	2,200	187,000.00	88
FUMIGATION HALL	283BH	8	680	57,800.00	89
MOTOR POOL GAS STATION	258a	82	600	51,000.00	90
AIRPORT TERMINAL	703	66	1,200	102,000.00	91
SLAUGHTER HOUSE	630	78	450	22,500.00	92
PAVILION RESTROOM AIRPORT ROAD	687	92	200	10,000.00	93
McVEIGH BLDG 11 RESIDENCE	11M	109	450	22,500.00	94

** Structural rehabilitation work is largely complete or unneeded. Costs for installation of systems with minor structural work calculated at $30/sf.

Table 3 FY 93 Estimates for Structural Repairs and Automatic Fire Protection Systems

BUILDING NAME	BLDG NO.	PARK PRIORITY	SQUARE FOOTAGE	NET ESTIMATED COST	FINAL FIRE PROTECTION PRIORITY
GAS STATION	273	29	352	17,600.00	95
**BAY VIEW BLDG 6 NPS MAINTENANCE OFFICE (KITCHEN/DINING)	6BV	74	3,000	90,000.00	96
BUTCHER SHOP AND FREEZER	267/8	26	3,300	165,000.00	97
** STORE WAREHOUSE QUONSET HUT	272a	107	4,000	120,000.00	98
RESIDENCE (BROWN) KAMEHAMEHA ST.	3a (65R-3)	110	500	25,000.00	99
LDS PARISH HALL	257a	50	1,000	50,000.00	100
SUBTOTAL PRIORITIES 51-100			63,985.00	3,191,100.00	
RUNNING TOTAL PRIORITIES 1-100			150,407.00	9,040,580.00	
ROCK CRUSHER	635	79	1,000	50,000.00	101
** ADMINISTRATION BUILDING	270-61 (61-270)	38	2,800	84,000.00	102
** FOOD WAREHOUSE	271	43	2,050	61,500.00	103
RESIDENCE (SORIA) KAIULANI ST.	190-66 (66R-190)	119	450	22,500.00	104
SILOAMA CHURCH RESTROOMS	720	7	140	7,000.00	105
AJA STORAGE	309	130	324	27,540.00	106
**LIBRARY	296 (65-296)	69	988	29,640.00	107
LDS CHURCH	257	49	1,000	85,000.00	108
BAY VIEW BLDG 10a	10aBV	32	1,080	54,000.00	109
STAFF ROW BLDG 6 FREEZER SHELTER	6SR	77	1120	56,000.00	110

** Structural rehabilitation work is largely complete or unneeded. Costs for installation of systems with minor structural work calculated at $30/sf.

Table 3 FY 93 Estimates for Structural Repairs and Automatic Fire Protection Systems

BUILDING NAME	BLDG NO.	PARK PRIORITY	SQUARE FOOTAGE	NET ESTIMATED COST	FINAL FIRE PROTECTION PRIORITY
BAY VIEW BLDG 519 ELECTRICAL TRANSFORMER DUE EAST OF 2BV	519	97	80	4,000.00	111
ABANDONED STORE KAMEHAMEHA ST. SEVERELY DETERIORATED COST FIGURED AT $100/SF	260	81	960	96,000.00	112
RESIDENCE (CAMBRA) KAMEHAMEHA ST. presumed abandoned	4	111	700	35,000.00	113
PATIENT RESTROOM	523BV	6	60	3,000.00	114
MOLOKAI LIGHTHOUSE	715	61	0.00	0.00	115
McVEIGH BLDG 24 POOL HALL (PAVILION)	24M	36	836	71,060.00	116
BAY VIEW BLDG 522 TELEPHONE DISTRIBUTION STATION	522BV	70	190	9,500.00	117
STAFF ROW BLDG 11 GARAGE	11SR	94	400	20,000.00	118
LIGHTHOUSE GARAGE	709	125	240	12,000.00	119
BEACH HOUSE AIRPORT ROAD	693	124	600	30,000.00	120
LIGHTHOUSE GENERATOR BLDG	713	63	252	12,600.00	121
REA'S BAR RESTROOM building has been rebuilt in recent years. It is concrete block walls with concrete floor and corrugated metal roof	624	51	150?	7,500.00	122
STORAGE SHED KAMEHAMEHA ST.	664	93	120	6,000.00	123
CREMATORY	262	88	420	21,000.00	124

** Structural rehabilitation work is largely complete or unneeded. Costs for installation of systems with minor structural work calculated at $30/sf.

Table 3 FY 93 Estimates for Structural Repairs and Automatic Fire Protection Systems

BUILDING NAME	BLDG NO.	PARK PRIORITY	SQUARE FOOTAGE	NET ESTIMATED COST	FINAL FIRE PROTECTION PRIORITY
BAY VIEW LANAI	528	106	180	9,000.00	125
LIGHTHOUSE WATER TANK	712	64	150	7,500.00	126
LIGHTHOUSE ABANDONED STRUCTURE	714	65	150	7,500.00	127
OLD HOSPITAL (BURNED 1990)	282	23	0	0.00	128
ELECTRIC SHOP (demolished)	266	87	800	0.00	129
KALAUPAPA MEMORIAL HOSPITAL	814	39		0.00	130
SUBTOTAL PRIORITIES 101 - 130			17,240.00	828,840.00	
GRAND TOTAL NET PRIORITIES 1-130			167,647.00	9,869,420.00	
GRAND TOTAL TOTAL GROSS COST				**12,928,940.20**	

** Structural rehabilitation work is largely complete or unneeded. Costs for installation of systems with minor structural work calculated at $30/sf.

Operating, Maintenance, and Staffing Estimates

During the April 1992 site visit the project scoping team concluded that the maintenance required, including yearly inspection and testing of the system, should be contracted out. Based on anticipated hours required for this task, the estimated cost is in the range of $1000 per building. The greater the number of systems included, the lower the cost would be per system. This would work out to about $12,000 for the initial phase. A small amount of staff time would be required to coordinate the contract. Minor maintenance and visual inspection could be conducted by park staff. The commitment of staff time is estimated to be .2 FTE.

PART IV Recommendations and Conclusions

Project Scope:
It is recommenced that the 130 buildings be addressed through a five-phase project. An initial phase of 12 buildings would address assembly and multi-residential buildings and include 4 of the top 5 park priority buildings. The second phase, priorities 13 though 25, would address the remaining assembly and multi-residential buildings and include a few single-family dwellings. A third phase, priorities 26 though 50, consists mainly of single-family dwellings. Phases 4 and 5, priorities 51 through 130, would address many single-family dwellings but also would include public facilities such as the post office, patient's store, and the air terminal. There are several buildings within the top 130 priorities that may be dropped. For example, building 260, the abandoned store on Kamehameha St., is park priority 81, and holds fire protection need priority 120. It is far too dilapidated to warrant investment of this kind.
There is the distinct possibility (likelihood) that the priority and the number (less likely) of single family detached residences structure to be protected will significantly change between the present and actual construction start up. Six to twelve years from now we can anticipate fewer patients living in detached houses with vacated houses dropping in priority.
It is questionable whether buildings with park priorities lower than the 130 studied here warrant installation of these systems. At this lower priority level and below, most of the structures are storage sheds or abandoned buildings too deteriorated and of too little significance and utility to warrant repairs and installation of these systems. These lower priority buildings, however, should be individually considered at a later date to comply with NPS 50.

DESIGN

It is proposed that a preliminary design be done in two concurrent parts for the full project, followed by construction documents for an initial construction phase.

FY 93

Part A of the preliminary design (pt 06) would consist of a design analysis providing:

1. specifics on residential vs. standard sprinkler systems for each structure

2. more specifics regarding typical structural repair required by building type (i.e. single residential, church, multi-residential, public, office, etc.)

3. water service suitability or upgrade needed for each structure

4. alarm system and locations, more detail on a typical fire protection system installation by structure type

Part B of preliminary design focuses on data gathering for individual buildings — this entails generating floor plans, sections, and elevations for all 130 buildings. Preliminary layouts for the fire protection systems at each building would also be produced.

With the 06 preliminary design documents in hand, the park would have long range plans for the structures in case of lapses in construction funding between phases.

Part A of 06 - the design analysis portion could be done in house at DSC. Part B of 06 would require a lot of labor intensive work on site. This might best be done through A/E.

FY 94

The construction documents (pt 07) would only be for the phase 1 work, currently proposed for the 12 top priority buildings.

The 07 construction drawings -
The structural work will be difficult to quantify, making contract bid documents difficult to develop. The use of park day labor crews for structural work would expedite this portion of the design. If the structural work is done by day labor, the documents would require less detail, and then the structural work could be done in-house. If structural repairs are to be contracted out, then A/E structural design would be preferable.

Another option is to create an NPS on-site design team (at the park or area office) to do this project.

The work for sprinkler and detection systems installation is more easily identified; bid documents can be readily developed by A/E or in-house.

CONSTRUCTION

There are two feasible options for construction. The first option is to contract all the work. This has the potential advantage of

substantially expediting completion of the construction work. Disadvantages would include much higher costs for design due to the need for very detailed plans. Even with such detailed plans a number of design modifications would occur due to unknown structural conditions. The introduction of a large contract construction force could impact the patient community.
The contracting of the sprinkler and detection systems is relatively straightforward. This option is not recommended.

A recommended second option is to divide the construction work. Structural and carpentry work would be done by a park day labor crew, and detection and sprinkler systems would be installed by contract. The use of park day labor crews would expedite this portion of the project work. Design modifications are eliminated if NPS crews do the structural work. The size of the park crew would be kept small to minimize impact on the patient community; perhaps 5 individuals, including a DSC project supervisor.

The work for sprinkler and detection systems installation is more easily identified and the appropriately skilled labor is more readily available through the contracting process.

Contracting out the fire protection systems would be closely linked to the capability of the day labor crew to accomplish structural repairs. Work on a building such as Paschoal Hall could take a day labor crew up to five months for structural repairs and another one to two months for fire sprinkler and detection installation. A small residence such as Bay View 277 could require less than a month for structural repairs and one week for installing a residential system.

The fire protection contractor would mobilize on a yearly or biennial basis. The contractor would install fire protection systems on four or five buildings where structural repairs had been completed with each mobilization.

An optimistic project schedule estimates phases one and two to take up to six years to accomplish, with another six years to complete phases three through five. The project time would span 12 years - from FY 95 to FY 2007. Adding day labor crews or contracting structural work might speed up this schedule to some extent.

It is recognized that the feasibilty of accomplishing this work by day labor largely depends on availabilty of housing for NPS employees. There is currently no housing available for additional NPS employees. The possibilities for additional future NPS housing appear unlikely in the near future. It is incumbent on the Park, Region and Pacific Area Office to start the process such that

addtional housing could be available three years from now when the crew would begin to set up. Similar housing problems will face contractor employees although some recently contracted paving work funded by the state was accomplished by the work force commuting to the settlement from topside Molokai daily- a costly proposition not reflected in the estimates.

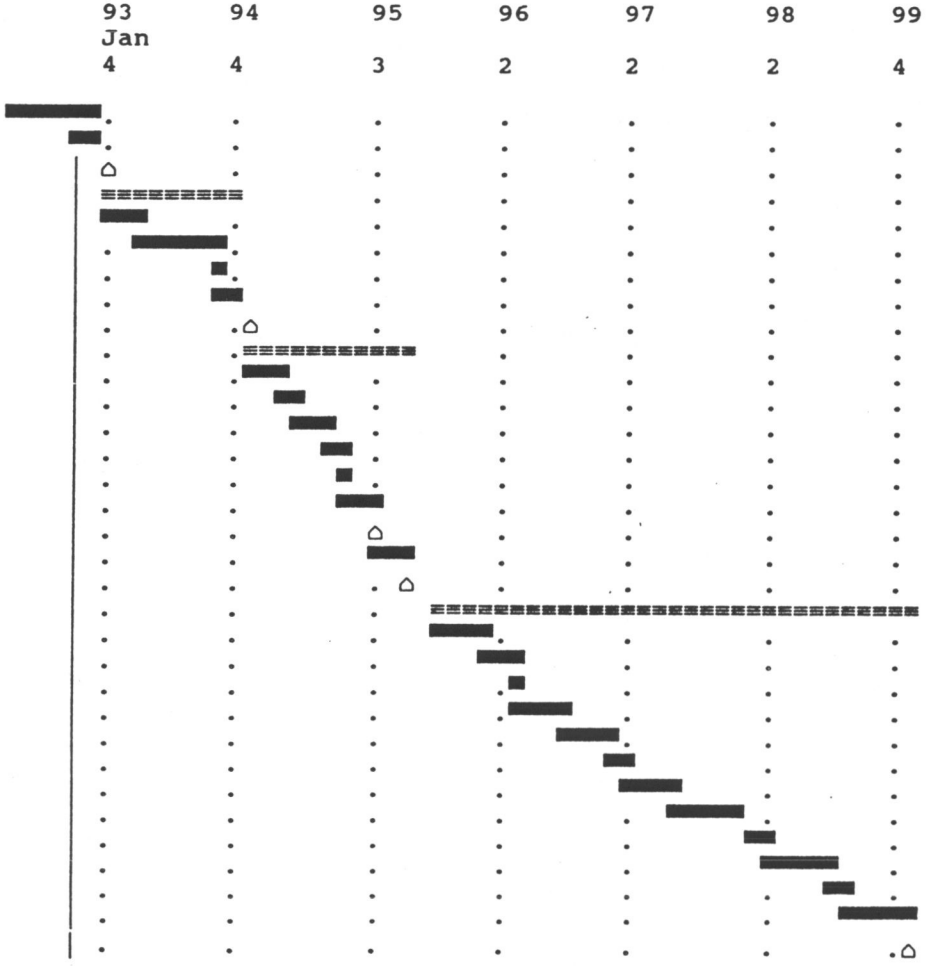
Coordination, temporary relocation of and impacts on patients limits the ability to do the work. There is a significant need to disturb the patients as little as possible. The document "Impacts of HDOT Construction Workers on the Kalaupapa Community" outlines construction requierements that will be similar for NPS contracted personnel. These requirements will impact scheduling and costs. Development of plans and specifications should reflect these impact concerns. A copy of this document is available through DSC-TWE, Planning branch.
A phase one schedule for preliminary design through construction completion follows.

Schedule Name : KALA107E FIRE PROTECTON SYSTEMS
Responsible : PAUL CLOYD
As-of Date : 5-Oct-92

Schedule File : KALA107E

Kalaupapa National Historical Park
Fire Protection Study

Dependencies :



Detail Task Summary Task Baseline
(Progress) (Progress) Conflict
(Slack) (Slack) Resource delay
Progress shows Elapsed Time % on Baseline Milestone
Scale: 6 weeks per character

Appendix A NPS Policy Excerpts

National Park Service Management Policies, December 1988, chapter 5, page 13, states, "Measures to protect cultural resources from fire will be developed as part of a park's fire management planning process, and prudent action will be taken to prevent harm to cultural resources by either fire or fire suppression activities."

NPS 28 Cultural Resource Management Guideline, release no. 3, August, 1985, chapter 3, page 28, states, "Sites and structures, their contents, and the people in and near them can be protected by a combination of managing use, artifact care, and installation of protective systems."

NPS 28 Technical Supplement, release no. 3, August, 1985, chapter 3, states, "The objective of implementing mitigating measures is to eliminate the hazards that threaten the park's cultural resources, or if they cannot be eliminated, to reduce the effects those hazards are likely to have if they are ever manifested. Mitigation is oriented toward the indefinite future. Measures are not taken to prepare only for the next disaster, but for all future disasters. Some potentially useful mitigating measures are . . . installation and proper maintenance of fire detection and suppression systems."

NPS 28 Cultural Resource Management Guideline, draft release no. 4, 1992, chapter 4, pages 49-50, states, "A structural fire plan, including special procedures for fighting fire in historic structures housing archives, collections, or other cultural resources, is required for each park. Fire fighting procedures acceptable for most structures may need to be modified to ensure maximum protection of cultural resources. Staff charged with fire prevention and fire fighting plans and cultural resource specialists should consult closely when plans for historic structures or those housing cultural resources are developed. They should consider the variety of sources historically causing fires in the types of structures for which the plans are being written and develop specific procedures and training for fighting them. Those who will be called upon to fight fires should be made intimately familiar with the structures and given frequent refresher courses."

NPS 28 Cultural Resource Management Guideline, draft release no. 4, 1992, chapter 8, page 121, states, "Structures, their contents and the people in and near them can be protected by a combination of use management, facilities management, and protective systems. When proposed or existing uses (or lack of use) of structures present safety or security problems, and when solutions to such problems would unacceptably compromise their historical integrity or character, the uses must be changed to facilitate emergency egress, and installation of systems to detect intrusion or suppress fires are allowable only when they are the only viable options and will not significantly impair the historical integrity or character or structures."

NPS-28 Standards for Managing Museum Objects, chapter 3, page 17, states, "Environmental controls and security and fire protection systems appropriate to the collection and the structure in which it is housed shall be installed."

NPS 50 Loss Control Management, release no. 2, January 1991, chapter 18, page 3, states, "Ensure that all new facilities are designed with automatic suppression and detection systems, as well as ensuring that existing and historic buildings are equipped with fire suppression system and smoke detection systems." (Please see page four and appendix B for clarification of the intent of this excerpt.)

NPS-58 Structural Fire Guideline, release no. I, June 1987, chapter 13, page 1, states, "Where warranted by the significance or value of a historic structure or its contents, adequate fire detection, warning, and suppression systems shall be installed. . . Where a staffed fire station exists near the structure, a detection system providing a signal directly to the local fire authority shall be installed whenever local law permits. Otherwise, the signal shall have the capability of being monitored day and night by a central alarm station and/or park staff. . . In planning and installing detection or suppression systems, the integrity of the structure, the nature of museum objects stored or on display, and requirements of interpretation shall be respected . . . All equipment shall meet the standards of the National Fire Protection Association (NFPA) and Underwriters Laboratories (UL listed), but the design of the systems shall minimize physical and visual intrusions . . . All designated park structural fire personnel, including contractor and cooperator structural fire personnel, shall be instructed in the proper prevention, suppression, and salvage techniques necessary to protect structures, museum collections, and with the emergency evacuation and protection of visitors . . ."

NPS Museum Handbook, part 1, chapter 9, page 31, states, "There is always a concern about the accidental discharge of water in a sprinkler system. The record indicates that there have been many museum fires and very few accidental discharges."

Manual for Museums, pages 92-93, states, "If you take seriously the museum's obligation to preserve its collections, and its responsibility for the safety of the staff and visitors, you will maintain an active fire protection program. . . In many cases the next step comprises an expert analysis of the problem . . . the inquiry extends to the resources on call for extinguishing fires. If these do not seem adequate, it examines ways to improve and supplement them . . . the added safety of structural changes to make walls more fire resistant or to run water lines for automatic sprinkler or stand pipe systems should outweigh questions of historical integrity."

Appendix B Memorandums Clarifying Intent of NPS 50

MAR 2 4 1992

A7615 (DSC-S)

Memorandum

To: Team Managers and Division Chiefs, Denver Service Center

From: Safety Engineer, Safety Management Branch, Engineering Services Division, Denver Service Center

Subject: Automatic Sprinkler and Detection Systems for National Park Service Facilities

The September 1991 Loss Control Management Guideline (NPS-50), released in January 1992, requires all new buildings and renovated existing buildings be equipped with sprinkler and detection systems. Because this new encompassing requirement caused concern with regional and Denver Service Center designers on its applicability with regard to design projects, the Associate Director of Operations released the attached memorandum.

Essentially, the Associate Director reiterates that buildings including housing need to be equipped with sprinkler systems. Where situations arise that make sprinkler systems questionable or impractical, designers need to consult with the Denver Service Center Safety Engineer.

I would appreciate your sharing the Associate Director's memorandum with your planning, design, and construction branch chiefs and others as necessary. I am also available to discuss any aspect of these requirements that may impact your projects.

(sgd) Kenneth R. Rueff

Kenneth R. Rueff

Attachment

cc:
DSC-TCE-Design Chief, w/c att.
DSC-TEA-Design Chief, w/c att.
DSC-TWE-Design Chief, w/c att.

bcc:
DSC-PD
DSC-S-Files

S:KRueff:jes:3/24/92:2196:KRsprinkler

A7615(610) FEB 12 1992

Memorandum

To: Regional Directors and Assistant Director, Design and Construction, Denver Service Center

From: Associate Director, Operations

Subject: Automatic Sprinkler and Fire Detection Systems in National Park Service (NPS) Facilities

The NPS's primary focus in structural fire safety has been life safety considerations, including the evacuation of employees and visitors from buildings. This objective is achieved through compliance with the Life Safety Code (NFPA 101). Property protection and preservation of cultural resources must also be considered in the structural fire safety program; however, many NPS facilities are in remote areas where fire department response times are excessive.

Automatic sprinkler and fire detection systems are beneficial in limiting loss of life and protecting cultural resources and property from fire. Automatic sprinkler systems not only will extinguish fires or control fires until fire departments can respond, but also will enhance life safety. Damage to property and cultural resources will also be limited because fires are typically confined to the area of origin and the likelihood of conditions leading to flashover are reduced.

In addition, automatic sprinkler systems for housing have become affordable because of recent technology improvements and code changes which allow for domestic plumbing or limited quantity water supplies in residential buildings.

It is the intent of Congress that Federal facilities be provided with automatic sprinkler systems. The Hotel and Motel Fire Safety Act of 1990 (Public Law 101-391) was signed on September 25, 1990. Congress was concerned with the life loss in multistory hotel fires and found that "properly installed and maintained, automatic sprinklers and smoke detectors provide the most effective safeguards against the loss of life and property from fire." Also, the Federal Fire Safety Act of 1991 (H.R. 3360) is a bill being considered in Congress. This bill would require automatic sprinkler systems in Federal employee office buildings, as well as automatic sprinkler systems and smoke detectors in housing, including historic structures, for all Federal employees.

Accordingly, Chapter 18 of NPS-50 now requires automatic sprinkler and fire detection systems in all newly constructed NPS facilities, as well as in those facilities undergoing major renovation. For these purposes, the procedures outlined in NPS-76, Housing Design and Rehabilitation Guideline, should be used to determine whether a project is to be considered a complete rehabilitation.

Denver Service Center (DSC) Regional design team members are available to provide assistance to field personnel in the application of this program. They, in turn, will consult with the Safety Engineer, DSC, in resolving situations where special conditions may necessitate exceptions in the installation of automatic sprinkler and fire detection systems, such as the size of the building, its remoteness, etc.

We would appreciate your informing members of your staff, of this requirement, who are involved in these projects. Additional questions may be addressed to the Branch of Loss Control Management, WASO, 202-343-7019 or FTS-343-7019.

Thank you for you attention to this matter.

Appendix C National Fire Protection Association Documents Excerpts

NFPA 913 Historic Sites and Structures, 1987, article 2-2, states, "Fires grow and spread because of inadequate barriers, lack of sprinklers or other means of automatic protection, and resulting delay in the discovery and reporting of the fire while in the incipient stage. The first few minutes following ignition are critical. Frequently it takes only a few minutes for a small fire to grow large. This is particularly true in historic structures, for most are of combustible materials. In the absence of automatic fire detection or other automatic protection, discovery of a fire is left to a watchman or to chance. At this point, a fire may be so well established that the loss will be substantial."

Article 2-3 states, "Major destruction often take places (in the absence of automatic suppression) despite quick response from trained fire fighting personnel and alarms actuated by fire detection systems. Losses are often expressed in monetary value; however, those losses represent an irreplaceable part of our heritage."

Article 4-6 has the following pertinent sections:

4-6.1 Exposure of the structure to outside fires should be considered. The structure may be in, or adjacent to, an area of woods or tall grass. In this case, steps should be taken to provide adequate fire lanes and other cleared areas to protect the property from a forest or grass fire.

4-6.2 The structure may be exposed on one or more sides to other structures that present a fire hazard. If sufficient clear space cannot be provided between the historic structure and hazardous surroundings, some steps can be taken to reduce potential damage from nearby fire. If the structure is wood frame construction, fire resistive roofing and siding will help protect it; however, eaves, cornices and windows may still be exposed. Exterior sprinklers strategically located at window openings along cornices and walls and on combustible roofs are a good method of protection. Openings in brick and masonry walls can be protected by fire doors or fire shutters that close automatically in case of fire. While architectural planning can seldom hide these protective devices, their effect on historic fabric or appearance of the structure can be minimized.

Article 6-1 states, "Remember too, that merely installing a fire safety system is not enough; it should be maintained in accordance with the manufacturer's specifications to ensure that it will function as designed."

NFPA 914 Rehabilitation and Adaptive use of Historic Structures, 1989, article 2-3.2.1, states, "Contents of most buildings consist of combustible materials. Accumulations of readily ignitable materials constitute a fire hazard. Construction materials such as siding and roofing can greatly increase the possibility of fire spread from other buildings. This is especially true of wood shingles that are not fire retardant treated.

Article 3-3.7.2.1 states, "Automatic fixed extinguishing systems are the most effective means of controlling fires in buildings. Their use in historic buildings is recommended. . . Without some type of automatic fire extinguishing system, a fire will increase in intensity until the fire department arrives. At this time, the fire department would be extinguishing a much larger fire than would exist if an automatic extinguishing system had activated, and damage due to extinguishing the fire in this manner would be sufficiently [sic] greater."

For example, fire departments using one or more hose lines inside the building deliver water at a rate of 250 gpm (946 l/min) per hose line. Automatic sprinkler systems discharge water at a rate of 15 to 25 gpm (57 to 95 l/min) per head opened by the fire.

Human response (i.e. occupant manual extinguishing action) is the least reliable means of fire suppression, especially when the building is not occupied and most vulnerable.

Article 3-3.7.2.2 states, "The potential for water damage from automatic sprinklers is often misunderstood. Some water damage will occur when sprinklers operate to control a fire. However, this damage is usually small when compared to the amount of damage the fire would have caused if the sprinkler had not controlled or extinguished it. Reports of water damage in buildings with sprinklers are often exaggerated in comparison to the small amount of fire damage resulting from successful fire control by the sprinklers.

Appendix D Descriptions of Fire Detection, Alarm and Suppression Systems

FIRE DETECTION SYSTEMS

Type	Description	Comments
1. Smoke detection systems.	These smoke detectors operate on the ionization, photoelectric, or cloud chamber principle. Spot-type smoke detectors use either the ionization principle of operation, the photoelectric principle, or both. Line-type smoke detectors use the photoelectric principle. Air sampling-type smoke detectors use either the ionization, photoelectric, or cloud chamber principle. Properly installed, smoke detectors can detect smoke particles in very early stages of fire in the areas where they are located.	Intended for early warning. Some are designed for installation in ventilation ducts. See NFPA 72E, *Standard on Automatic Fire Detectors.*
2. Heat detection systems.	These systems use heat-responsive devices either of the spot- or line-type mounted on exposed ceiling surfaces. Operate either at fixed temperatures or on a sudden temperature increase, called the rate-of-rise principle. Some devices incorporate both fixed temperature and rate-of-rise actuation. Spot detectors are usually small electrical devices, a few inches in diameter, and interconnected with wire. Line detectors are usually lengths of heat-sensitive wire or small-bore metal tubing.	Relatively low cost. Cannot detect small, smoldering fires. Line-type detectors can be installed in a relatively inconspicuous manner by taking advantage of ceiling designs and patterns. See NFPA 72E, *Standard on Automatic Fire Detectors.*
3. Flame detection systems.	These systems use infrared, ultraviolet, or photoelectric flame detectors.	Intended for early warning; may be useful in high ceiling spaces. See NFPA 72E, *Standard on Automatic Fire Detectors.*

FIRE SIGNALING SYSTEMS

Type	Description	Comments
1. Local protective signaling system.	An alarm system operating in the protected premises, responsible to the operation of a manual fire alarm box, waterflow in a sprinkler system, or detection of a fire by a smoke or heat detecting system.	Of little or no value if premises are not attended. Someone must always be present to transmit the alarm to fire authorities. See NFPA 72A, *Standard for the Installation, Maintenance and Use of Local Protective Signaling Systems for Guard's Tour, Fire Alarm and Supervisory Service.*
2. Auxiliary protective signaling system.	An alarm system utilizing a standard municipal coded fire alarm box to transmit a fire alarm from a protected property to municipal fire headquarters. These alarms are received on the same municipal equipment and are carried over the same transmission lines as are used to connect fire alarm boxes located on streets. Operation is initiated by the local fire detection and alarm system installed at the protected property.	Some communities will accept this type of system and others will not. See NFPA 72B, *Standard for the Installation, Maintenance and Use of Auxiliary Protective Signaling Systems.*
3. Central station signaling system.	An alarm system connecting protected premises to a station whose function is to monitor the connecting lines constantly and record any indication of fire, supervisory or other trouble signals from the protected premises. When a signal is received, the central station will take such action as is required, such as informing the municipal fire department of a fire or notifying the police department of intrusion.	Flexible system. Can handle many types of alarms, including trouble within system at protected premises. See NFPA 71, *Standard for the Installation, Maintenance, and Use of Signaling Systems for Central Station Service.*
4. Remote station protective signaling system.	An alarm system connecting protected premises over leased telephone lines to a remote station such as a fire station or a police station. Includes separate receiver for individual functions being monitored, such as fire alarm signal, or sprinkler waterflow alarm.	Requires leased lines into each premises. See NFPA 72C, *Standard for the Installation, Maintenance, and Use of Remote Station Protective Signaling Systems.*

FIRE SIGNALING SYSTEMS — cont.

Type	Description	Comments
5. Proprietary protective signaling system.	An alarm system which serves contiguous or noncontiguous properties under one ownership from a central supervising station at the protected property. Similar to a central station system but owned by the protected property.	Requires 24-hour manning of central supervising station on the premises. See NFPA 72D, *Standard for the Installation, Maintenance and Use of Proprietary Protective Signaling Systems.*
6. Emergency voice/ alarm communication system.	This system is used to supplement one of the systems listed above by providing voice communication within the building for use during a fire emergency either with prerecorded messages or for use by the fire department, or both.	See NFPA 72F, *Standard for the Installation, Maintenance and Use of Emergency Voice/Alarm Communication Systems,* and NFPA 72G, *Guide for the Installation, Maintenance and Use of Notification Appliances for Protective Signaling Systems.*

FIRE EXTINGUISHING SYSTEMS

Type	Description	Comments
1. Wet-pipe automatic sprinkler system.	A permanently piped water system under pressure, using heat-actuated sprinklers. When a fire occurs, the sprinklers exposed to the high heat open and discharge water individually to control or extinguish the fire.	Automatically detects and controls fire. Protects structure and contents. May cause water damage to protected books, manuscripts, records, paintings. Not to be used in spaces subject to freezing. See NFPA 13, *Standard for the Installation of Sprinkler Systems,* and NFPA 22, *Standard for Water Tanks for Private Fire Protection.*
2. Pre-action automatic sprinkler system.	A system employing automatic sprinklers attached to a piping system containing air that may or may not be under pressure, with a supplemental fire detection system installed in the same area as the sprinklers. Actuation of the fire detection system by a fire opens a valve which permits water to flow into the sprinkler system piping and to be discharged from any sprinklers that are opened by the heat from the fire.	Automatically detects and controls fire. May be installed in areas subject to freezing. Minimizes the accidental discharge of water due to mechanical damage to sprinkler heads or piping, and thus is useful for the protection of paintings, drawings, fabrics, manuscripts, specimens, and other valuable or irreplaceable articles that are susceptible to damage or destruction by water. See NFPA 13, *Standard for the Installation of Sprinkler Systems,* and NFPA 22, *Standard for Water Tanks for Private Fire Protection.*
3. On-off automatic sprinkler system.	A system similar to the pre-action system, except that the fire detector operation acts as an electrical interlock, causing the control valve to open at a predetermined temperature and close when normal temperature is restored. Should the fire rekindle after its initial control, the valve will reopen and water will again flow from the opened heads. The valve will continue to open and close in accordance with the temperature sensed by the fire detectors. Another type of on-off system is a standard wet-pipe system with on-off sprinkler heads. Here each individual head has incorporated in it a temperature-sensitive device which causes the head to open at a predetermined temperature and close automatically when the temperature at the head is restored to normal.	In addition to the favorable feature of the automatic wet-pipe system, these systems have the ability to automatically stop the flow of water when no longer needed, thus eliminating unnecessary water damage. See NFPA 13, *Standard for the Installation of Sprinkler Systems,* and NFPA 22, *Standard for Water Tanks for Private Fire Protection.*
4. Dry-pipe automatic sprinkler system.	Has heat-operated sprinklers attached to a piping system containing air under pressure. When a sprinkler operates, the air pressure is reduced, a "dry-pipe" valve is opened by water pressure, and water flows to any opened sprinklers.	See No. 1. Can protect areas subject to freezing. Water supply must be in a heated area. See NFPA 13, *Standard for the Installation of Sprinkler Systems,* and NFPA 22, *Standard for Water Tanks for Private Fire Protection.*

FIRE EXTINGUISHING SYSTEMS — cont.

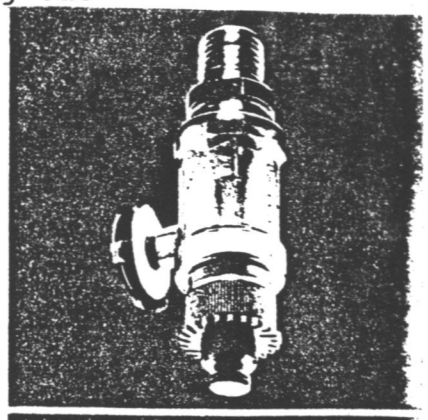
Type	Description	Comments
5. Standpipe and hose system.	A piping system in a building to which hoses are connected for emergency use by building occupants or by the fire department.	A desirable complement to an automatic sprinkler system. Staff requires training to use hoses effectively. See NFPA 14, *Standard for the Installation of Standpipe and Hose Systems.*
6. Halon automatic system.	A permanently piped system using a limited stored supply of a halon gas under pressure, and discharge nozzles to totally flood an enclosed area. Released automatically, by a suitable detection system. Extinguishes fires by inhibiting the chemical reaction of fuel and oxygen.	No agent damage to protected books, manuscripts, records, paintings or other irreplaceable valuable objects. No agent residue. Halon 1301 can be used with safeguards in occupied areas. Halon 1211 total flooding systems are prohibited in normally occupied areas. Halons may not extinguish deep-seated fires in ordinary solid combustibles such as paper, fabrics, etc.; but are effective on surface fires in these materials. These systems require special precautions to avoid damage effects caused by their extremely rapid release. The high velocity discharge from nozzles may be sufficient to dislodge substantial objects directly in the path. See NFPA 12A, *Standard on Halon 1301 Fire Extinguishing Systems,* and NFPA 12B, *Standard on Halon 1211 Fire Extinguishing Systems.*
7. Carbon dioxide automatic system.	Same as No. 6, except uses carbon dioxide gas. Extinguishes fires by reducing oxygen content of air below combustion support point.	Same as No. 6. Appropriate for service and utility areas. Personnel must evacuate before agent discharge to avoid suffocation. May not extinguish deep-seated fires in ordinary solid combustibles such as paper, fabrics, etc.; but effective on surface fires in these materials. See NFPA 12, *Standard on Carbon Dioxide Extinguishing Systems.*
8. Dry chemical automatic system.	Same as No. 6, except uses a dry chemical powder. Usually released by mechanical thermal linkage. Effective for surface protection.	Should not be used in personnel-occupied areas. Leaves powdery deposit on all exposed surfaces. Requires clean-up. Excellent for service facilities having kitchen range hoods and ducts. May not extinguish deep-seated fires in ordinary solid combustibles such as paper, fabrics, etc.; but effective on surface fires in these materials. See NFPA 17, *Standard for Dry Chemical Extinguishing Systems.*
9. High expansion foam system.	A fixed extinguishing system which generates a foam agent for total flooding of confined spaces, and for volumetric displacement of vapor, heat, and smoke. Acts on the fire by: a. Preventing free movement of air b. Reducing the oxygen concentration at the fire c. Cooling.	Should not be used in occupied areas. The discharge of large amounts of high expansion foam may inundate personnel, blocking vision, making hearing difficult, and creating some discomfort in breathing. Leaves residue and requires clean up. High expansion foam, when used in conjunction with water sprinklers, will provide more positive control and extinguishment than either extinguishment system used independently, when properly designed. See NPFA 11A, *Standard for Medium and High Expansion Foam Systems.*
10. Wet chemical extinguishing system.	Same as No. 6, except uses liquid agent usually released by automatic mechanical thermal linkage. Effective for restaurant, commercial, and institutional hoods; plenums; ducts; and associated cooking appliances.	Leaves agent residue that is confined to the protection area(s). Requires clean-up. Excellent for service facilities having range hoods and ducts. See NFPA 17A, *Standard for Wet Chemical Extinguishing Systems.*

Appendix E "On/Off" Sprinkler Head Catalog Cut

Flow Control · FC

On-Off Automatic Sprinkler

Manufactured by: Central Sprinkler Corporation
451 North Cannon Avenue, Lansdale, Pennsylvania 19446



TEXAS WHITE -
1-800-445-3554

Product Description

The model FC Flow Control Automatic Sprinkler is designed with the unique abilities to operate much faster than standard sprinklers and to open and close automatically as heat conditions dictate. These desirable features work together to minimize preburn time and conserve water with a resultant reduction in the size of the fire involved area and a minimization of water damage. These characteristics make the Flow Control Automatic Sprinkler the fire protection mode-of-choice for protecting high-value areas such as historical libraries, museums or computer rooms.

In the event of a fire, only those model FC sprinklers required for control or extinguishment, will be activated. The Flow Control Sprinklers will automatically shut off on an individual basis, as the local temperature lowers. By comparison, unneeded standard sprinklers would continue with unnecessary water discharge, often resulting in excessive water damage and the reduction of flow and pressure to those sprinklers still needed for fire control.

After a fire, a system with standard sprinklers must be shut off at the system control valve to limit water damage. A fire reflash would then require a manual reopening of the control valve. In contrast, model FC sprinklers would automatically shut off and in the event of a reflash, would automatically reopen. The quicker reaction time and local automatic reactivation contribute significantly to the safety of fire personnel.

The model FC is available in two styles, Pendent and Flush and is Listed* by Underwriters Laboratories for use in accordance with the current NFPA 13. It may be installed in preaction systems, not subject to freezing conditions. When installed in such systems, the drops should be filled with water to avoid possible deterioration of the elastomer diaphragm due to long term atmospheric exposure. It is not designed for use in dry pipe systems or in areas where the ambient temperature may exceed 100°F/37°C. Installation of the model FC requires no precharging of sprinklers.

The model FC has a K factor of 5.7, a temperature rating of 145°F/60°C (fusible alloy) and 165°F/74°C (bimetallic disk) and a maximum working pressure of 175 psi.

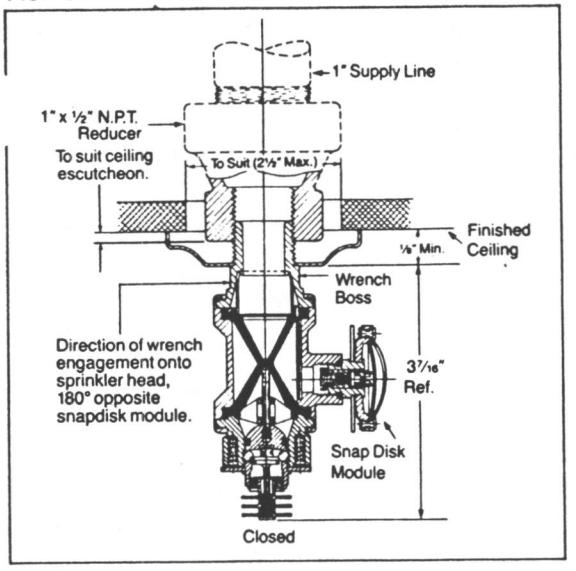
The model FC is available in two standard finishes. The Flush Style has a mating escutcheon plate available in three standard finishes with additional special finishes available.

Operation: A fusible alloy pellet is compressed with a bearing disc into a copper housing by a ball plunger. At the rated temperature (145°F) the alloy melts, causing the plunger to drop, freeing balls from the retaining groove. The orifice sealing mechanism and deflector assembly drop down to operational position; water discharge does not occur, however, until the bimetallic Flow Control disc snaps at its rated temperature (165°F). The seal plunger then moves, releasing pressure from the diaphragm chamber, allowing the diaphragm to open for water flow.

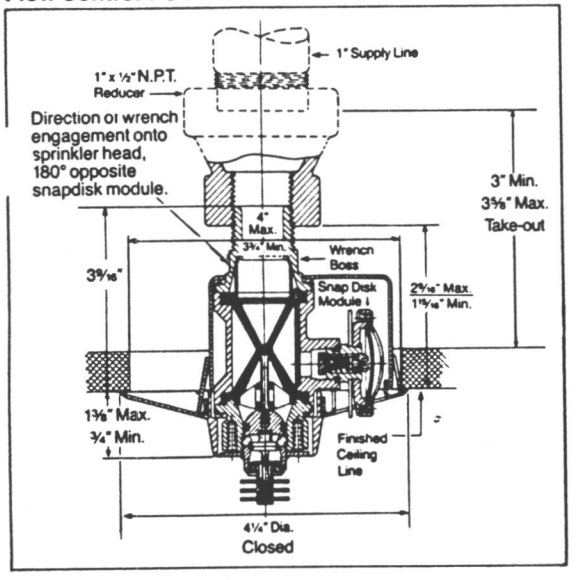
Once the ambient temperature drops below 95°F/35°C, the snap disc resets itself; the spring-loaded seal plunger returns to the closed position, shutting off the drain port. The system pressure fills the diaphragm chamber, forcing the diaphragm to close, thus stopping water discharge.

*For specific listing requirements see the appropriate information contained in this brochure.

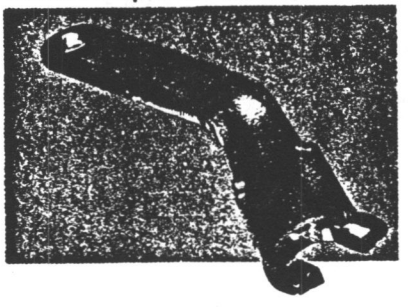
Installation Diagram
Flow Control-FC Pendent

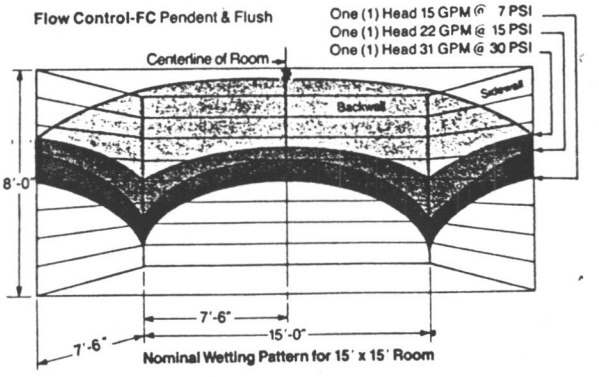


Installation Diagram
Flow Control-FC Flush



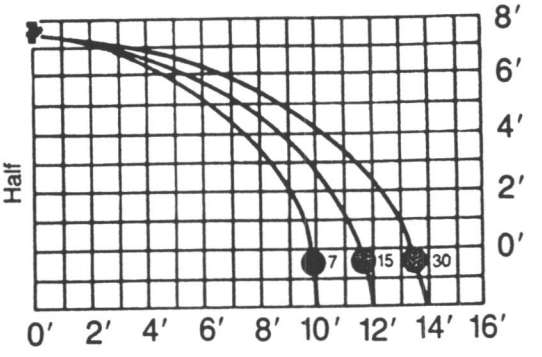
Model FC Sprinkler Wrench



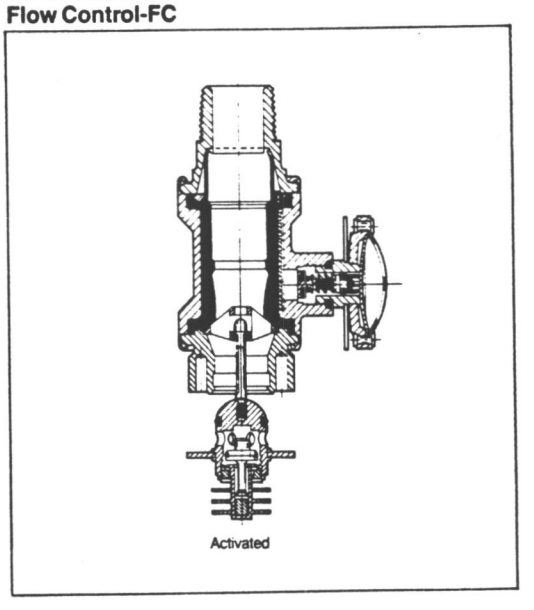


Approximate Spray Pattern
FC Pendent and FC Flush

●-Denotes Pressure in P.S.I.
Half-Indicates One Half Of A Symmetrical Pattern.



Cross-section
Flow Control-FC



Technical Data

Model number: FC
Style: Pendent or Flush
Orifice size: ½"
K factor: 5.7
Thread size: ½" N.P.T.
Temperature rating:
  Bi-metallic disk
    165°F/74°C Open
    95°F/35°C Close
  Fusible Alloy
    145°F/63°C
Approvals: U.L., B.S. & A.
  (Cal. No. 443-84-SA)
Maximum working pressure: 175 psi
Factory hydro test: 500 psi
Standard finishes:
  Sprinkler: chrome, factory brass
  Escutcheon plate: chrome plated,
    brass plated, white
Length: 4"
Width: 2⅛" pendent, 2¾" flush
Distance below ceiling:
  3⅜" pendent; ¾" to 1⅜" flush
Highest allowable ambient
  temperature: 100°F/38°C
Weight: 9.1 oz.

Design Requirements

Model FC Sprinklers are intended for standard area coverages and standard flow and pressure requirements as specified in current NFPA 13. Sprinkler systems utilizing Flow Control Sprinklers may be pipe-scheduled or hydraulically calculated.

Installation

All FC Sprinklers must be installed according to current NFPA 13. Deviations from these requirements and standards, or any alteration to the sprinkler itself will void any warranty made by Central Sprinkler Corporation. In addition installation must also meet local government provisions, codes, and standards as applicable.

The system piping must be properly sized to insure the minimum flow rate at the sprinkler. Check for the proper model, style, orifice size, and temperature rating prior to installation. Install sprinklers after the piping is in place to avoid mechanical damage; replace any damaged units. Wet pipe systems must be protected from freezing. Model FC pendent sprinklers are not listed for use in dry systems.

Upon completion of the installation, the system must be tested per recognized standards.

In the event of a thread leak, remove the unit, apply new pipe joint compound or tape, and reinstall.

Installation Sequence

Step 1. The unit must be installed in a pendent position.

Step 2. Positioning of the sprinkler fitting should be determined by the installer when an escutcheon plate is used with the pendent style. The positioning of the sprinkler fitting should be 1 15/16" to 2 9/16" from the mounting surface for the flush style. Final adjustments are made via the push-on escutcheon plate to compensate for variations in the fittings.

Do not use the push-on escutcheon plate to hold the unit in position. The sprinkler will only function properly when the system piping is anchored to the building structure. Otherwise, reaction forces from system initiation could alter the sprinkler alignment and disrupt the distribution pattern.

Step 3. Use only a non-hardening pipe joint compound or Teflon* tape. Apply only to the male threads.

Step 4. Hand tighten the sprinkler into the fitting. Use a Central Sprinkler model FC sprinkler wrench to tighten the unit in the fitting. Care must be taken to engage the wrench opposite the snap disc; a deviation may result in damage to the disc. A leak tight joint requires only 7 to 14 ft. lbs. of torque; a tangential force of 14 to 28 lbs. delivered through a 6" handle will deliver adequate torque. Torque levels over 21 ft.lbs. may distort the sprinkler, resulting in leakage.

Step 5. To install the escutcheon plate for the flush style, align the round center hole and the rectangular disc-opening in the plate with the sprinkler body. Engage the plate over the deflector, then press until the outer edge of the escutcheon meets the mounting surface. Do not under or over tighten the sprinkler to compensate for inaccurate escutcheon plate adjustment. Readjust the sprinkler fitting as required.

Step 6. Special care should be taken when installing with a CPVC system. Sprinklers must be installed only after system has been tested and drained to insure that no primer or cement accumulates within the sprinkler.

*Teflon is a trademark of the Du Pont Corp.

Care & Maintenance

Sprinklers must be handled carefully. They should not be transported or stored where ambient temperature may exceed 100°F/38°C. For best results, store them in a dry, cool location in the original shipping package.

Do not install sprinklers that have been dropped or visibly damaged. Sprinklers should never be painted, coated, plated or altered in any other way from manufactured condition or they may not function properly. Any sprinklers altered in such manner must be replaced.

The owner is responsible for the proper operating condition of all fire protection devices and accessories. The NFPA standard 13A entitled "Care and Maintenance of Sprinkler Systems" contains guidelines and minimum maintenance requirements. Furthermore, the local *Authority Having Jurisdiction* may have additional regulations and requirements for maintenance, testing, and inspection that must be obeyed.

It is advisable to have sprinkler systems inspected regularly by a qualified inspection service. Length of time between such inspections can vary due to accessibility, ambient atmosphere, water supply, and site activity.

Although the model FC will provide continued protection after a fire, any sprinkler which has operated should be replaced. Model FC sprinklers that have operated may be identified by the dropped-down position of the orifice sealing mechanism and deflector assembly. Also, there may be minor leakage from operated sprinklers if the diaphragm seal is affected by particulate matter in the water stream, when the diaphragm closes. Replace any sprinkler exhibiting corrosion or damage. Always use new sprinklers of the same type and temperature rating as replacements.

Because the discharge pattern is critical to protection of life and property, nothing should be hung or attached to the sprinkler unit that would disrupt the pattern. Such obstructions must be removed. In the event that construction has altered the original configuration, additional sprinklers should be installed to maintain the protection level.

Do not attempt to replace sprinklers without first removing the fire protection system from service. Be certain to obtain permission from all authorities having jurisdiction, and notify all personnel who may be affected during system shutdown. A fire watch during maintenance periods is a wise precaution.

To remove the system from service mode, first refer to the system operating guide and valve instruction. Drain water and relieve pressure in the pipes. Remove the existing unit and install the replacement, using only the special sprinkler wrench. Be certain to match model, style, orifice, and temperature rating.

A fire protection system that has been shut off after activation should be returned to service immediately. Inspect the entire system for damage and replace or repair as necessary. Sprinklers that did not operate but were subjected to corrosive elements of combustion or excessive temperatures should be inspected, and replaced if need be. The *Authority Having Jurisdiction* will detail minimum replacement requirements and regulations.

Guarantee: Central Sprinkler Corp. will repair and/or replace any products found to be defective in material or workmanship within a period of one year from date of shipment. Please refer to the current Price List for further details of the warranty.

Ordering Information

Ordering Information: When placing an order, indicate the full product name. Please specify the quantity, model number, style, orifice size, temperature rating, type of finish, escutcheon plate finish, and sprinkler wrench.

For special painted escutcheon finishes, it is advisable to provide paint in a lacquer-base finish to insure proper color duplication. Without such a guide, Central Sprinkler Corp. can not be responsible for acceptable color matching.

Availability & Service: Central sprinklers, accessories, and other products are available throughout the U.S. and Canada, and internationally, through a network of Central Sprinkler distribution centers. You may write directly to Central Sprinkler Corporation or call 1-800-523-6512 for the distributor nearest you.

Patents: The model FC Automatic Sprinkler is protected under U.S. Patent No. 4,553,602. Additional patents are pending.

CONVERSION TABLE

1 inch = 25.400 mm
1 foot = 0.3048 M
1 pound = 0.4536 kg
1 foot pound = 1,356 Nm
1 psi = 6.895 Kpa
= 0.0689 bar*
= 0.0703 kg/cm²*
1 U.S. gallon = 3.785 dm³
= 3.785 liters*

Conversions are approximate

*Not a recognized International, System Unit.

CENTRAL

Central Sprinkler Corporation
451 North Cannon Avenue, Lansdale, PA 19446
Phone: (800) 523-6512
In PA: (215) 362-0700

Appendix F Plastic Sprinkler Pipe

Polybutylene Sprinkler Pipe and Fittings (VIXV)

Polybutylene pipe and fittings are intended for use in sprinkler systems in the following types of occupancies:

1. Light Hazard occupancies as defined in the Standard for Installation of Sprinkler Systems, NFPA 13.
2. Residential occupancies as defined in the Standard for Installation of Sprinkler Systems in Residential Occupancies up to Four Stories in Height, NFPA 13R.
3. Residential occupancies as defined in the Standard for Installation of Sprinkler Systems in One and Two Family Dwellings and Mobile Homes, NFPA 13D.

Protection shall be provided for polybutylene pipe and fittings. The minimum protection shall consist of one layer of 1/2 in. gypsum wallboard, or accoustical ceiling panels with steel framing members Classified for use in fire resistance rated assemblies (see product categories BYIT and CIKV in the Fire Resistance Directory), or 1/2 in. plywood soffits. For residential occupancies defined in NFPA 13D, the minimum protection may consist of one layer of 1/2 in. plywood.

Polybutylene pipe and fittings are to be installed in accordance with the requirements specified in the manufacturer's installation instructions and NFPA 13, NFPA 13R or NFPA 13D. Special installation and design criteria relative to pipe hanger spacings, piping and sprinkler restraint, sprinkler temperature ratings, piping location, testing procedures and friction loss characteristics are specified in the manufacturer's installation instructions provided with the pipe.

Polybutylene pipe covered under this category is provided in straight (uncoiled) lengths only.

During remodeling or ceiling repair operations, appropriate precautions shall be implemented to properly shield the pipe from the protected space.

The polybutylene pipe and fittings have not been investigated for use in air handling spaces.

Polybutylene pipe and fittings are intended for use in areas where the maximum ambient temperature does not exceed 120 degrees F. If the ambient temperature is expected to exceed this limitation, refer to the manufacturer's installation instructions for additional information on methods to reduce the pipe exposure temperatures. These pipe and fittings are not to be installed in outdoor applications.

Polybutylene pipe and fittings are not intended to be installed in combustible concealed spaces where sprinklers are required by NFPA 13, 13R or 13D, as applicable.

The polybutylene pipe and fittings are intended for use in wet pipe systems only and have not been investigated for use in dry pipe systems.

Underwriters Laboratories Inc. has not investigated this product for its effect on the potability of the water supply.

The manufacturer's installation instructions should be reviewed and authorities having jurisdiction consulted before installation.

The basic requirements used to investigate products in this category are described in Subject 1821, "Outline of Investigation For Sprinkler Pipe and Fittings For Fire Protection Service."

The Listing Mark of Underwriters Laboratories Inc. on the product is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Services. The Listing Mark for these products includes the name and/or symbol of Underwriters Laboratories Inc. (as illustrated in the Introduction of this Directory) together with the word "Listed," a control number and one of the following designations: "PB Sprinkler Pipe," or "PB Sprinkler Fitting."

BOW INDUSTRIAL CORP, PLATTSBURGH NY 12901 EX3700 (N)

Polybutylene pipe, copper tube size (CTS) in the 3/4, 1, 1 1/4, 1 1/2, 2 in. nominal diameter, and iron pipe size (IPS) in the 1, 1-1/4, 1-1/2 and 2 in. nominal diameter for working pressures not exceeding 175 psi.

Polybutylene fittings, copper tube size (CTS), including elbows, tees, couplings, reducing tees, reducing elbows, and caps with socket fusion connections in the 3/4 through 2 in. sizes. Sprinkler couplings, elbows and tees incorporating a 1/2 in. integral brass female pipe thread (FPT) adapter for direct connection to the sprinkler head in the 1 through 2 in. sizes. Adapters incorporating male pipe threads (MPT) for direct connection to other piping in sizes 1, 1-1/4, 1-1/2 and 2 in. Grooved end adapters in the 1-1/2 and 2 in. sizes. Polybutylene fittings, iron pipe size (IPS), including elbows, tee and couplings in the 2 in. size. Adapters incorporating male pipe threads (MPT) for connection to other piping in sizes 1-1/2 and 2 in. The fittings are rated for working pressures not exceeding 175 psi.

These pipe and fittings are to be installed in accordance with the Manufacturer's Technical Data and Installation Manual.

VANGUARD PLASTICS INC, MCPHERSON KS 67460 EX3695 (N)

Polybutylene pipe, copper tube size (CTS) in the 3/4, 1, 1-1/4, 1-1/2 and 2 in. nominal diameter for working pressure not exceeding 175 psi; iron pipe size (IPS) in the 1, 1-1/4, 1-1/2, and 2 in. nominal diameter for working pressures not to exceed 175 psi.

Polybutylene fittings, copper tube size (CTS), including elbows, reducing elbows, tees, reducing tees, couplings, reducing couplings, and caps in the 3/4 through 2 in. sizes; sprinkler couplings, 3/4 through 1-1/4 in. size and elbows and tees in the 1 through 2 in. size incorporating a 1/2 in. integral brass female pipe thread (FPT) adapter for direct connection to sprinklers; adapters incorporating male pipe threads (MPT) or cut grooved ends for direct connection to other piping in sizes 3/4 through 2 in; straight thread connectors in the 3/4 through 2 in. size; and fusion/flange adapters in the 1 and 2 in. size for adapting polybutylene piping to Class 150 flanges.

Polybutylene fittings, iron pipe size (IPS), including elbows, reducing elbows, tees, reducing tees and couplings, reducing couplings, caps and male adapters (threaded) in the 1 through 2 in. sizes; reducer bushings in the 2 x 1-1/2 in. size; sprinkler tees in the 1-1/2 and 2 in. size; fusion/flange adapters in the 1 through 2 in. size for adapting polybutylene piping to Class 150 flanges.

Polybutylene fittings, transition couplings and tees (CTS x IPS) in the 1 through 2 in. sizes.

These pipe and fittings are rated for working pressures not exceeding 175 psi and are to be installed in accordance with the manufacturer's Technical Data and Installation Manual.

Chlorinated Poly Vinyl Chloride, CPVC Sprinkler Pipe and Fittings (VIWT)

Chlorinated Poly Vinyl Chloride (CPVC) pipe and fittings are intended for use in sprinkler systems in the following types of occupancies:

1. Light Hazard occupancies as defined in the Standard for Installation of Sprinkler Systems, NFPA 13.
2. Residential occupancies as defined in the Standard for Installation of Sprinkler Systems in Residential Occupancies up to Four Stories in Height, NFPA 13R.
3. Residential occupancies as defined in the Standard for Installation of Sprinkler Systems in One and Two Family Dwellings and Mobile Homes, NFPA 13D.

Protection shall be provided for CPVC pipe and fittings. The minimum protection shall consist of either (1) one layer of 3/8 in. gypsum wallboard, (2) a suspended membrane ceiling with lay-in panels or tiles having a weight of not less than 0.35 psf when installed with metallic support grids, or (3) 1/2 in. plywood soffits.

In addition to the aforementioned protection, the minimum protection for residential occupancies specified in NFPA 13R or 13D may consist of one layer of 1/2 in. plywood.

During remodeling or ceiling repair, appropriate precautions shall be implemented to properly shield the piping from the protected occupancy.

CPVC pipe and fittings are to be installed in accordance with the requirements specified in the manufacturer's installation instructions and NFPA 13, NFPA 13R or NFPA 13D. Special installation and design criteria relative to pipe hanger spacings, piping and sprinkler restraint, sprinkler temperature rating, piping location, testing procedures and friction loss characteristics are specified in the manufacturer's installation instructions provided with the pipe.

As an alternative to the protection requirements, CPVC pipe and fittings may be installed without ceiling protection (exposed) when subject to the following additional limitations:

1. Exposed piping is to be installed below a smooth, flat, horizontal ceiling construction.
2. Listed Quick-Response sprinklers having deflectors installed within 8 inches from the ceiling or Listed Residential sprinklers installed in accordance with their Listing.

CPVC pipe and fittings are not intended to be installed in combustible concealed spaces where sprinklers are required by NFPA 13, 13R, or 13D as applicable.

CPVC pipe and fittings have been investigated for conformance with the combustibility requirements for thermoplastic sprinkler piping as described in the Standard for Installation of Air Conditioning and Ventilation Systems, NFPA 90A.

CPVC pipe and fittings are intended for use in areas where the maximum ambient temperature does not exceed 150 degrees F. If the ambient temperature is expected to exceed this limitation, refer to the manufacturer's installation instructions for additional information on methods to reduce the pipe exposure temperatures. These pipe and fittings are not to be installed in outdoor applications.

The CPVC pipe and fittings are intended for use in wet pipe systems only and have not been investigated for use in dry pipe systems.

Underwriters Laboratories Inc. has not investigated this product for its effect on the potability of the water supply.

The manufacturer's installation instructions should be reviewed and authorities having jurisdiction consulted before installation.

The basic requirements used to investigate products in this category are described in Subject 1821, "Outline of Investigation For Thermoplastic Sprinkler Pipe and Fittings For Fire Protection Service" and UL 1887, "Fire Test of Plastic Sprinkler Pipe For Flame and Smoke Characteristics".

The Listing Mark of Underwriters Laboratories Inc. on the product is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the name and/or symbol of Underwriters Laboratories Inc. (as illustrated in the Introduction of this Directory) together with the word "Listed", a control number, and one of the following product names as appropriate: "CPVC Sprinkler Pipe," or "CPVC Sprinkler Fitting."

R & G SLOANE MFG CO INC, SUB OF SUSQUEHANNA CORP, SUN VALLEY CA 91352 — EX3754 (N)

CPVC pipe in the 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3 in. nominal diameter for pressure, not exceeding 175 psi.

CPVC fittings, including elbows, tees, couplings, and caps in the 3/4 thru 3 in. sizes. Cross fittings in the 3/4 thru 1-1/2 in. sizes. Sprinkler adapters incorporating a 1/2 in. integral female pipe thread for direct connection to the sprinkler head in the 3/4 and 1 in. sizes. Adaptors incorporating male pipe threads for direct connection to other piping in sizes 3/4 thru 2 in. Grooved adapter fittings in the 1-1/4, 1-1/2, 2, 2-1/2 and 3 in. sizes for connection to steel piping of similar sizes with Listed rubber gasketed fittings. The fittings are rated for pressures not exceeding 175 psi.

CPVC Adjustable drop nipples are rated for pressures not exceeding 175 psi; Model 42014, 1 in. adjustment, 3/4 in. NPT inlet and 1/2 in. NPT outlet, equivalent length is 1 ft.; Model 42101, 3 in. adjustment, 1 in. NPT inlet and 1/2 in. NPT outlet, equivalent length is 0.5 ft.; Model 42111, 3 in. adjustment, 1 in. NPT inlet and 1/2 in. NPT outlet, equivalent length is 1 ft.

SCEPTER MFG CO LTD, ONTARIO CANADA M1L 3K2 — EX3820 (N)

CPVC pipe in the 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2 and 3 in. nominal diameter for working pressure not exceeding 175 psi.

CPVC fittings, including elbows, tees, couplings, flanges and reducer bushings in sizes 3/4 through 3 in. The fittings are rated for working pressures not exceeding 175 psi.

SPEARS MFG CO, SYLMAR CA 91342 — EX3769 (N)

CPVC pipe in the 3/4, 1, 1-1/4, 1-1/2, 2, 2-1/2, 3 in. nominal diameter for working pressure not exceeding 175 psi.

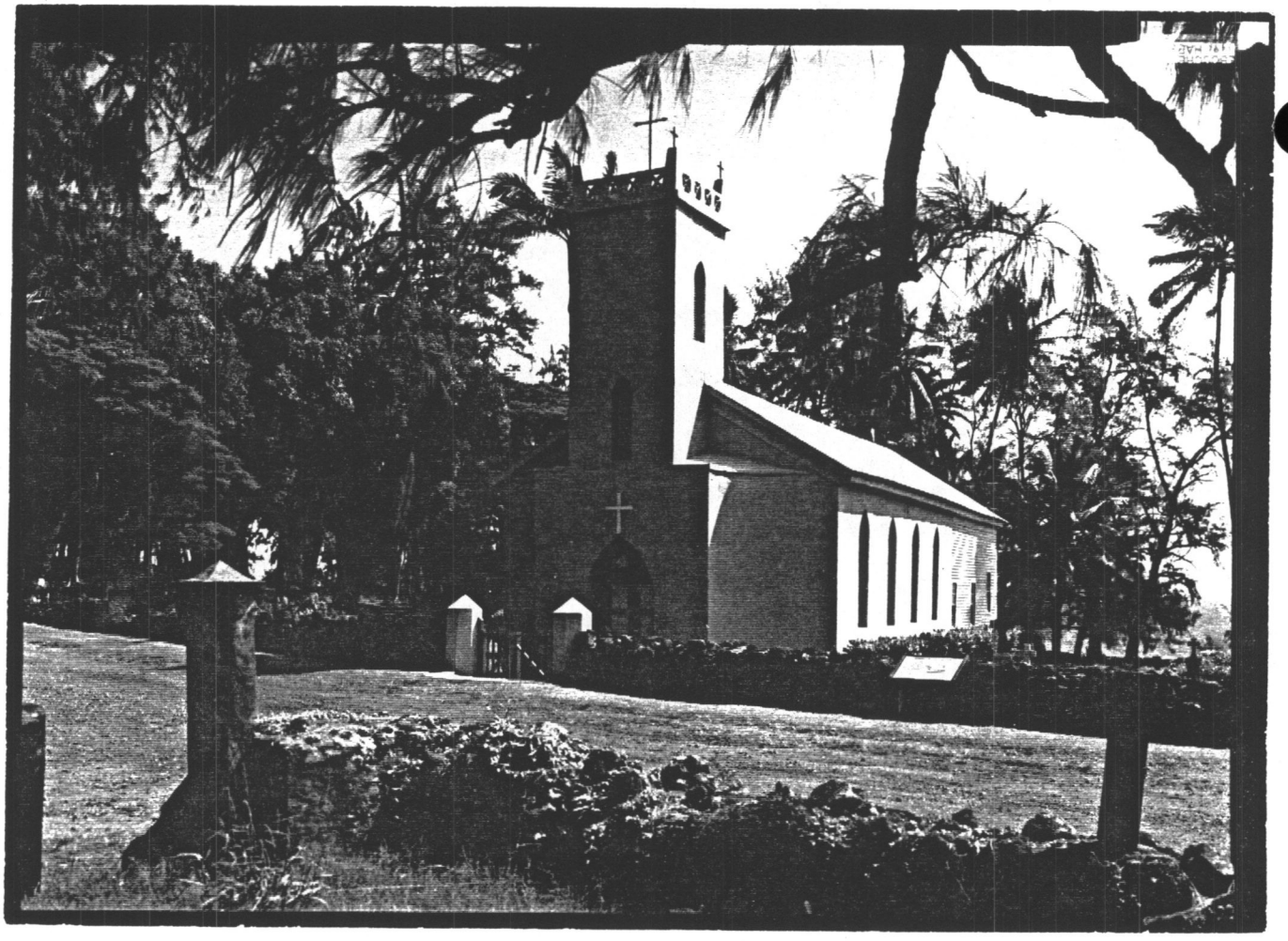
CPVC fittings, including elbows, tees, couplings, flanges, reducer bushings, crosses 3/4 thru 3 in. sizes, unions in sizes 3/4 thru 2 in. Sprinkler adapters incorporating a 1/2 in. integral female pipe thread for direct connection to the sprinkler head in the 3/4 and 1 in. sizes. Adapters incorporating male pipe threads for direct connection to other piping in sizes 3/4 thru 3 in. Grooved adapter fittings in sizes 1-1/4 thru 3 in. for connection to steel piping of similar size with Listed rubber gasketed fittings. The fittings are rated for working pressures not exceeding 175 psi.

CPVC adjustable drop nipples are rated for pressures not exceeding 175 psi; Models 42001, 3/4 in. NPTx1/2 in. NPT outlet, equivalent length is 0.75 ft.; Model 42004, 3/4 in. NPTx1/2 in. NPT outlet equivalent length is 0.75 ft; Model 42011, 1 in. NPTx1/2 in. NPT outlet, equivalent length is 0.75 ft; Model 42014, 1 in. NPTx1/2 in. NPT outlet, equivalent length is 0.75 ft.

Appendix G - Building Photographs and Descriptions

The following building descriptions are taken from the three volume document,"Architectural Evaluation" by Henry Law, Historical Architect (later first superintendent of Kalaupapa National Historical Park) and Laura Soulliére, architectural historian, dated July 1979. All photographs are by, Jack Boucher of the Historic American Building Survey (HABS), July 1991.
The descriptions are in order of the park priorities as found in table 1. The park priority is listed at the center top of each page. To the top right of each description is the volume and page from which the description is taken. Below is the page heading for the description for Bay View Building 278, visitor/patient meeting hall. This heading indicates the building is park priority 4, and the description is taken from volume 1, page 92 of "Architectural Evaluation"

4 PARK PRIORITY I-92



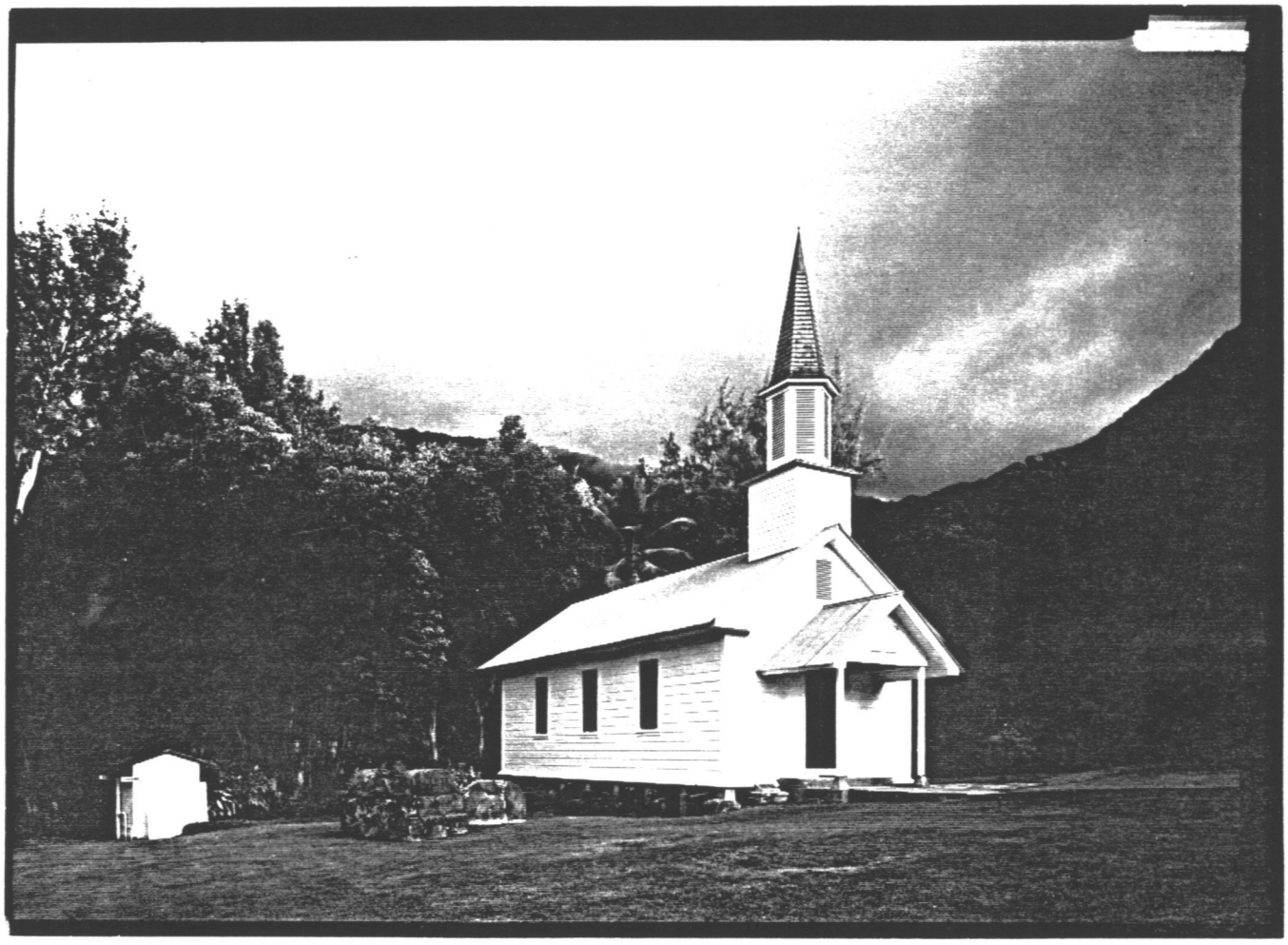
STRUCTURE: Building 711
LOCATION: Kalawao
USE: St. Philomena Catholic Church (no longer in use for services).
SIZE: Approx. 2520 square feet OWNERSHIP: State
DATE OF STRUCTURE: 1872, 1876, tower rebuilt 1888-89
DESCRIPTION: The church is a frame and stone building, constructed in two stages. The frame section has a concrete porch, with stone footings for the foundation. The 1876 section has masonry walls, approximately 30 inches in thickness. Interior and exterior of the masonry wall are coated with a plaster finish. A central tower is the main feature of the front of the structure. The windows and door openings of this section have gothic pointed arches. Windows in the older wood frame section are rectangular double-hung (twelve-light). Gable roofs of the L-shaped building are covered with corrugated metal. The tower is finished with a small railing which has a traditional diamond pattern. The interior of the building has fluted Corinthian columns with octagonal bases, and barrel vaulting. The structure is in poor condition. Stabilization should be undertaken immediately. The building should be fumigated. Many of the windows need re-framing. Foundations (wood sections) are in great need of repair, as is the tower parapet. The interior and exterior should be painted.

SIGNIFICANCE: Most importantly of historical significance, national level. Built by Brother Victorin Bertrant, enlarged (stone) by Damien, tower rebuilt mainly by Brother Dutton. Architecturally, the structure lacks continuity (too great a variety of materials and forms); the historical and cultural significance far outweigh the architectural significance.

HABS PHOTO #
HI-69-2

MAINTENANCE COST: $21,000
FUTURE MAINTENANCE COST: $1,000
DATE OF REPORT: January 28, 1977

G - 2



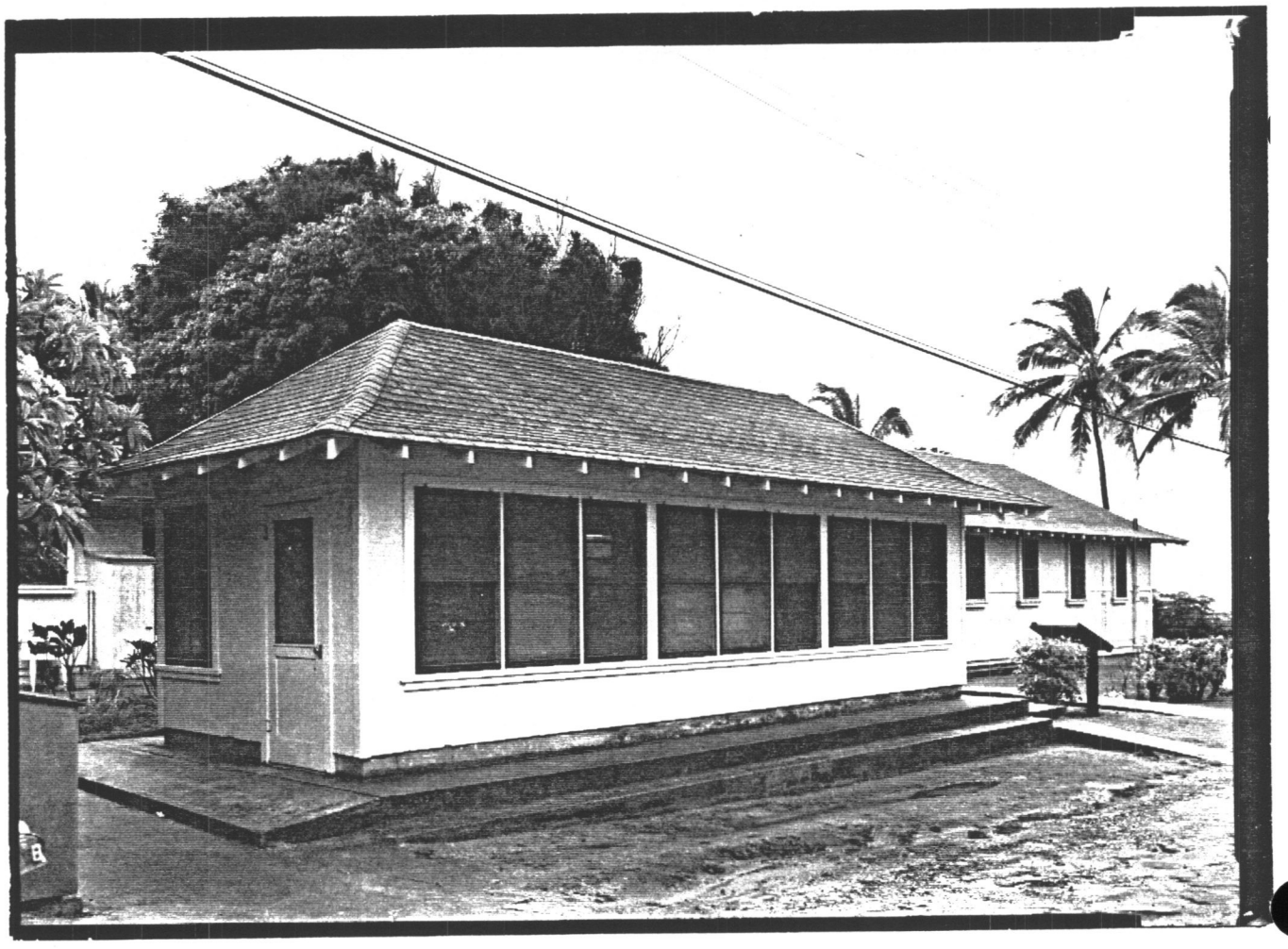
STRUCTURE: Building 710
LOCATION: Kalawao
USE: Siloama Protestant Church (United Church of Christ)
SIZE: Approx. 800 square feet OWNERSHIP: United Church of Christ
DATE OF STRUCTURE: 1871, rebuilt 1880. Completely reconstructed 1966
DESCRIPTION: The structure is a frame building of double wall construction, with a stone foundation. The gable roof, which is finished with corrugated metal has boxed cornices with return ends. The exterior is sheathed with horizontal channel siding. The corners of the building are finished with corner boards. A square tower supports the octagonal steeple (lower section - octagon with louvers, upper section - proper steeple covered with wood shingles) A gabled entrance portico constructed on a concrete slab and with one concrete step, provides access to the four-paneled double doors which serve as the main entrance to the building. The twelve-light double hung windows are capped with decorative lintels on the exterior. Rectangular louvers are located in the gable ends. The base of the structure is surrounded by a sole plate. The structure usually receives daily visits by the tour groups, and is used intermittently for religious services. The building is in good condition, but needs fumigation and could use some minor touch-up work (roofing and painting).

SIGNIFICANCE: All of the above dates should be checked. The 1966 reconstruction was not according to the same specifications with which the 1880 church was built. The 1880 church, from photographs seems to have a lower roof pitch. The louvers in the gable ends are square, not rectangular. The front entrance has no portico over the door. The door treatment is entirely different - with a decorated lintel (nearly a pediment) in the same design as that over the windows. The painting scheme of the 1880 structure seems to be a darker color (grey or green?). The doors are painted very dark (brown or black?) and the panel sections are light (white or tan?). The square tower which supports the octagonal steeple was covered with wood in a herringbone pattern.

MAINTENANCE COST: The reconstruction was not an accurate one $2,500
FUTURE MAINTENANCE COST: $600/annum
DATE OF REPORT: January 28, 1977

HABS PHOTO #
HI-70-5

G - 3



STRUCTURE: Building 278
LOCATION: Visitor's Quarters
USE: Former visiting pavilion
SIZE: Approx. 408 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1933
DESCRIPTION: The structure is a frame building of single wall construction, built on a concrete platform. The hip roof is finished with composition shingles. Walls consists of vertical plank siding, with large sections of double hung windows running nearly the entire length of both sides of the structure. Doors are located at the northwest and southeast side of the building, as well as the southwest side. A table with wood benches on either side, runs the entire length of the interior of the building. The building is in good condition, and is no longer used. The structure should be fumigated, and any termite damage found should be repaired.

HABS PHOTO #
HI-71-A-1

SIGNIFICANCE: The only place in the settlement during the 1930's where patients and visitors could meet. Originally a screen running the length of the building's interior separated them from physical contact. The entire visitors' compound was fenced in and visitors were not permitted to wander outside the compound, nor patients permitted to wander inside.

MAINTENANCE COST: $1000
FUTURE MAINTENANCE COST: $350/annum
DATE OF REPORT: January 16. 1977

G - 4

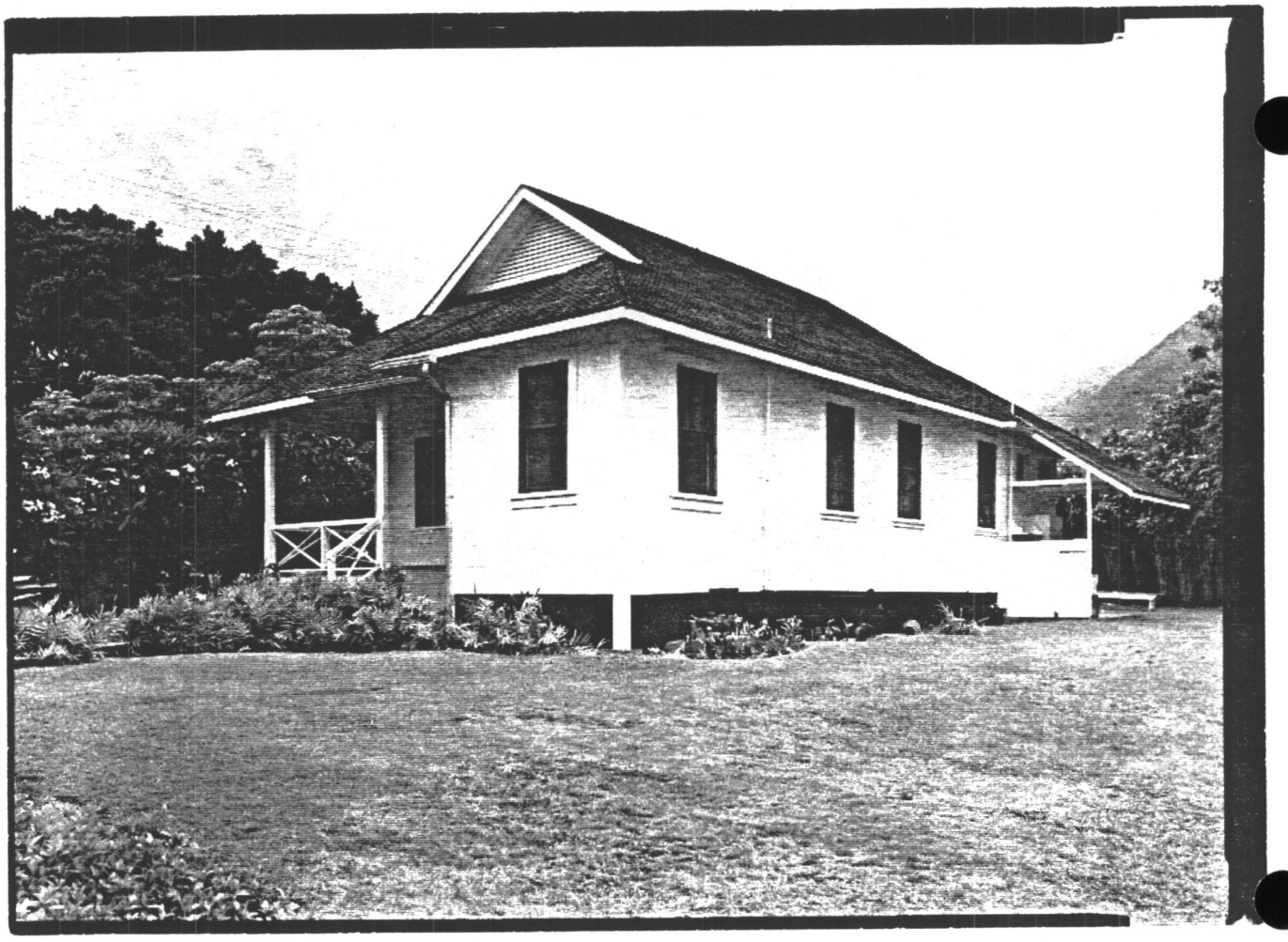
STRUCTURE: Building 274
LOCATION: Visitor's Quarters
USE: Visitor's Quarters
SIZE: Approx. 1900 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1933
DESCRIPTION: The structure is a frame building of single wall construction. The foundations consist of concrete footings and wood posts under most of the structure, and a concrete floor under the restroom areas. The hip roof of the L-shaped building is finished with composition shingles. A girt encircles the exterior of the structure is broken by the wood frames of the double hung windows, which project several inches from the exterior of the structure. A water table runs along the sole plate. A recessed screened veranda runs the length of the L-shaped building on the makai side. The building houses seven bedrooms for visitors. The structure was recently painted, and is in good condition. The building should be fumigated. Vegetation should be cleared from the base of the building. Any termite damage revealed in subsequent inspections should be repaired.

SIGNIFICANCE: Mainly historical. The structure is part of the compound that was once fenced in, so that patients and visitors could have no physical contact. One of the rooms in the structure is said to be occupied by spirits.

MAINTENANCE COST: $3200
FUTURE MAINTENANCE COST: $800/annum
DATE OF REPORT: January 16, 1977

HABS PHOTO #
HI-71-C-1

G - 5



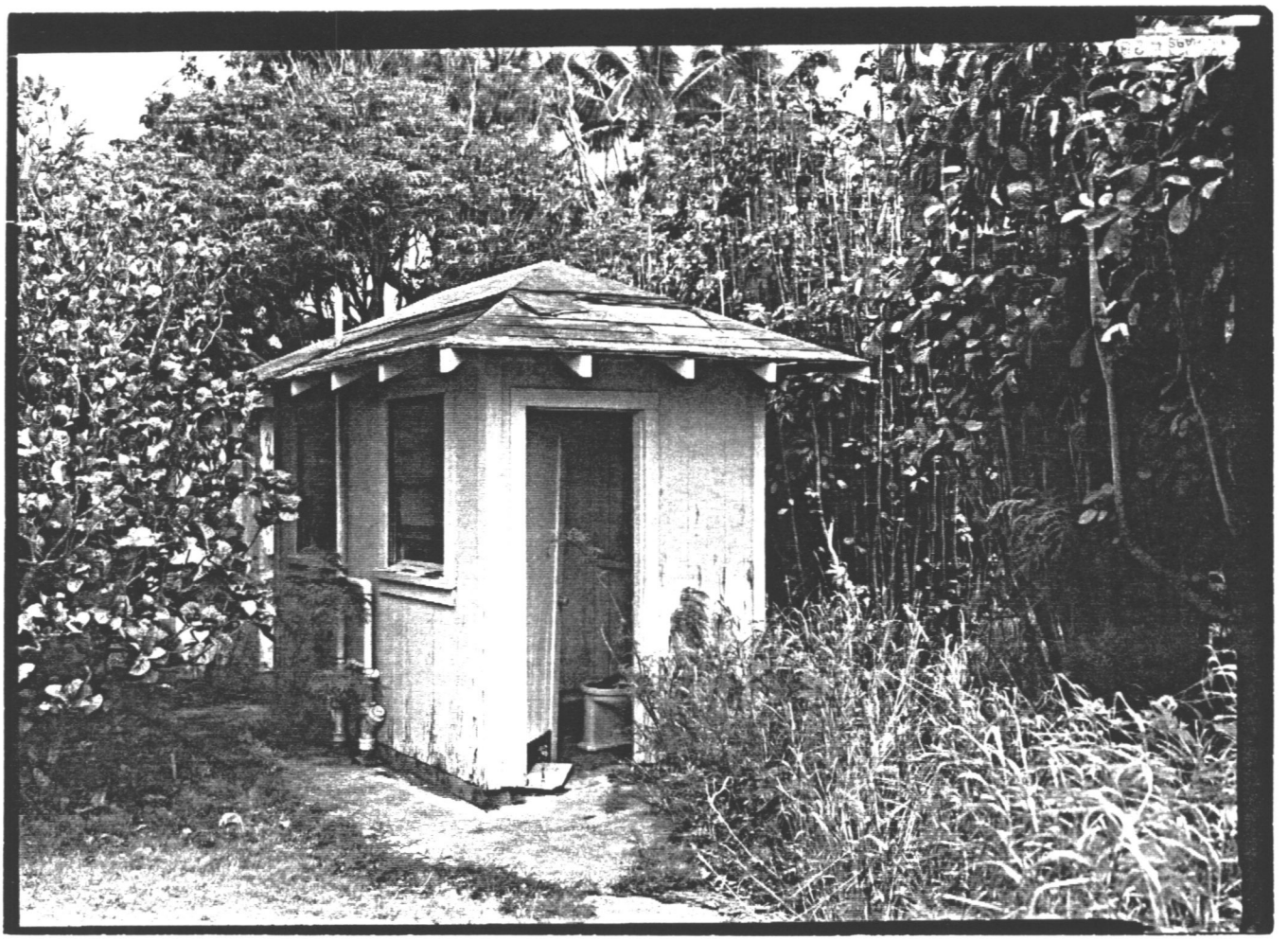
HABS PHOTO # HI-71-B-1

STRUCTURE: Building 277 (Wilcox Memorial Building)
LOCATION: Visitor's Quarters
USE: Visitor accommodations, and supervisor's office
SIZE: Approx. 1600 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1931
DESCRIPTION: The structure is a frame building of single wall construction. The foundation consists of concrete and stone footings, and wood posts camouflaged by a latticework skirting. The walls are vertical plank siding. Corners of the structure are finished with cornerboards. A recessed corner porch with chamfered posts and diamond-patterned railing is incorporated under the hip roof in the northeast corner of the building. The hip roof has a louvered gablet for ventilation. A smaller hip roof which covered an addition to the building intersects the main roof in the west corner of the building. The wood frame windows are double hung (twelve-light). A shed roof extension in the south corner of the building shelters an open washing area. A small recessed porch is located at the rear (southeast) of the building. The structure is used and in good condition. The building should be fumigated, and any termite damage should be repaired. When a new roof is needed (the present roof seems to be in good condition), the original fabric (wood shingles) should replace the present fabric.

SIGNIFICANCE: More information should be tracked down on the historical background of this building, including an accurate date. Architecturally the building is not the most outstanding of its type.

MAINTENANCE COST: $1800
FUTURE MAINTENANCE COST: $800/annum
DATE OF REPORT: January 16, 1977

G - 6



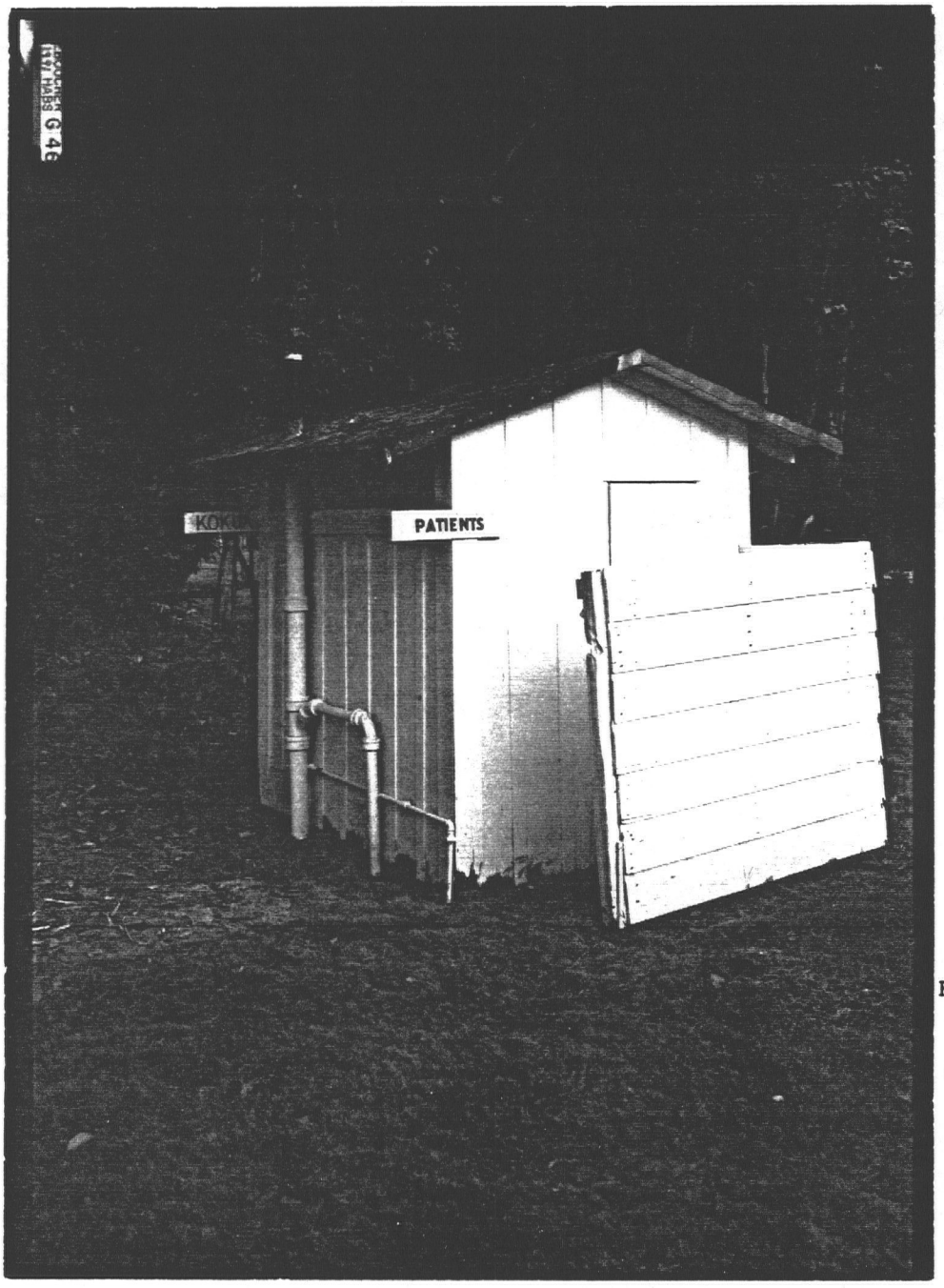
STRUCTURE: Building 523
LOCATION: Visitors' Quarters
USE: Abandoned Patient's restroom
SIZE: Approx. 6 x 10 OWNERSHIP: State
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a frame building of single wall construction. The floor consists of a concrete slab. Walls are vertical plank siding. The hip roof is finished with rolled roofing material. The corners of the structure are finished with cornerboards. The structure is in deteriorated condition, and has not been used for years.

HABS PHOTO #
HI-71-D-1

SIGNIFICANCE: Former restroom for patients when they came to see visitors in the visitors compound. No architectural significance.

MAINTENANCE COST: No estimate
FUTURE MAINTENANCE COST: No estimate
DATE OF REPORT: January 10, 1977

G - 7



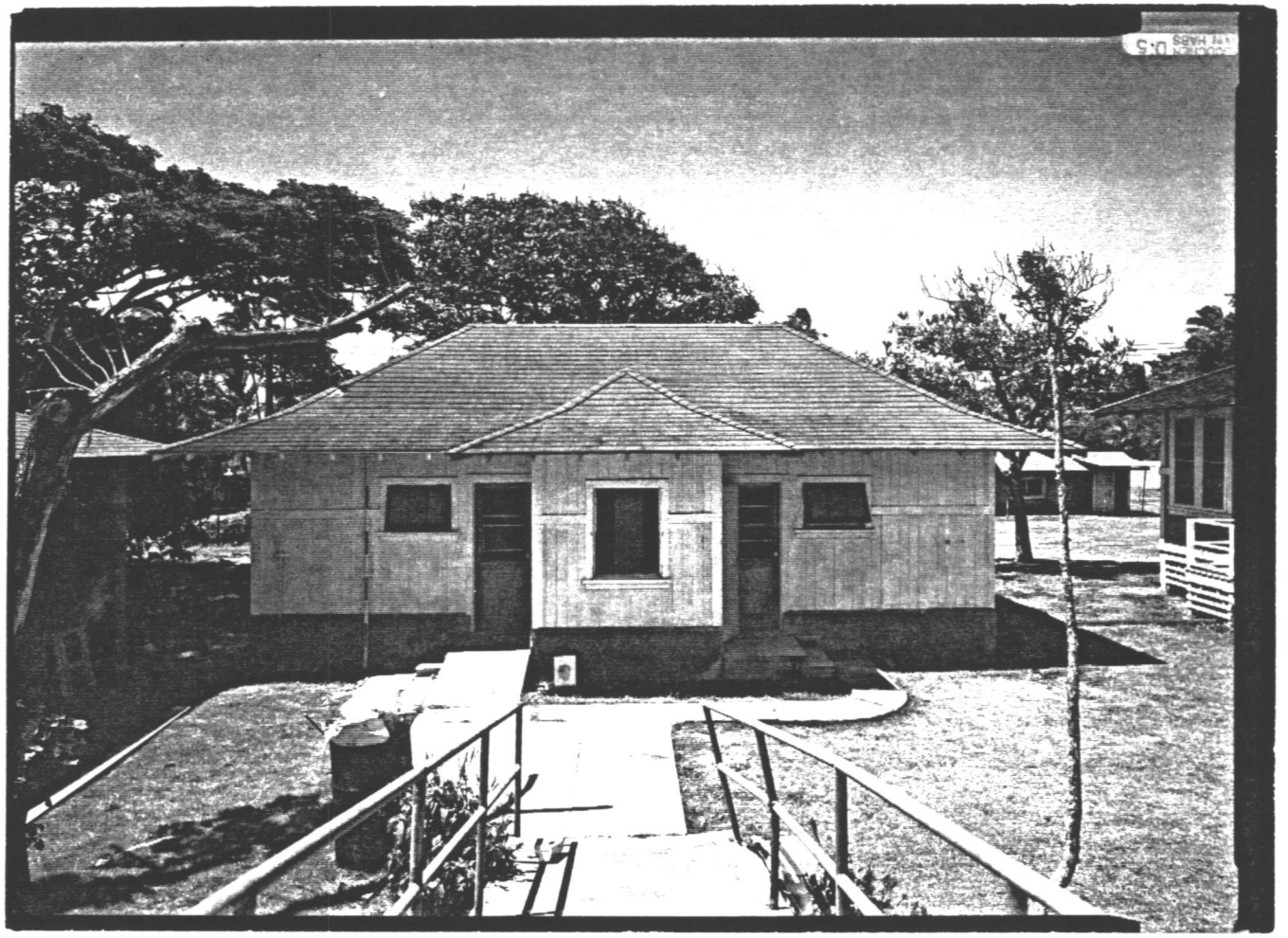
HABS PHOTO #
HI-70-A-1

STRUCTURE: 720
LOCATION: Kalawao (behind Siloama)
USE: Restrooms
SIZE: 6 x 10 and 8 x 10 OWNERSHIP: Private
DATE OF STRUCTURE: Unknown
DESCRIPTION: Two wood frame restrooms, with shed roofs. Poor condition, deteriorated by rot and termites. One restroom for kokua, one restroom for patients.

REHABILITATED SINCE 1977

SIGNIFICANCE: None

MAINTENANCE COST: No estimate
FUTURE MAINTENANCE COST: No estimate
DATE OF REPORT: January 1977



STRUCTURE: Building 283 HABS PHOTO #
LOCATION: Hospital area HI-75-2
USE: formerly fumigation room (possibly morgue, too?)
SIZE: Approx. 680 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1935
DESCRIPTION: The structure is a frame building of single wall construction. The foundation consists of a thick concrete slab. The hip roof is finished with composition shingles. The walls are vertical plank siding. A girt, broken by the wood frames of the hinged windows, encircles the structure. The corners of the building are finished with cornerboards. The enclosed porch has two separate entrances - for men and women. The interior of the building is divided into two main sections. The building is in deteriorated condition. Vegetation should be cleared away from the structure. Termite damaged wood should be repaired. The building should be re-roofed, fumigated, cleaned and painted.

SIGNIFICANCE: Not any particular architectural significance. The building, according to Bernard Punikaia, was used as a fumigation room until the 1960's. Men and women leaving the settlement for a short period of time brought clothes here to be fumigated (to "kill the bacteria") the night before they left. Just before they left, they, too, would have to be fumigated (women on the left side of the building, men on the right side). They were then allowed to leave. Bernard states that the fumigation smell was terrible.

MAINTENANCE COST: $12,600
FUTURE MAINTENANCE COST: $400/annum
DATE OF REPORT: January 17, 1977

G - 9

STRUCTURE: Building 272
LOCATION: Industrial area
USE: Settlement store
SIZE: Approx. 2200 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1934
DESCRIPTION: The building is constructed of hollow tile and reinforced concrete, on a concrete foundation. A veranda which is recessed under the hip roof is located at the front (west side) of the structure. Large sections of the western wall of the building are plate-glass windows in wood frames. Windows on the other walls are metal frame (fixed and hinged sash) twelve-light. A loading platform, and storage rooms are located at the rear of the L-shaped structure. The building is in fair condition. Termite and rot damage to the eaves, rafters and decking should be repaired. The building should be fumigated, and its exterior painted.

HABS PHOTO #
HI-76-1

SIGNIFICANCE: Typically 30s institutional architecture, but serves as the social focal point of the settlement, and the visual focal point of the industrial center.

MAINTENANCE COST: $5,000
FUTURE MAINTENANCE COST: $800/annum
DATE OF REPORT: January 17, 1977

G - 10

STRUCTURE: Building 290
LOCATION: Administrative-Industrial area
USE: Post Office and court house
SIZE: Approx. 2150 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1934
DESCRIPTION: The structure is a hollow tile building with a cement stucco exterior finish. The foundation is concrete. The hip roof extends beyond the walls of the building proper, over a portical which surrounds four sides of the building. The eave brackets are well-shaped in a gentle curve, and their shape is echoed in the brackets of the post capitals. A wind baffle of wood frame and sheets of corrugated metal shelters the post office business window. The building is fair condition, although termite damage should be repaired. The building should be re-roofed when the damaged decking and members are replaced. The structure should be fumigated and painted.

HABS PHOTO #
HI-77-3

SIGNIFICANCE:

MAINTENANCE COST: $9700
FUTURE MAINTENANCE COST: $460/annum
DATE OF REPORT: January 17, 1977

G - 11

STRUCTURE: Building 301 HABS PHOTO #
LOCATION: Beretania Street HI-78-2
USE: Vehicle storage and gneral storage
SIZE: Approx. 38 x 75 OWNERSHIP: State
DATE OF STRUCTURE: Probably 1853
DESCRIPTION: The building is a stone masonry structure (lime mortar) with a gable roof. The roof is finished with corrugated metal. The gable ends and a two-foot section at the top of the wall are finished with board and batten siding. A large open stall for vehicle storage, located at the southeast corner, has a concrete slab floor. A door in the west wall, and a window in the south wall are finished with old wood lintels. Quoins, visible through the paint, articulate the four corners of the rectangular structure. The building is in poor condition. The roof structure should be stabilized and the building should be fumigated to prevent further damage to wood. The structural cracks in the masonry of the southeast and southwest corners will eventually need stabilization. The building has been altered (interior has been divided, concrete openings framed openings have been made of the south wall. Probably an old doorway was located on the Maui side, but it has since been filled in).

SIGNIFICANCE: Presently historical. Too altered at the present time for any architectural significance.

MAINTENANCE COST: $3000 G - 12
FUTURE MAINTENANCE COST: ?
DATE OF REPORT: January 27, 1977

STRUCTURE: Building 56
LOCATION: Corner Kamehameha and Beretania
USE: Residence
SIZE: Approx. 800 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1935
DESCRIPTION: The structure is a frame building of single wall construction, with a concrete pad and post foundation. Wood steps provide access to the recessed corner porch which is incorporated under the hip roof. The corners of the building are finished with cornerboards. A girt encircles the structure, and is broken by the wood frames of the double-hung windows. The wall is composed of vertical plank siding. The hip roof is finished with composition shingles. A partially enclosed porch with a shed roof is located at the rear of the L-shaped structure. The building is occupied, and in good condition. Termite and rot damage (particularly to the roof, where the wood shingles were used as decking for the composition shingles) should be repaired. The building should be fumigated.

SIGNIFICANCE: One of many . . . .

MAINTENANCE COST: $6,100
FUTURE MAINTENANCE COST: $400/annum
DATE OF REPORT: January 26, 1977

HABS PHOTO #
HI-79-1

G - 13

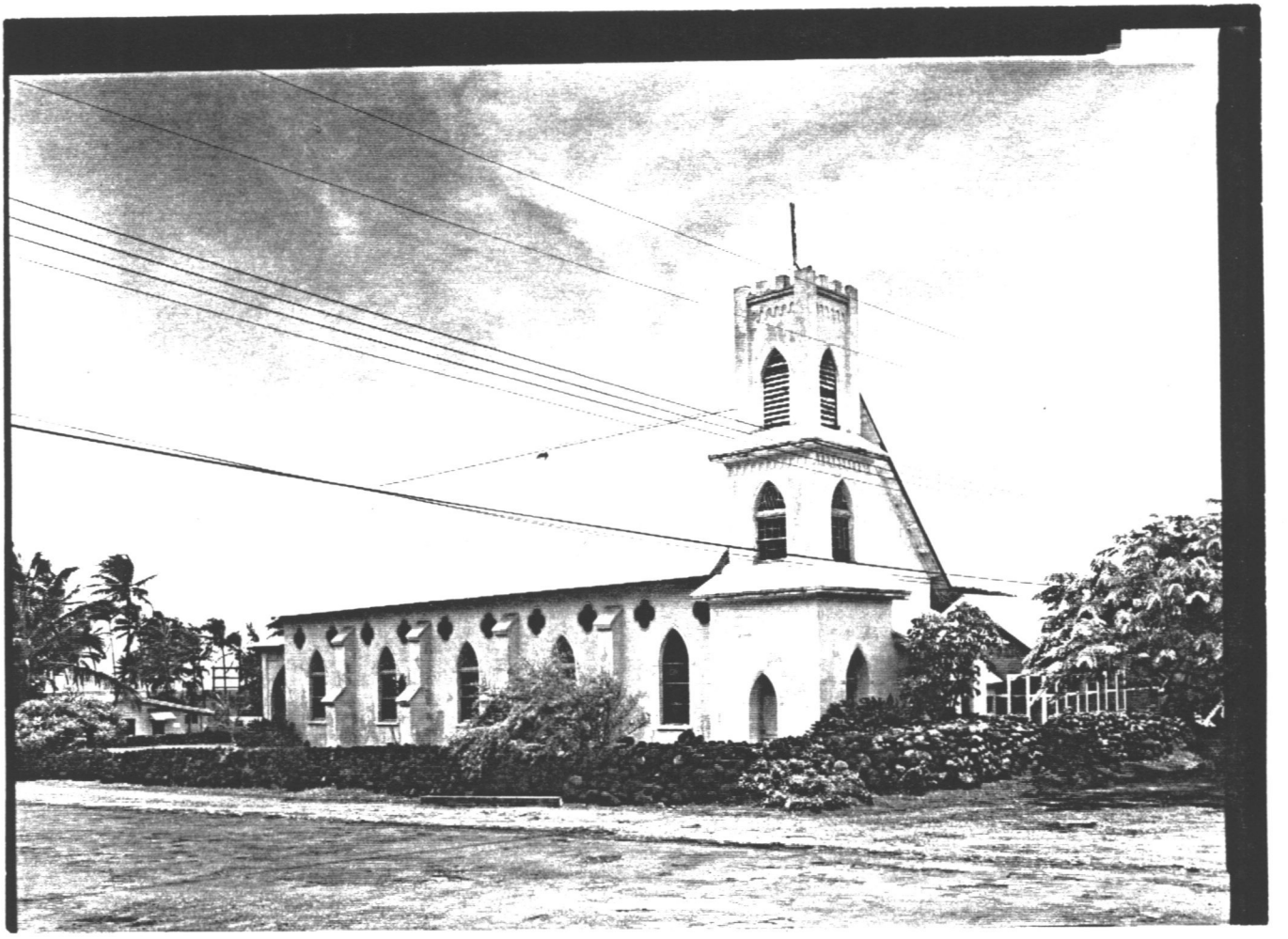
STRUCTURE: Building 292
LOCATION: St. Francis Church
USE: Social Hall, library
SIZE: Approx. 28 x 32 OWNERSHIP: Private
DATE OF STRUCTURE: Prior to 1930 (seems to be on 1908 map)
DESCRIPTION: The structure is a frame building of single wall construction. The gable roof is covered with metal, is part of the front entrance portico. The double door for this entrance, had a pointed gothic arch. The foundation consists of stone pads and posts. A latticework skirting is located between the posts. The corners of the structure are finished with cornerboards. A broken girt encircles the exterior, approximately six feet above floor level. A water table edges the sole plate. An addition, with shed and gable roofs has been constructed on the rear of the L-shaped building. The structure, Father Damien Memorial Hall, is in poor condition due to termites and rot.

HABS PHOTO #
HI-81-1

SIGNIFICANCE: None - Doesn't have the integrity of the AJA in terms of design, and it has been altered. Outbuilding to St. Francis.

MAINTENANCE COST: No estimate
FUTURE MAINTENANCE COST: No estimate
DATE OF REPORT: October 12, 1976

G - 14

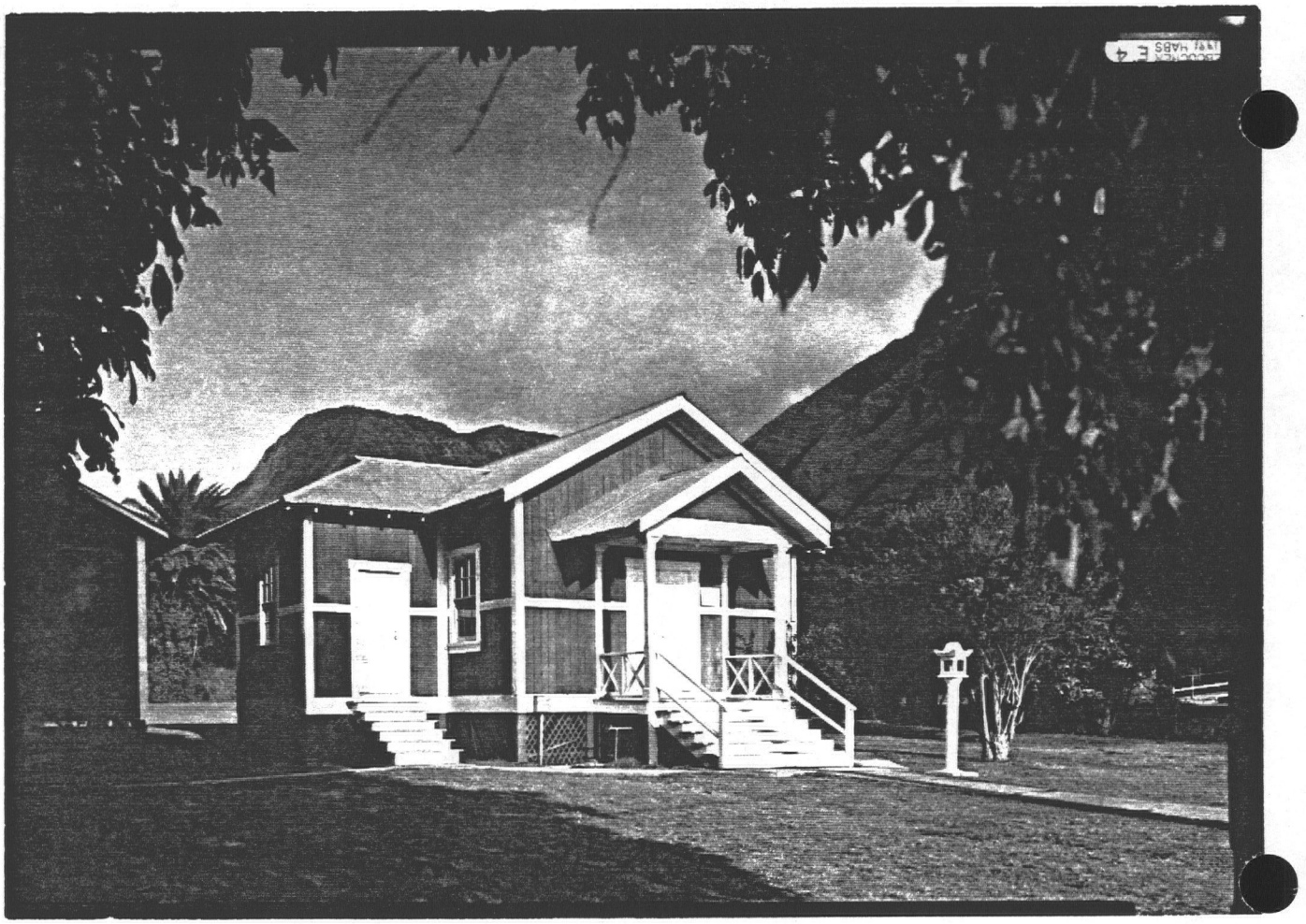


STRUCTURE: Building 291
LOCATION: Industrial area
USE: Catholic church
SIZE: Approx. 35 x 100 OWNERSHIP: Catholic Church
DATE OF STRUCTURE: Completed 1908
DESCRIPTION: The building is a reinforced concrete structure with a concrete foundation. The rectangular building has an arched portico at the west side sheltered by a hip roof, a large nave with a gable roof, and a sacristy at the east end with a shed roof. A three-tiered steeple with a pyramidal roof is located in the southeast corner of the structure. All roofs are covered with corrugated metal. The hooded gothic windows are interspersed with reinforced concrete buttresses on the north and south walls. Other windows throughthe structure, as well as the louvers in the steeple are also of the hooded gothic type. Flanking the tops of the windows on the north and south are quatrefoils which have been filled in with masonite (replacing the original glass?). Corinthian columns on the interior help support the gothic vaults. The interior floor is scored concrete. The structure is used daily, and is in poor condition. Any termite damage should be repaired (windows, roof structure.) The stained glass windows should be stabilized. The structure should be re-roofed. The interior and exterior should be painted.
SIGNIFICANCE: Quite a massive building effort for Kalaupapa. More research is warranted without question. Architecturally imposing, and really serves as the visual landmark for Kalaupapa. The church is the building most easily distinguished from the top of the pali, and from the air. Also exemplifies the efforts of one religion trying to out-do the other, which was so common for dacades in Hawaii.

HABS PHOTO #
HI-80-8

MAINTENANCE COST: $41,500
FUTURE MAINTENANCE COST: $1,000/annum
DATE OF REPORT: January 26, 1977

G - 15

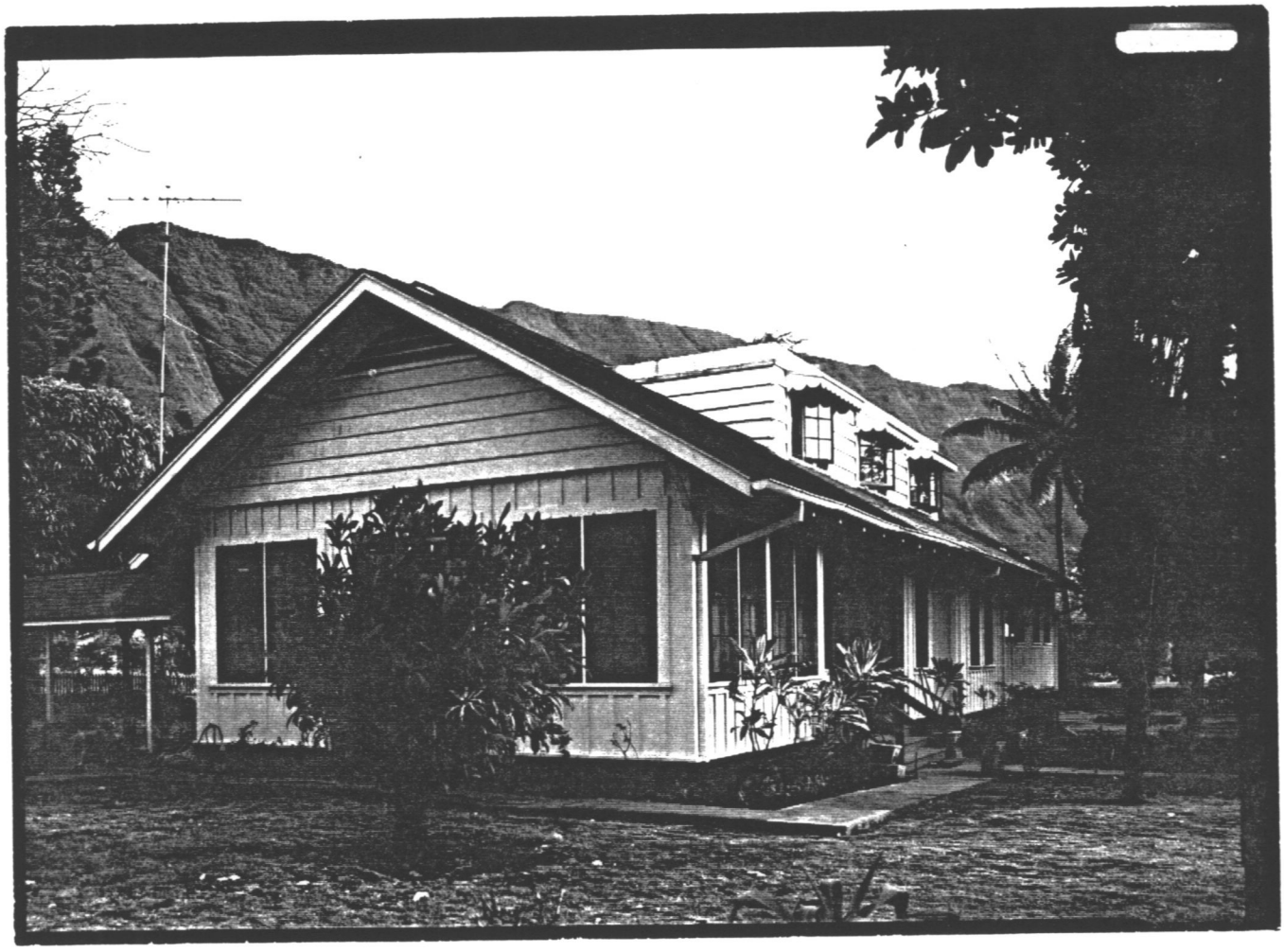


HABS PHOTO #
HI-83-3

STRUCTURE: Building 308
LOCATION: McKinley Street
USE: Americans of Japanese Ancestry Benevolent Society (Social Hall)
SIZE: Approx. 900 sq. ft. OWNERSHIP: Private
DATE OF STRUCTURE: 1910 (according to National Register form)
DESCRIPTION: The structure is a one-story building of single wall construction, with a stone pad and post foundation. The symmetrical structure has a cruciform shape. The main gable roof is intersected by the hip roofs of the wings which are approximately one foot lower than the top of the gable. A possible addition, with a shed roof is located at the rear. A projecting portico, with a gable roof is the main entrance to the structure. The corners of the portico are articulated by two chamfered posts and two chamfered pilasters. All roofs are finished with corrugated metal. Most of the foundation is camouflaged by latticework skirting. The wood frame windows are double hung (twelve-light). The front entrance has a five-panel double door. Five panel doors also are located at the wing entrances on either side. A broken girt encircles the exterior of the structure, except for the rear wing, which is simply the vertical plank siding. The corners of the structure are finished with cornerboards. The lower portion of the building is finished with a wide water table. All trim is painted white, which contrasts with the pea-green of the plank siding. The structure is in deteriorated condition, and is in need of approximately 50 percent board-by-board reconstruction, fumigation and painting. The building is used for storage, and intermittently for social gatherings. A mill stone of fine-grained stone is located at the rear of the building. The origins and specific use of the stone are unknown.
SIGNIFICANCE: The structure is well-proportioned and finely put together. The history warrants further research. The structure is not a Monument of Hawaiian Architecture, but a symmetrical and formal building interpreted with the simplicity, rudeness and charm of Hawaiian vernacular architecture.

MAINTENANCE COST: $23,300
FUTURE MAINTENANCE COST: $600/annum
DATE OF REPORT: January 13, 1977

G - 16



HABS PHOTO #
HI-83-B-2

STRUCTURE: Building 15
LOCATION: Bishop Home
USE: Residence for nuns
SIZE: Approx. 3600 sq. ft.(2-stori) OWNERSHIP: State
DATE OF STRUCTURE: Unknown (prior to 1939)
DESCRIPTION: The structure is a frame building of single wall construction with an exterior finish of board and batten. The foundation consists of concrete footings and wood posts. The gable roofs have long second story dormers on the north and south sides of the structure which run approximately one-third the length of the building. A recessed porch is located in the central section of the north side. Two smaller porches are located at the rear of the building. Most windows are two-sash casement windows with twelve lights. The foundation is camouflaged by a skirting which consists of horizontal wood strips. The roofs are finished with green composition shingles. The building is in poor condition. The structure should be fumigated, and termite and rot damage should be repaired. The copper gutters and downspouts (yes, this building has gutters!) should be replaced. The exterior should be painted.

SIGNIFICANCE: Historical significance. Architectural significance is lacking.

MAINTENANCE COST: $7900
FUTURE MAINTENANCE COST: $1200/annum
DATE OF REPORT: January 16, 1977

G - 17

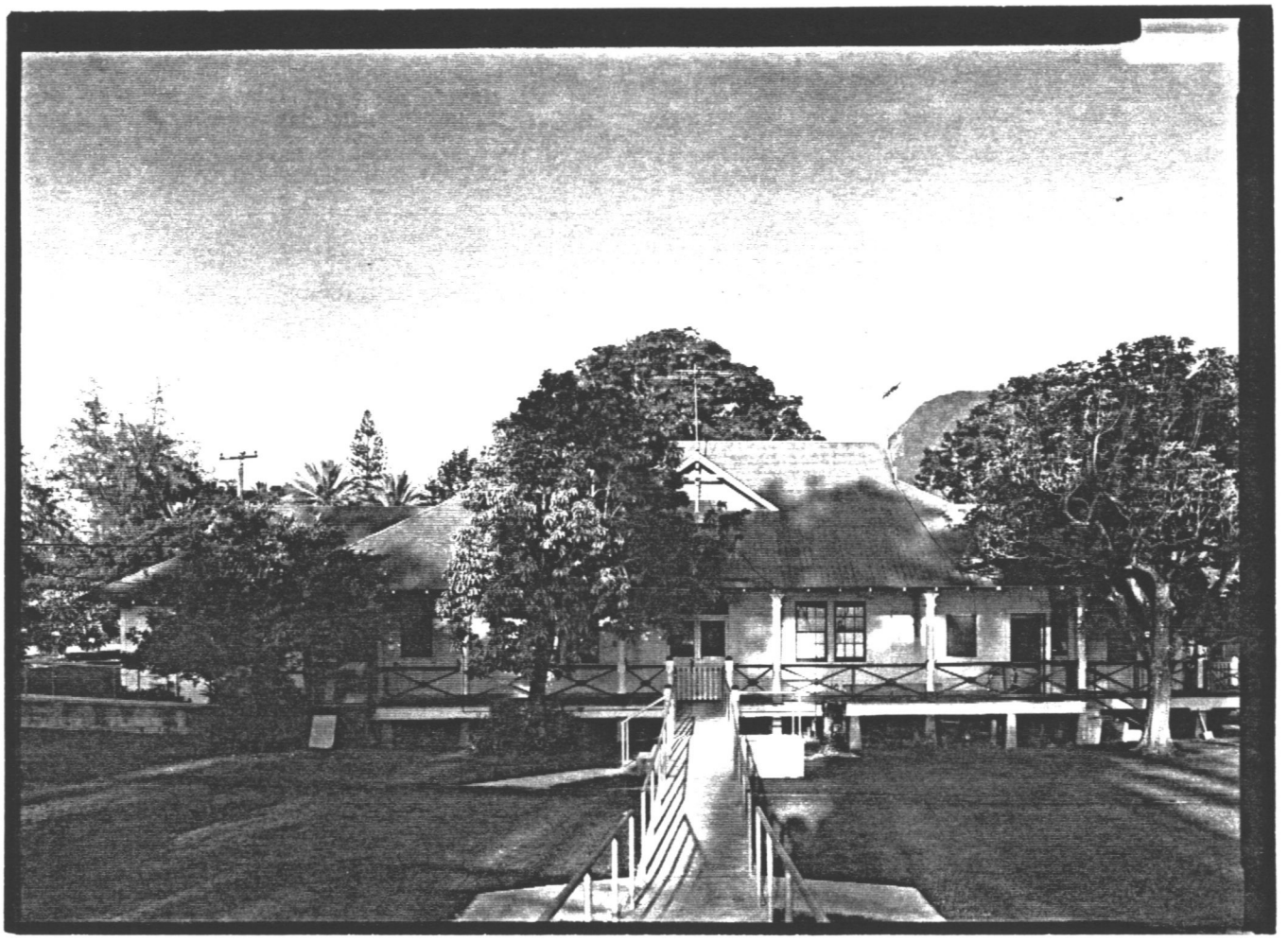
STRUCTURE: Building 302 and 303
LOCATION: Beretania Street
USE: Jail, Police Headquarters
SIZE: 24 x 60 (302) & 26 x 68 (303) OWNERSHIP: State
DATE OF STRUCTURE: 1932
DESCRIPTION: The two structures are joined together by an intersecting roof and a concrete slab breezeway. Both structures are concrete, with concrete foundations. The hip roofs (with gablets) are covered with corrugated metal. The buildings are connected in a T-shape. Building 303 to the east serves as police headquarters. Windows are wood frame double hung (twelve light). Building 302, the jail, is to the west. Metal bars are located on all the windows. Police headquarters is used daily. The jail has not been used for an extended period of time. The structures are in fair to poor condition. Any termite damage (window frames, roof structure, etc.) should be repaired, as should the spalling concrete. The roofs and exterior walls should be painted. The buildings should be fumigated. Vegetation should be cleared.

SIGNIFICANCE: No architectural significance.

HABS PHOTO #
HI-84-1

MAINTENANCE COST: $13,040
FUTURE MAINTENANCE COST: $500/annum
DATE OF REPORT: January 27, 1977

G - 18



STRUCTURE: Building 2
LOCATION: Bay View Home
USE: Residence
SIZE: Approx. 3700 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1916

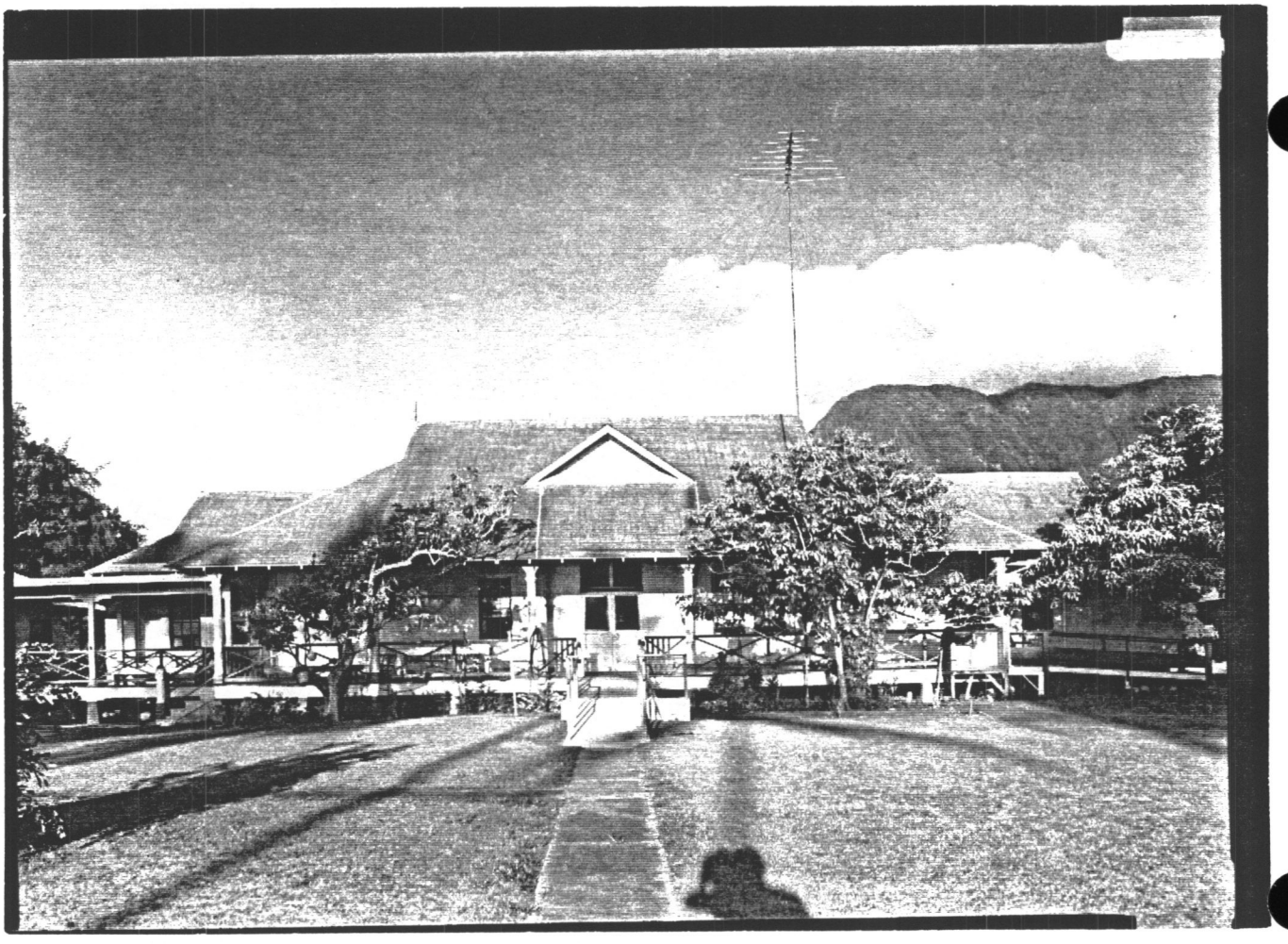
HABS PHOTO #
HI-85-B-1

DESCRIPTION: The structure is a frame building of single wall construction. The plan is generally symmetrical: a main section with a veranda is flanked by two smaller wings to the north and south, and a third wing to the east (rear). The dominant architectural feature of the building is the combination of intersecting hip roofs, all with louvered gablets for ridges. Another louvered gablet projects from the roof directly above the main entrance to the building. The veranda which is recessed under the main roof is bordered by a diamond-patterned railing and chamfered posts - some with jigsawn bracketing. The foundations consist of concrete piers. The main set of concrete steps (edged with concrete posts) have been covered with a ramp to make access to the building easier for some patients. The walls consist of vertical plank siding. Windows are usually double-hung, twelve light. The building is connected to Building 5 and 3 by a covered walkway which was constructed attaching the verandas. The walkway probably dates from the 1930's. The structure is in poor condition. The building should be fumigated, and termite damage repaired. The foundation should be rebuilt. The structure should be painted, and the building should be re-roofed eventually with the original shingles. For more detailed description of the work, see construction estimate sheets.

SIGNIFICANCE: Historically the Bay View Home was the residential area for elderly and blind patients (now occupied by male patients). Architecturally a well-designed small community which should eventually be restored to its pre-1930's state even though one of the early structure was razed.

MAINTENANCE COST: $42,000
FUTURE MAINTENANCE COST: $1650/annum
DATE OF REPORT: January 16, 1977

G - 19



STRUCTURE: Building 3
LOCATION: Bay View Home
USE: Residence
SIZE: Approx. 3700 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1916
DESCRIPTION: The structure is a frame building of single wall construction. The plan is generally symmetrical: A main section with a veranda is flanked by two smaller wings to the north and south, and a third wing to the east (rear). The dominant architectural feature of the building is the combination of intersecting hip roofs, all with louvered gablets for ridges. Another louvered gable projects from the roof directly above the main entrance to the building. The veranda which is recessed under the main roof is bordered by a diamond-patterned railing and chamfered posts with jigsawn bracketing. The foundation consists of concrete piers. Concrete steps with concrete and wood railings serve as the major entrance to the building. A wood ramp replacing the concrete steps on the south side of the structure has made access to the building easier. The walls consist of vertical plank siding. Windows are usually double hung, twelve light. The building is connected to Building 2 and 5 by a covered walkway which is an extension of the veranda. The structure is in poor condition. The building should be fumigated, and termite and rot damage repaired. The foundations should be rebuilt. The structure should be painted, and eventually re-roofed with the original wood shingles. For more detailed description of work needed, see cost estimated sheets.
SIGNIFICANCE: Part of Bay View Home, formerly for the elderly and blind patients. Now for male patients. Architectually the building is the mirror plan of Building 2, and has the same significance.

HABS PHOTO #
HI-85-C-1

MAINTENANCE COST: $43,000
FUTURE MAINTENANCE COST: $1650/annum
DATE OF REPORT: January 16, 1977

G - 20

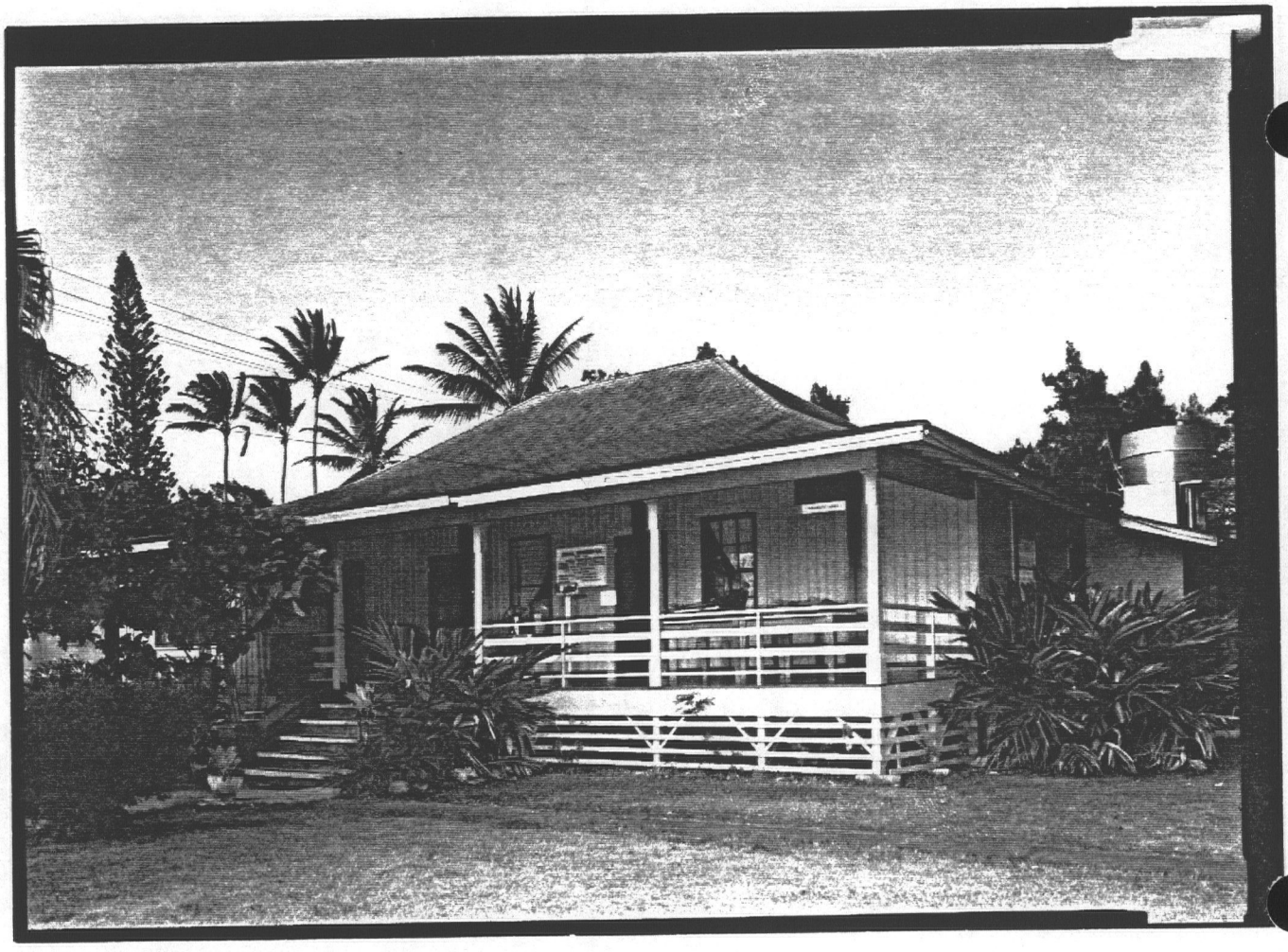
HABS PHOTO #
HI-87-1

STRUCTURE: Building 281 (104-A?)
LOCATION: 281 Puahi Street
USE: Residence
SIZE: Approx. 800 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a one-story building of single wall construction, with a stone and concrete pad and post foundation. The structure has a hip roof with a gablet for ventilation. The roof of the rectangular building is finished with composition shingles. The wood frames of the double-hung windows project several inches from the exterior wall. A broken girt encircles the exterior of the structure. A wood porch at the west side of the structure, sheltered by an overhanging extension of the roof, provides access to the front porch. The structure is occupied and in fair condition. The building is infested with termites, so that some board replacement will be necessary. Old roofing materials should be removed when the structure is re-roofed. Vegetation should be cleared from the base of the structure. The building should be fumigated and painted.

SIGNIFICANCE: Date of the structure is listed as 1931 in the building files at Kalaupapa. The structure is not similar to other Kalaupapa buildings, and could have been one of the buildings moved from the Baldwin home located near the rock crusher. Further historic research is warranted; minimal architectural significance.

MAINTENANCE COST: $3200
FUTURE MAINTENANCE COST: $500/annum
DATE OF REPORT: January 13, 1977

G - 21

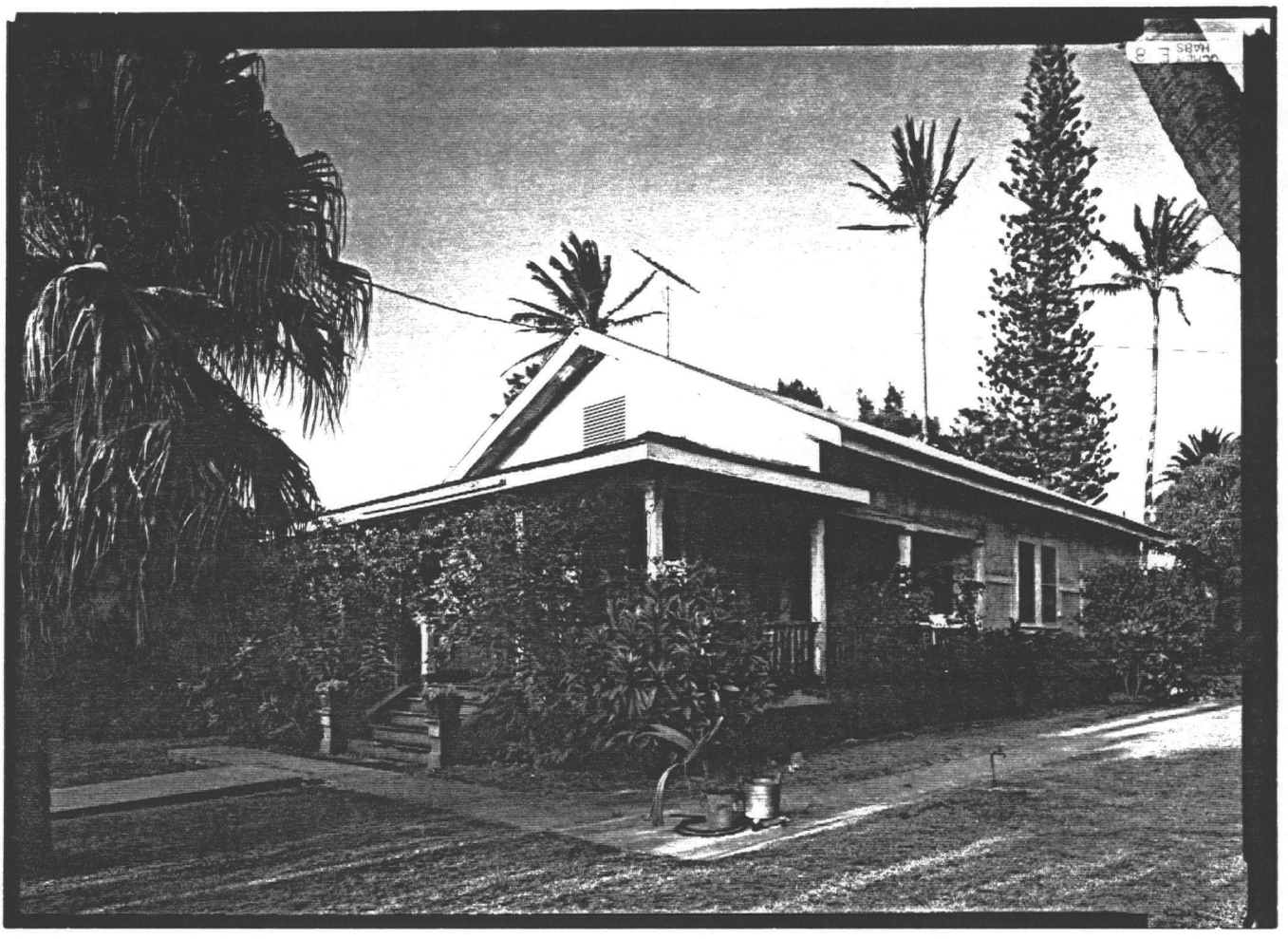


STRUCTURE: Building 5
LOCATION: Staff Row
USE: Staff Dining Hall and central kitchen
SIZE: Approx. 2500 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a one-story building of single wall construction, with a stone pad and post foundation. The generally rectangular building has a broken-pitch hip roof, with a recessed porch at the southwest corner. Concrete steps, bordered by two planters (as in the Administrator's Residence) lead to the front porch and two entrance doors. The wooden posts of the porch have jigsawn decorative brackets. The porch ceiling is plasterboard or "Celotex". Most of the windows are paired, and are wood frame, double hung (twelve-light). The exterior finish is board and batten. The corners of the structure are finished with endboards. The structure has been altered-the south wall includes a wall section of concrete block. The building is used daily, and is in fair condition. The structure should be fumigated and painted, re-roofed with original material, and termite damage repaired.

SIGNIFICANCE: Probably the earliest structure on staff row, originally the Administrator's Residence. Architectural significance has been marred by the alterations. Eventually should be restored to its original condition.

MAINTENANCE COST: $14,300
FUTURE MAINTENANCE COST: $850/annum
DATE OF REPORT: January 12, 1977

HABS PHOTO #
HI-88-A-1



HABS PHOTO #
HI-88-H-4

STRUCTURE: Building 10
LOCATION: Staff Row
USE: Administrator's Residence
SIZE: Approx. 2200 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: unknown
DESCRIPTION: The structure is a one-story building of single wall construction, with a stone pad and post foundation and latticework skirt around the posts of the foundation. The T-shaped structure, which seems to have had at least one addition to the north, has intersecting gable roofs, finished with metal. The L-shaped front porch, located in the southwest corner of the structure, is sheltered in part by a hip roof which juts out below the main gable, and partially recessed under that gable. Chamfered posts and pilasters articulate the edges of the porch. The corners of the building are finished with end boards. A broken girt encircles the exterior of the structure. A second porch, sheltered by a shed roof, is located in the northwest section of the building. A small entryway, again sheltered by a shed roof, is located at the rear (east) of the structure. Concrete steps provide access to the front porch. The wood frame windows are double hung (12-light). The structure presently is not occupied, but is in good condition. The structure has been recently painted. The structure should be fumigated, and vegetation should be cleared from the base.
SIGNIFICANCE: Historical and architectural significance to settlement, although neither the State nor the National Register forms had a date.

MAINTENANCE COST: $1200
FUTURE MAINTENANCE COST: $840/annum
DATE OF REPORT: January 12, 1977

G - 23

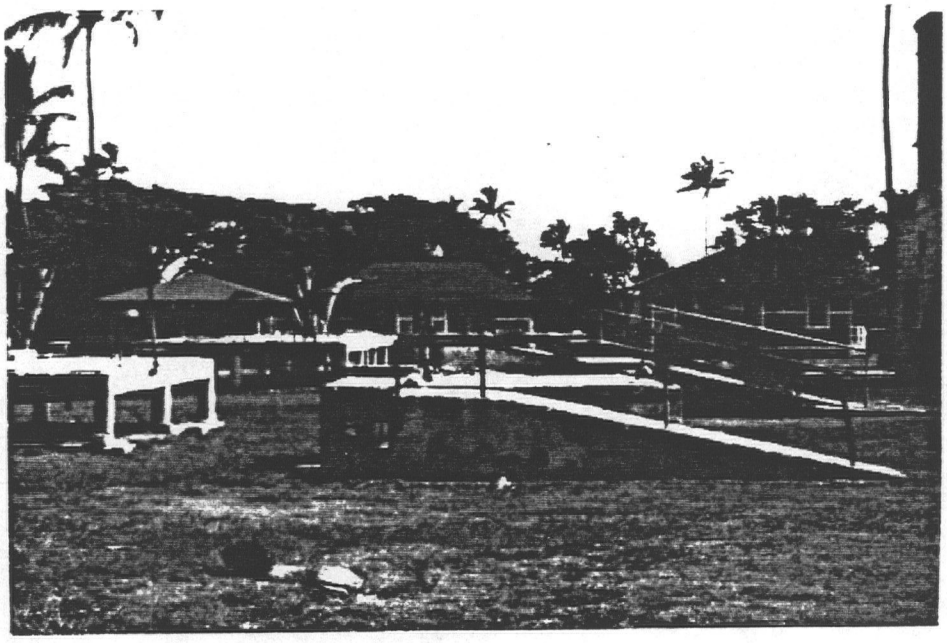
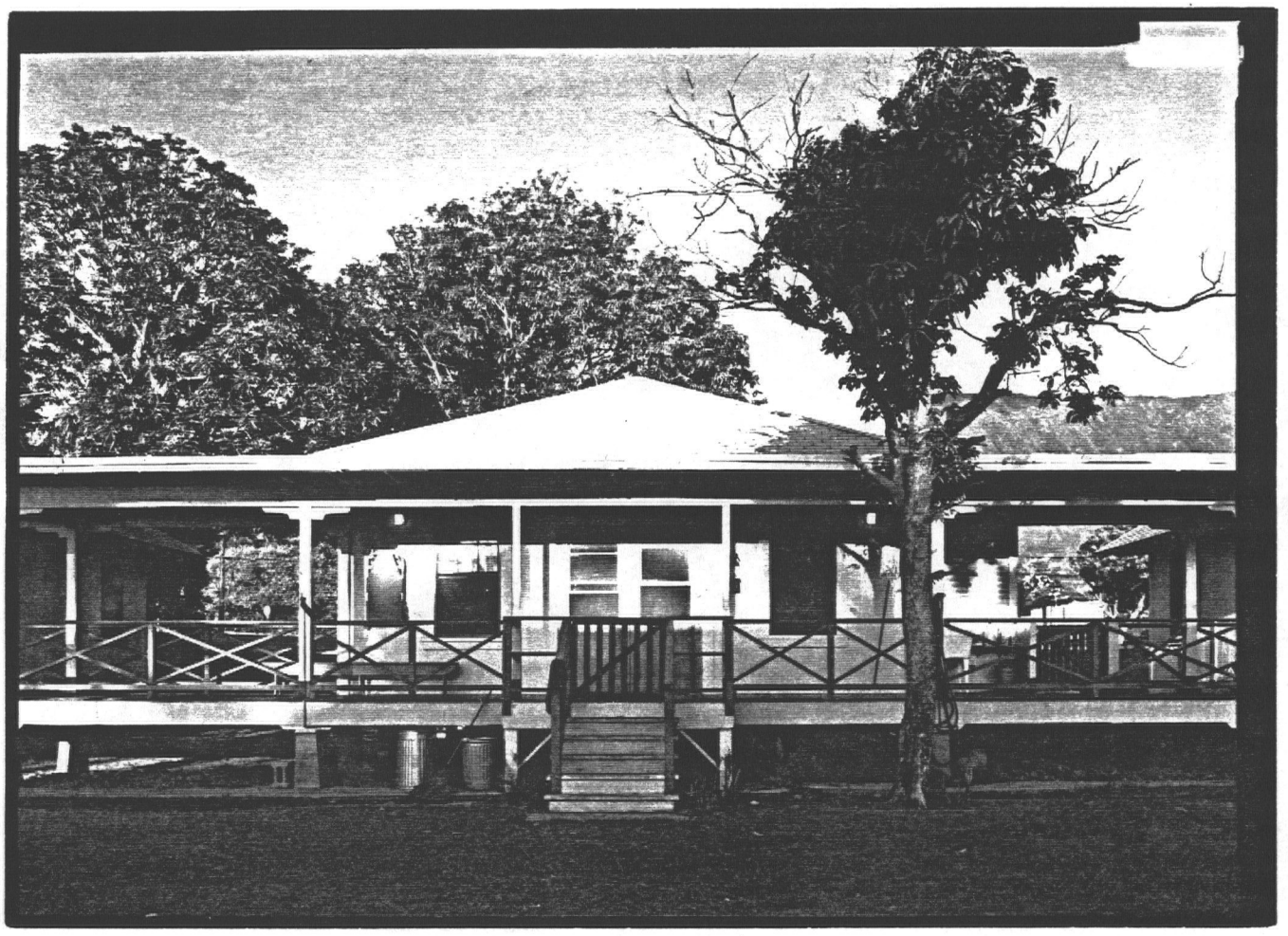


PHOTO BY P. CLOYD

STRUCTURE: Building 282 (BURNED 1990)
LOCATION: Hospital
USE: Hospital
SIZE: Approx. 18,500 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1932 (definite)
DESCRIPTION: The structure is a frame building of single wall construction. The foundation consists of concrete footings and wood posts. Most of the foundation is camouflaged by a latticework skirting. The enormous building consists of one main section which has been intersected by three large wings. The walls are vertical plank siding. A girt encircles the structure, and it is broken by the wood frames of the single, paired and tripled windows, and by the doors. The intersecting hip roofs, (with broken pitches) are finished with composition shingles. Several skylights in the roof provide natural lighting. Two ramps and recessed porches are located on the wings jutting out of the west side of the building. The rear (east) side of the structure seems to have had some minor alterations of loading docks and a metal shed roof. The building is in poor condition, and does not suit the needs of the settlement, nor does it meet code. To rehabilitate the structure, termite damaged wood would have to be replaced, as would the interior flooring. The building should be fumigated and painted (interior and exterior), and many of the window screens (with frames) replaced.
SIGNIFICANCE: Historically significant. Recording by HABS is recommended. Approximately thirty wild cats live around and under the building. When it rains, the fleas enter the building. The patients find this very uncomfortable. None of the animals is spayed or neutered, so the herd keeps growing. Many of the cats show obvious signs of disease. The cats are fed scraps daily, but are not owned. Therefore, they receive no shots, medical treatment or other proper care.

MAINTENANCE COST: $103,225
FUTURE MAINTENANCE COST: $6,000/annum
DATE OF REPORT: January 17, 1977

G - 24



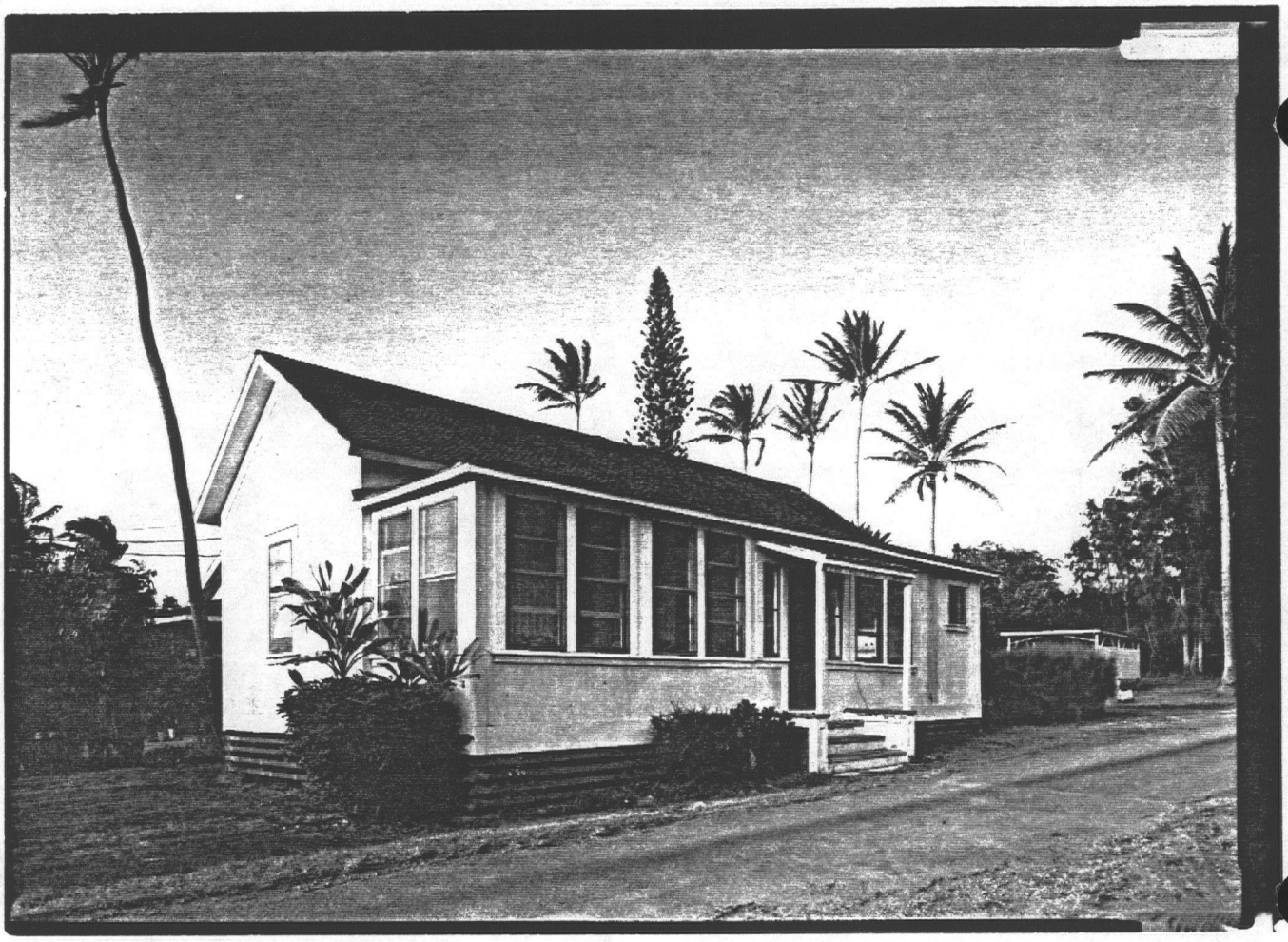
STRUCTURE: Building 5
LOCATION: Bay View Home
USE: Patient Dining Hall for Bay View
SIZE: Approx. 25 x 48 OWNERSHIP: State
DATE OF STRUCTURE: 1937
DESCRIPTION: The structure is a frame building of single wall construction. The foundation consists of concrete piers. Walls are vertical plank siding, with corners finished with cornerboards. The hip roof is finished with composition shingles. The wood frame windows are double hung, usually twelve-light. A water table encircles the sole plate of the building. A covered walkway which connects this building with the verandas of Buildings 2 and 3 runs across the front of the structure with a diamond-patterned railing. At the rear of the building (east) is a recessed corner porch with a concrete slab floor. The building is used daily, and is in fair condition. Termite damaged areas should be repaired. The building should be fumigated and grade cleared.

SIGNIFICANCE: Not part of the original Bay View. No architectural significance.

MAINTENANCE COST: $6300
FUTURE MAINTENANCE COST: $700/annum
DATE OF REPORT: January 16, 1977

HABS PHOTO #
HI-85-D-5

G - 25



HABS PHOTO #
HI-88-F-2

STRUCTURE: Building 8
LOCATION: Staff Row
USE: Guest quarters, staff
SIZE: Approx. 1250 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a one-story building of single wall construction, with a pad and post foundation. The exterior finish is board and batten. The rectangular structure has a gable roof, finished with composition shingles which have been applied over wood shingles. An addition, which runs the length of the south side of the structure, is covered with a hip roof which extends from the gable (was this originally a porch?). A small wood entry porch, sheltered by a shed roof, is the main entrance to the building on the south side. Most of the wood frame windows are twelve-light double hung. The corners of the structure are finished with endboards. The old paint on the building is texturized with sand, which was used as a termite deterrent. The structure is in fair to poor condition. The wood shingles under the composition roofing are rotting, possibly causing further damage to the roof structure. Some wood, particularly the old decorative battens (some already replaced) are in need of replacement, due to termites with which the building is riddled. The structure should be fumigated and painted, and grade should be cleared and vegetation removed.
SIGNIFICANCE: Mainly historic, minimal architectural significance. The building seems to have been altered. The combination of architectural elements lacks cohesion.

MAINTENANCE COST: $9230
FUTURE MAINTENANCE COST: $600/annum
DATE OF REPORT: January 12, 1977

STRUCTURE: Building 267-268
LOCATION: Industrial area
USE: Butcher shop and freezers
SIZE: Approx. 3300 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1932
DESCRIPTION: The structure (two buildings with several additions) is built of hollow tile and frame construction. The multiple roofs (gable, shed) are covered with corrugated metal. Most windows are wood frame double hung (twelve light). Gable ends and some wall sections are covered with corrugated asbestos. A loading dock is located on the north side of the structure. An open shed is located on the west side. The structure is in deteriorated condition. Superficial work of fumigating, patching the roof, and painting the exterior will keep the structure usable for several more years. Eventual replacement will be necessary.

HABS PHOTO #
HI-91-1

SIGNIFICANCE: None

MAINTENANCE COST: $4600
FUTURE MAINTENANCE COST: $600/annum as long as needed
DATE OF REPORT: January 18, 1977

G - 27

STRUCTURE: Building 265
LOCATION: Industrial Center
USE: Maintenance Shop
SIZE: Approx. 34 x 66 + 66 shed OWNERSHIP: State
DATE OF STRUCTURE: 1938
DESCRIPTION: The structure is a hollow tile building, with a gable roof covered with corrugated metal. A ventilating monitor covers approximately half of the gable. The foundation is concrete. Single and double wood doors are located at the north and south ends of the building. Most windows are eight light industrial (metal sash, hinged and fixed). Ventilation louvers are located at the north and south gable ends. A large wood frame shed, with a corrugated metal shed roof, is located at the rear of the structure. The building is in poor condition. Most of the metal throughout the structure is rusting, including the roof structure. Replacement of the structure is recommended if a facility of this type is needed over a long period of time (very likely). In the mean time, vegetation should be cleared from the base of the building. If the building is to be kept, the walls and windows should be repaired, and the roof should be rebuilt.

SIGNIFICANCE: None

MAINTENANCE COST: $20,000
FUTURE MAINTENANCE COST: $200/annum
DATE OF REPORT: January 18, 1977

HABS PHOTO #
HI-92-1

G - 28

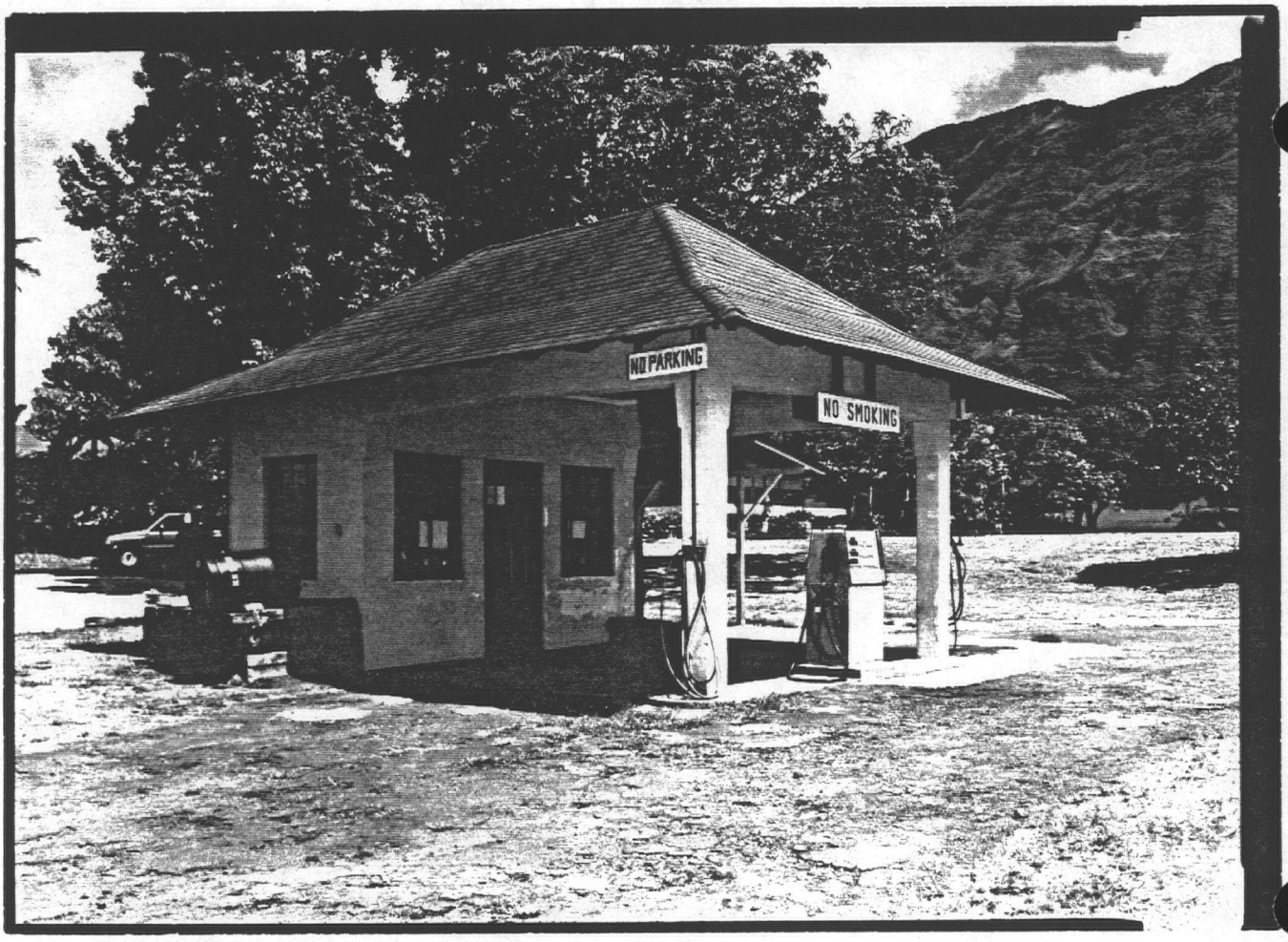
STRUCTURE: Building 264
LOCATION: Industrial Center
USE: Maintenance Shop (carpenters' shop)
SIZE: Approx. 34 x 66 OWNERSHIP: State
DATE OF STRUCTURE: 1930
DESCRIPTION: The structure is a hollow tile building, with a gable roof covered with corrugated metal. The foundation consists of a concrete slab. Single and double wood doors are located at the north and south ends of the building. Most of the windows are eight-light industrial windows (hinged and fixed metal sash). Ventilation louvers are located at the north and south gable ends. The building is in poor condition. Most of the metal throughout the structure is rusting out, including the roof structure. The building receives much use. Replacement of the structure is recommended if a facility of this type is needed over a long period of time. In the mean time, vegetation should be cleared from the base of the building. If the building is to be kept, walls and windows should be repaired, and the roof should be rebuilt.

HABS PHOTO #
HI-93-1

SIGNIFICANCE: None

MAINTENANCE COST: $20,000
FUTURE MAINTENANCE COST: $200/annum
DATE OF REPORT: January 18, 1977

G - 29



STRUCTURE: Building 273
LOCATION: Industrial area
USE: Gas station
SIZE: Approx. 16 x 22 OWNERSHIP: State
DATE OF STRUCTURE: 1934
DESCRIPTION: The building is constructed of hollow tile on a concrete slab foundation. The hip roof is finished with green composition shingles. The double hung wood frame windows (six-light) have been severely damaged by termites. The gas pump and a parking area (for filling up) are incorporated under the hip roof. The structure is used two days per week, and is in poor condition. Any termite damage (roof structure and windows) should be repaired. The spalling concrete of the two piers which support the roof over the pump should be repaired. The building should be re-roofed, painted and fumigated.

SIGNIFICANCE: Good spatial sequence with the store.

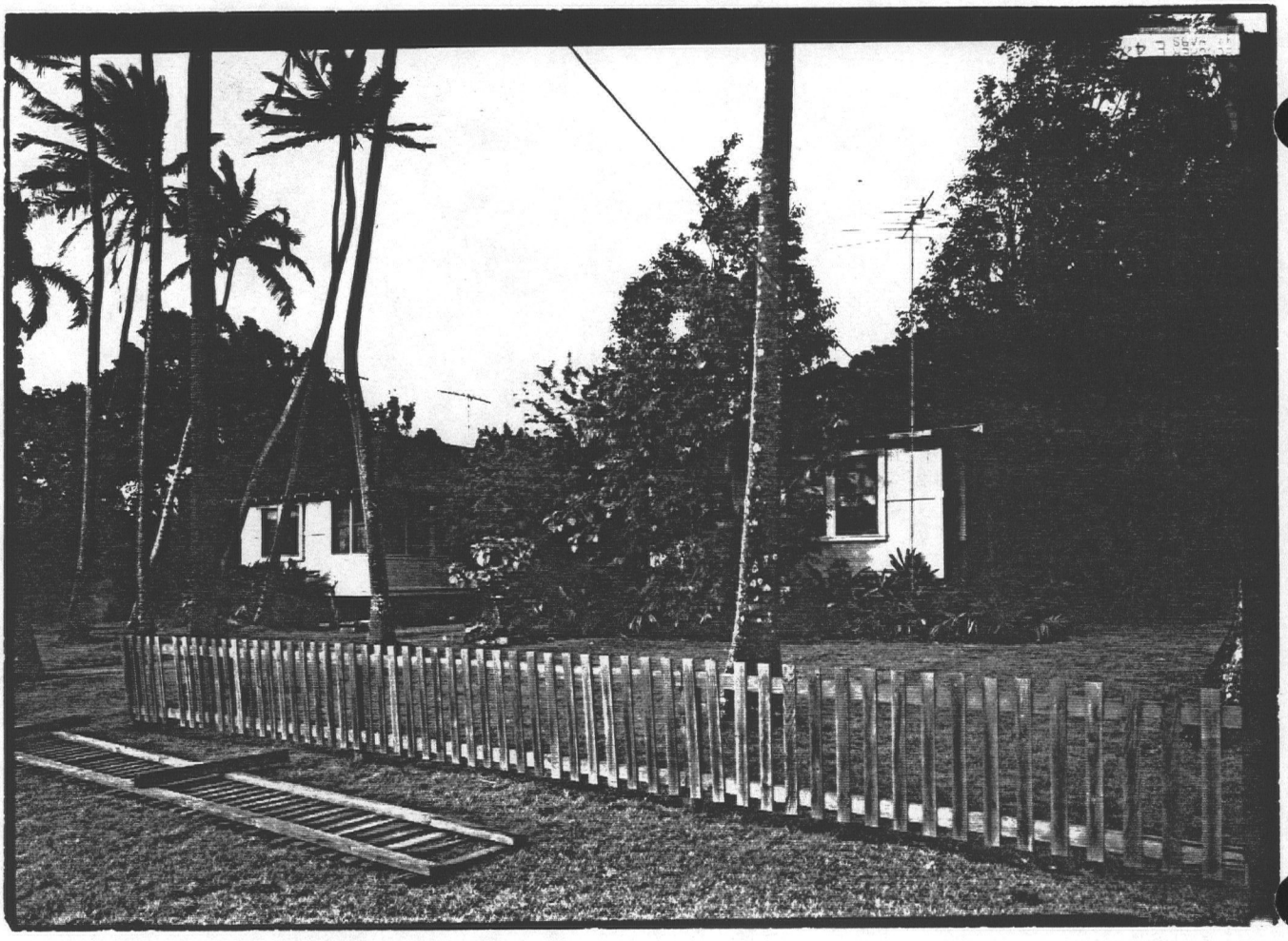
MAINTENANCE COST: $6,300
FUTURE MAINTENANCE COST: $300/annum
DATE OF REPORT: January 17, 1977

HABS PHOTO #
HI-94-1

G - 30

STRUCTURE: Building 304 PASCHOAL HALL HABS PHOTO #
LOCATION: Beretania Street HI-67-2
USE: Social Hall and Movie House
SIZE: Approx. 6000 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1920
DESCRIPTION: The structure is a 2 story building of single wall construction, with a foundation of concrete piers. The multiple roofs, finished with green composition shingles, are hip roofs usually with gablets. The facade of the structure is symmetrical. The east and west sides differ slightly (additions and alterations?) although the windows are of the same type, size and spacing on each of those walls. A veranda, sheltered by a hip roof which intersects the main roof, runs the length of the front (south) of the structure and serves as the main entrance. A diamond-patterned railing and chamfered posts and pilasters articulate the edges of the veranda. Other entrances are located at the middle of the east and west sides. The interior consists of a large portion of empty floor space, several storage rooms, and an auditorium with tiers of seating which rise up to the balcony. The audience area was originally separated so that kokua sat in the balcony, separated from the patients by a railing. Access to the balcony is by means of an exterior stairway from the front porch (or now through the tiers of seating). The structure is in fair to poor condition. Termite damage should be repaired. The building should
SIGNIFICANCE: be re-roofed, fumigated and painted (interior and exterior). Architecturally, the building seems to have been slightly modified since its construction (stairways, minor addition, etc.); a formal, symmetrical building which has been slightly adapted to fit needs better. Warrants preservation.

MAINTENANCE COST: $48,700 G - 31
FUTURE MAINTENANCE COST: $2,000/annum
DATE OF REPORT: January 27, 1977



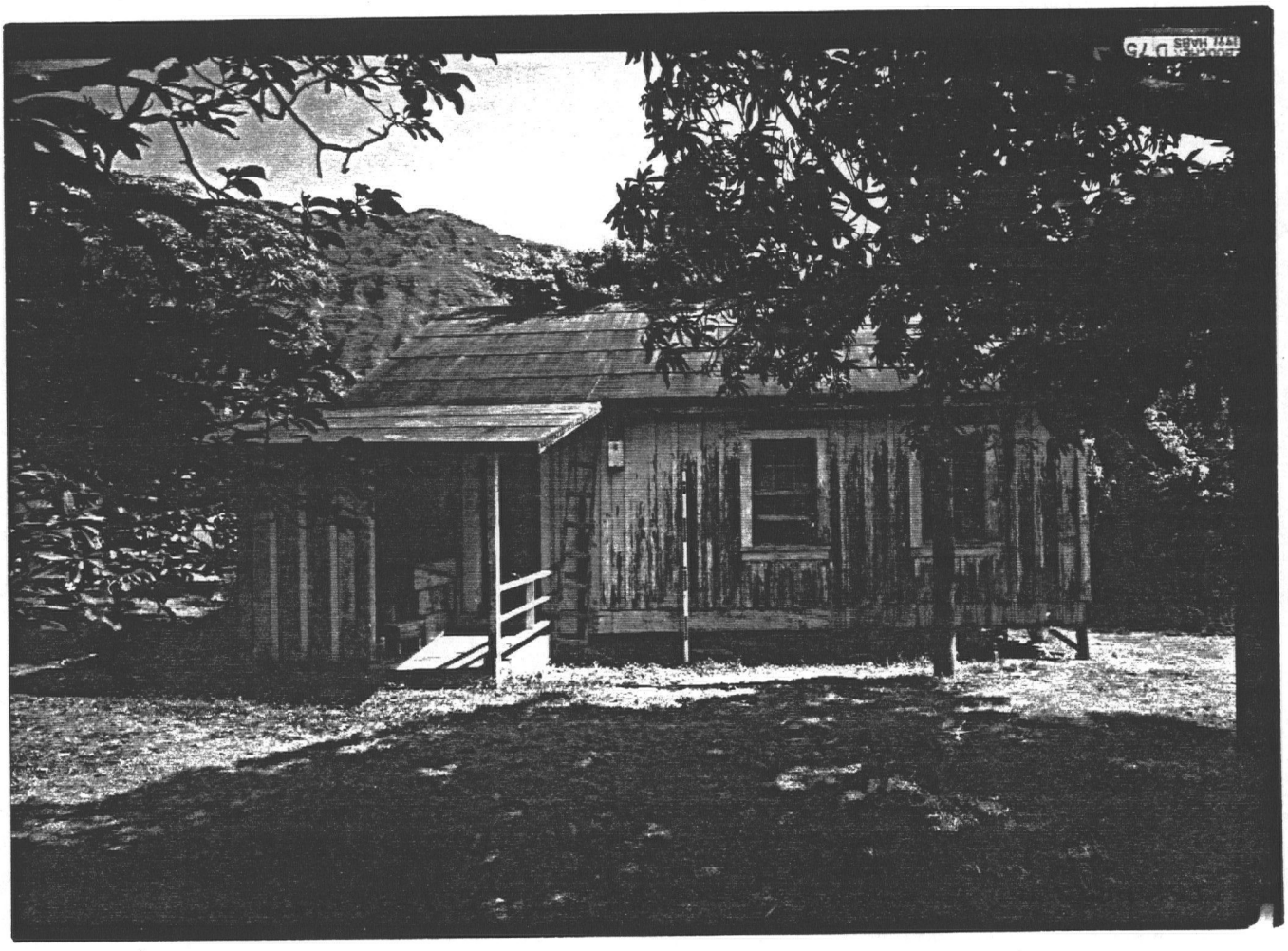
HABS PHOTO #
HI-88-b-3

STRUCTURE: Building 1
LOCATION: Staff Row
USE: Residence
SIZE: 4900 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a one-story building of single wall construction. with a concrete pad and post foundation. The broken pitch hip roof of the U-shaped structure is finished with composition shingles. The wood frames of the twelve-light double hung windows project several inches from the exterior wall. The structure is divided into separate bedrooms and community living spaces. Concrete steps with solid stone railings provide access to the three main entrances in the front courtyard on the wet side of the structure. The building is occupied, and seems to be in good condition. Some vegetation should be cleared from the base of the structure, and the termite-eaten boards which are no longer structurally sound should be replaced. The building should be fumigated.

SIGNIFICANCE: Architecturally the most imposing building on Staff Row for for spatial definition (the building serves as a landmark and defines the corner). Also a prime example of a period "Institutional" structure, Hawaiian variety.

MAINTENANCE COST: $6200
FUTURE MAINTENANCE COST: $1500/annum
DATE OF REPORT: January 12, 1977

G - 32



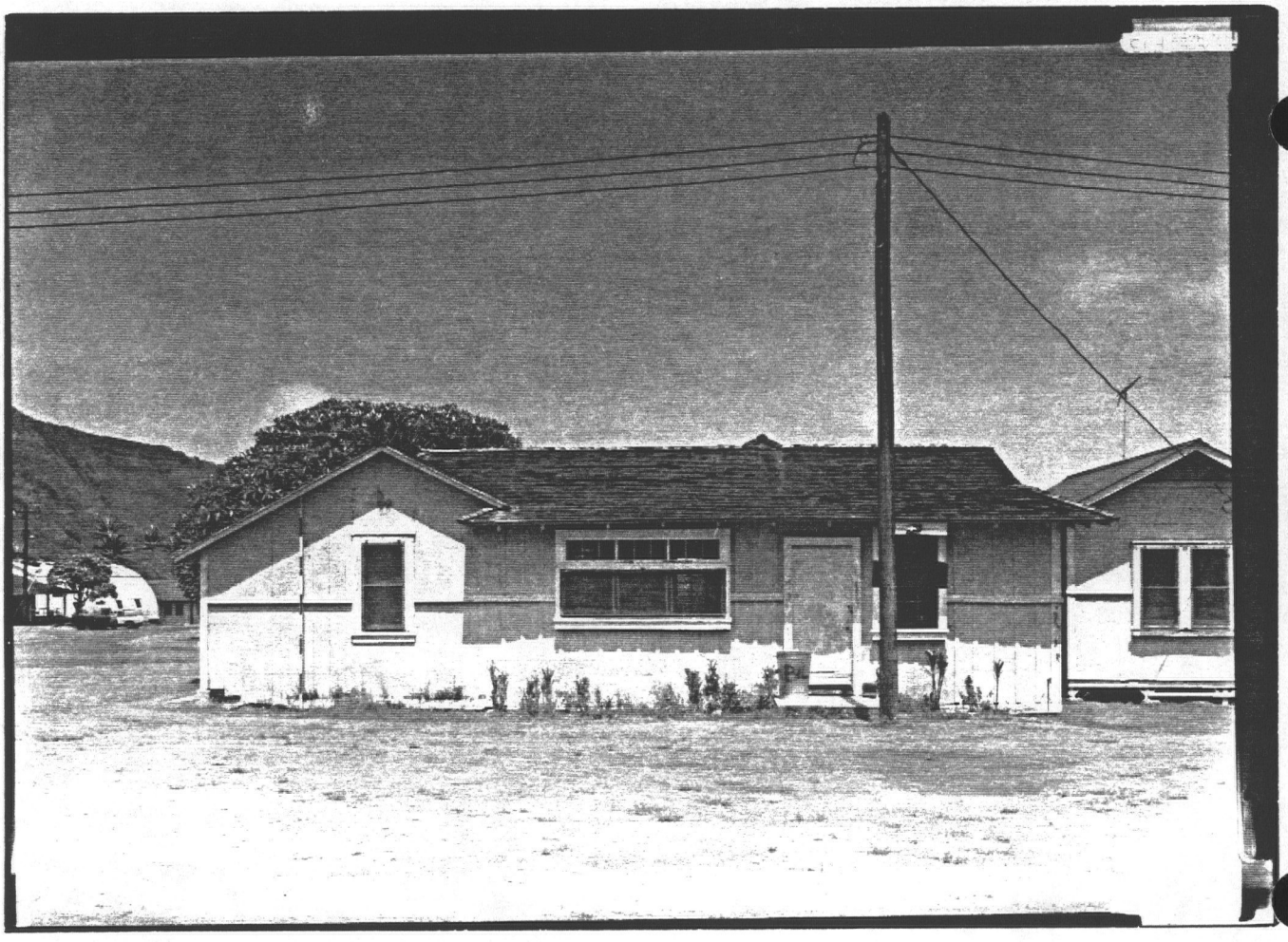
STRUCTURE: Building 10 (10 BV)
LOCATION: Bay View Home
USE: Former Residence
SIZE: Approx. 36 x 30 OWNERSHIP: State
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a frame building of single wall construction, with a board and batten exterior finish. The gable roof and shed roof extension are finished with the remains of rolled roofing material which had been applied over the original wood shingles. A recessed veranda, with a diamond-patterned railing runs one third of the length of the front of the structure. A partially enclosed washroom on a concrete floor is located at the rear of the building. The foundations for the rest of the structure consist of stone footings and wood posts. Rectangular louvers are located at the gable ends. The building is unoccupied, and in very deteriorated condition. Practically board-by-board reconstruction would be necessary to rehabilitate the building.

SIGNIFICANCE: This building could be one of the structures (whose location was inadequately pinpointed in the State Register) which dates back to the old Kalaupapa Settlement, before the official arrival of the patients to that side of the peninsula. The structure is an example of a simple, Hawaiian vernacular building type, although not an outstanding one. More research is warranted before demolition of the building, and before its eventual demise by termites and rot.

MAINTENANCE COST: No estimate (too far gone)
FUTURE MAINTENANCE COST: No estimate
DATE OF REPORT: January 16, 1977

HABS PHOTO #
HI-85-2

G - 33



STRUCTURE: Building 300
LOCATION: Beretania Street, next ot Paschoal Hall
USE: Craft and storage building
SIZE: Approx. 1000 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1931
DESCRIPTION: The structure is a frame building of single wall construction. Some of the siding is vertical plank, some is board and batten. The foundations vary from concrete slabs to stone or concrete footings and wood posts. The multiple roofs are predominantly gable, finished with wood shingles at the front of the structure and corrugated metal and rolled composition roofing at the rear. The building is irregularly shaped. Most of the structure is surrounded by a broken girt. Corners are finished with corner boards. The wood frame windows vary from double-hung twelve light to fixed sash picture windows. The structure receives intermittent use, and is in poor condition. The building could easily be made serviceable for many more years if ~~termite~~ damage were repaired and the structure was fumigated. Vegetation should be cleared from the base and the roof. The building should also be painted.

HABS PHOTO # HI-72-1

SIGNIFICANCE:

MAINTENANCE COST: $6,300
FUTURE MAINTENANCE COST: $500/annum
DATE OF REPORT: January 27, 1977

G - 34

STRUCTURE: Residence 26
LOCATION: Damien Road, south side
USE: Residence
SIZE: Approx. 500 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1932?
DESCRIPTION: The structure is a one-story building of single wall construction, with a concrete pad and post foundation. The irregularly shaped hip roof has a broken pitch, and is finished with composition shingles. Wooden steps provide access to the recessed corner porch which is incorporated under the hip roof. The wood frames of the twelve-light double hung windows project several inches from the exterior wall. A post and two pilasters articulate the edges of the porch. Other corners of the structure are finished with cornerboards. A broken girt encircles the exterior. A partially enclosed porch with a shed roof, is located at the rear of the rectangular structure. The building is not occupied, and in poor condition. The yard, and particularly the vegetation at the base of the structure should be cleared. Boards severely damaged by termites should be replaced. The structure should be fumigated, cleaned and painted, and re-roofed.

SIGNIFICANCE: This structure, nearly identical in plan to Building 16 at McVeigh Home, was probably constructed during the same year, and later moved to this location.

MAINTENANCE COST: $7840
FUTURE MAINTENANCE COST: $400/annum
DATE OF REPORT: January 12, 1977

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STRUCTURE: Building 12
LOCATION: McVeigh Home
USE: Residence
SIZE: Approx. 3,500 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1929
DESCRIPTION: The structure is a one-story building of single wall construction, with a concrete pad and post foundation. The main hip roof (with gablet) is flanked by hip roofs of the wings at the east and west ends of the structure. The roofs are finished with wood shingles. A railing with a traditional vernacular pattern encloses the recessed veranda, incorporated under the main roof. Corners of the structure are finished with cornerboards. The wood frames of the 12-light windows project several inches from the exterior wall. A broken girt encircles the exterior. The structure is divided into 4 1-bedroom apartments, and is occupied. The building is in fair to poor condition. Vegetation should be cleared from the base, the shingle roof should be patched (with the original material), rotted and termite-eaten wood should be removed and replaced. The structure should be fumigated and painted.

SIGNIFICANCE: McVeigh Home, one of the three original structures

MAINTENANCE COST: $33,000
FUTURE MAINTENANCE COST: $1000/annum
DATE OF REPORT: January 11, 1977

HABS PHOTO #
HI-95-D-1

G - 36

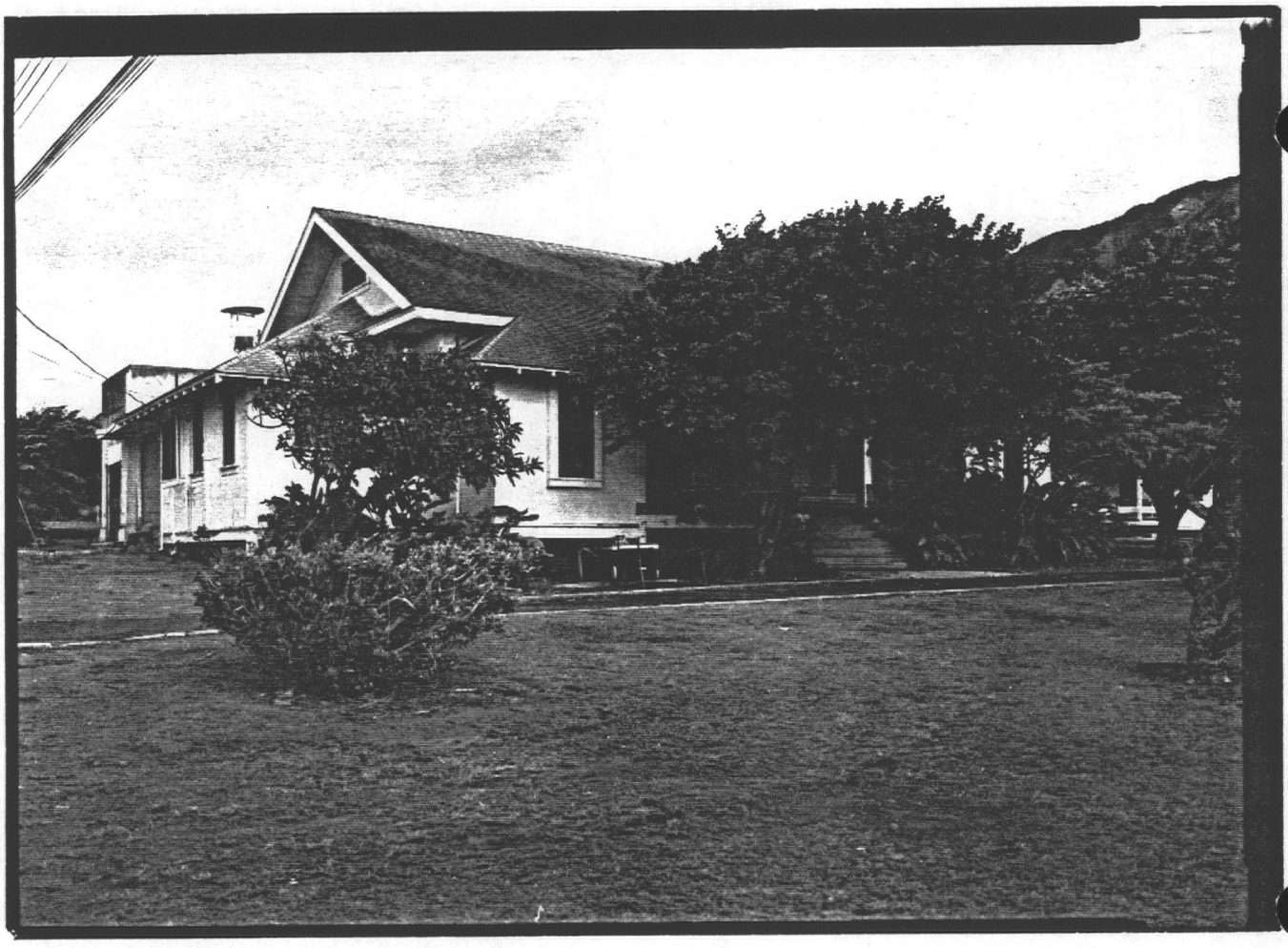
STRUCTURE: Building 24
LOCATION: McVeigh Home
USE: Formerly pool hall
SIZE: 22 x 36 OWNERSHIP: State
DATE OF STRUCTURE: 1932
DESCRIPTION: The structure is a one-story symmetrical building of single wall construction, built on a concrete slab. The hip roof is finished with rolled composition roofing paper and composition shingles. Windows comprise the greatest amount of wall section. Many of these windows, which are built on tracks to slide open for ventilation, are broken and in need of replacement. The building is finely detailed, with two pilasters on each side, and one on each corner articulating the structure and the building edges. The building is in fair condition, although in need of painting, lumber replacement, re-roofing, and fumigation.

HABS PHOTO #
HI-95-F-1

SIGNIFICANCE: McVeigh Home, visual focal point.

MAINTENANCE COST: $3510
FUTURE MAINTENANCE COST: $450/annum
DATE OF REPORT: January 11, 1977

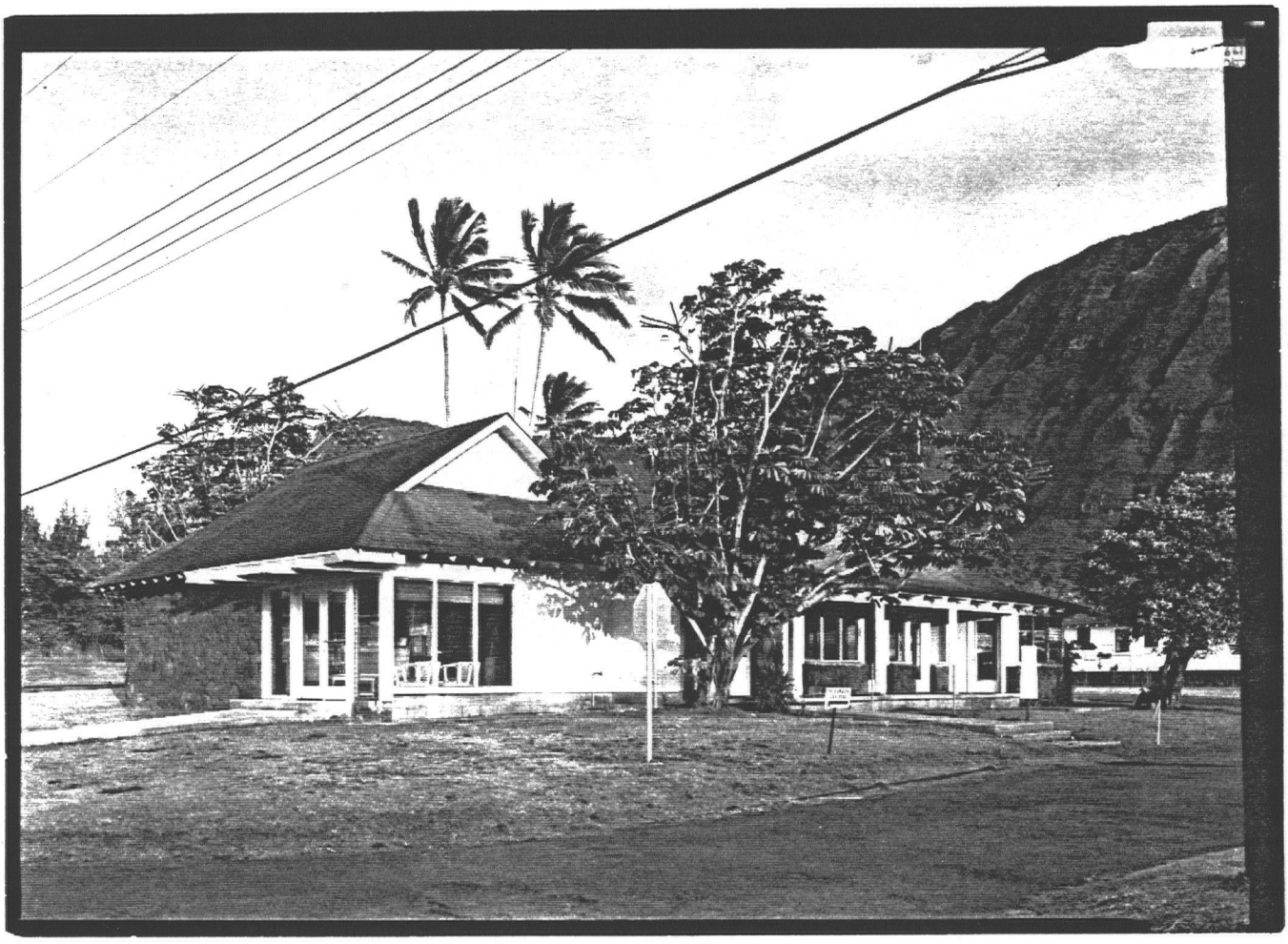
G - 37



STRUCTURE: Building 23 HABS PHOTO #
LOCATION: McVeigh Home HI-95-E-1
USE: Recreation Building (now receives intermittent use)
SIZE: Approx. 4000 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1929
DESCRIPTION: The structure is a one-story symmetrical building of single wall construction, with a concrete pad and post foundation. The gable roof skirting which continues around the north and south gable ends of the structure, intersecting the hip roofs of the wings. The roof finish is wood shingles. A recessed veranda is incorporated under the main section of the building. Corners of the structure are finished with cornerboards. The posts on the veranda are chamfered. The ceiling of the veranda is finished with tongue and groove planking. The wood frames of the 12-light double-hung windows project an inch from the exterior wall. The building seems to have had many additions including the concrete loading platform and roof at the rear (east) connecting it with Building 22. The structure is in fair to poor condition. Because of termites, much of the wood in the structure should be replaced. The structure should be fumigated, painted, re-roofed and cleared of vegetation. All broken glass should be replaced.

SIGNIFICANCE: McVeigh Home, one of three original structures

MAINTENANCE COST: $38,510 G - 38
FUTURE MAINTENANCE COST: $1150/annum
DATE OF REPORT: January 11, 1977



STRUCTURE: Building 61-270 HABS PHOTO #
LOCATION: Administrative area HI-96-1
USE: Administration building
SIZE: Approx. 2800 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1961
DESCRIPTION: The structure is a hollow tile, frame and masonry building constructed on stone and concrete foundations. The gablet roof is finished with composition shingles. A ramp provides access to the original front door, which is no longer used. The main entrance now is located near the center of the west side of the building, near the administrator's office. Jalousie windows throughout the structure usually make up the upper half of the wall space, although floor-to ceiling jalousies are located in the main office section. The building includes two separate offices, a conference room, and restrooms in the south wing. Across a breezeway the north wing includes one large office space usually shared by four workers. The structure is in fair condition. Any termite damage (rafters, beams, and columns along the east and west porticos of the south wing) should be repaired. The roof should be patched. A tree in the northwest section of the building should be cut back to prevent damage to the roof. The building should be fumigated.

SIGNIFICANCE:

MAINTENANCE COST: $5,200 G - 39
FUTURE MAINTENANCE COST: $800/annum
DATE OF REPORT: January 17, 1977

39 PARK PRIORITY
(STRUCTURE BUILT IN 1980 NOT FOUND IN 1977 ARCHITECTURAL EVALUATION)

NO PHOTO AVAILABLE

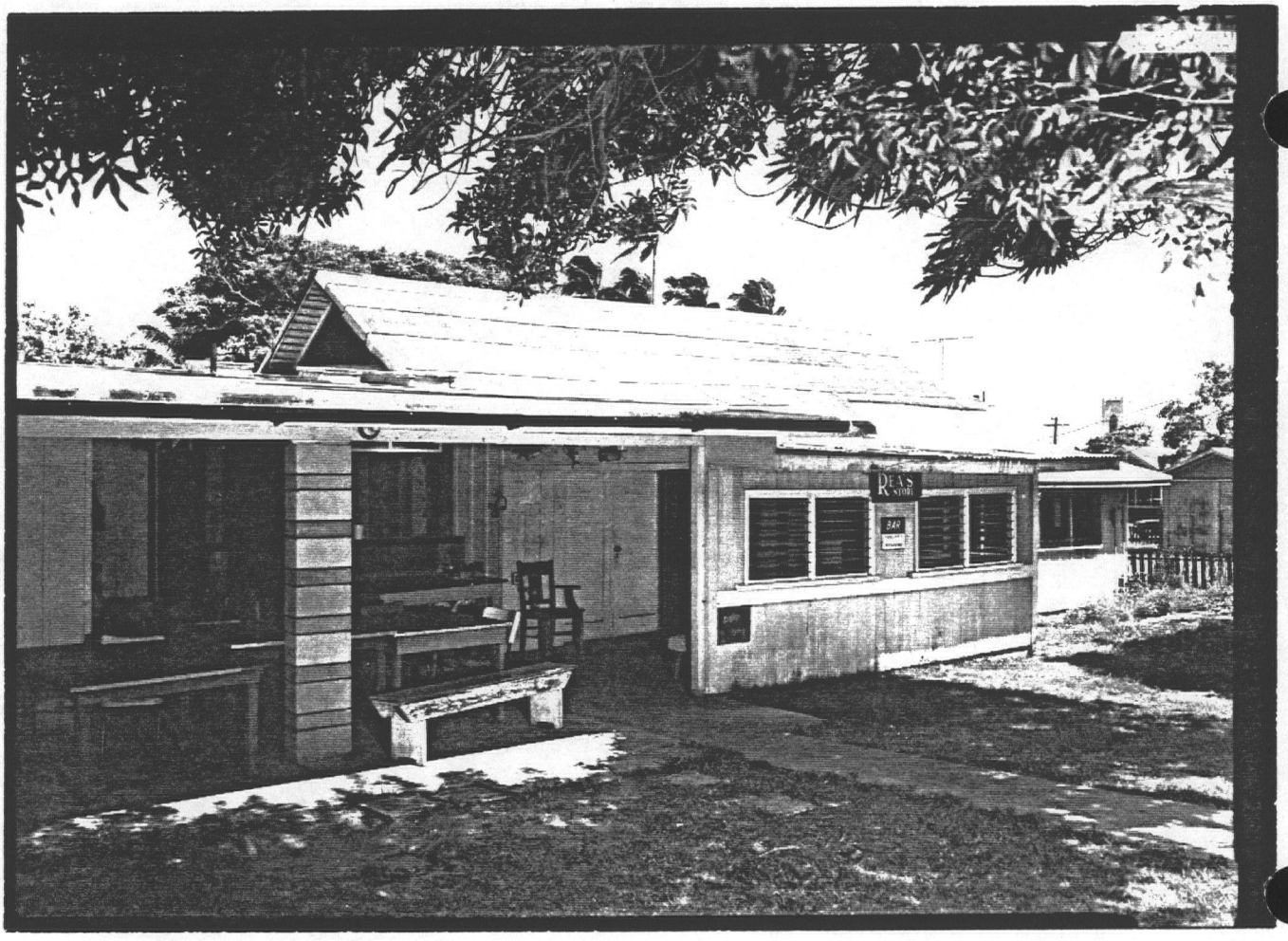
STRUCTURE: BUILDING 814, KALAUPAPA MEMORIAL HOSPITAL
LOCATION: DAMIEN ROAD ACROSS FROM BAY VIEW HOME
USE: HOSPITAL/CARE HOME
SIZE: OWNERSHIP: STATE
DATE OF STRUCTURE: 1980
DESCRIPTION: The structure is of unknown framing, possibly concrete block with wood roof framing. Wall finish is stucco. The roof material is asphalt shingles. The structure is in good condition. This structure is not found in the 1977 Architectural Evaluation.

STRUCTURE: Building 71R-61 HABS PHOTO #
LOCATION: Behind Administration building HI-98-1
USE: Residence
SIZE: Approx. 1000 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1930?
DESCRIPTION: The structure is a one-story building of single wall construction, with a stone pad and post foundation. Wood steps provide access to the recessed corner porch which is incorporated under the hip roof. One chamfered post and two chamfered pilasters articulate the edges of the porch. The corners of the building are finished with cornerboards. A girt encircles the structure, and is broken by the wood frames of the double-hung windows which project several inches from the exterior of the vertical plank wall. The hip roof is finished with composition shingles. A partially enclosed wash house with a shed roof, is located at the rear of the rectangular structure. The building is occupied and in fair condition. Termite damage should be repaired. The building should be fumigated and painted.

SIGNIFICANCE:

MAINTENANCE COST: $1900
FUTURE MAINTENANCE COST: $500/annum
DATE OF REPORT: January 17, 1977

G - 41



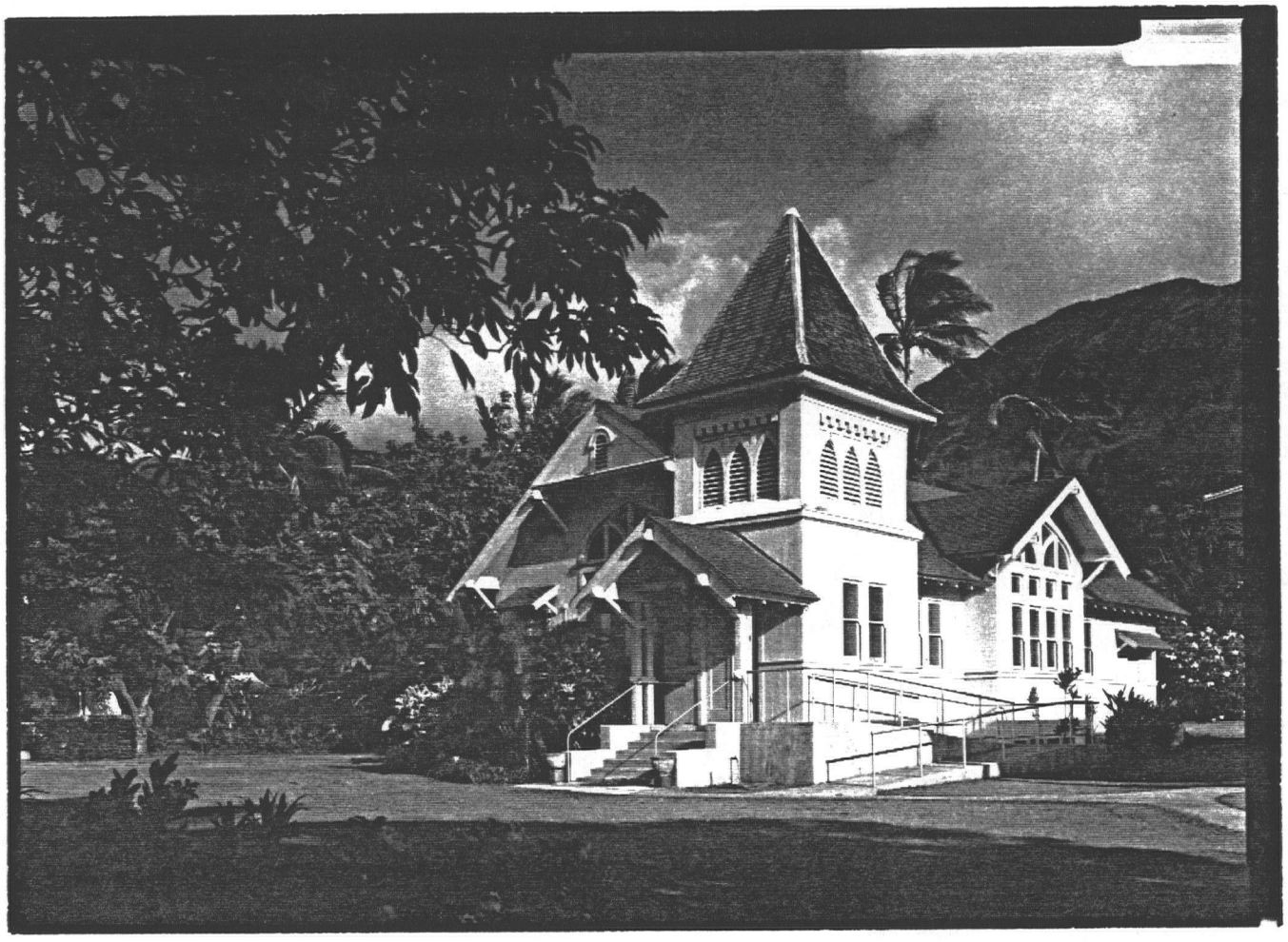
STRUCTURE: Building 62 HABS PHOTO #
LOCATION: Behind Administration building HI-124-1
USE: Storage (for bar)
SIZE: Approx. 30 x 54 OWNERSHIP: State
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a frame building of single wall construction, with a stone pad and post foundation. The multiple roofs - predominantly hip roofs with gablets, but also shed roofs - are finished with rolled composition roofing material which has been applied over wood shingles. Siding varies from vertical plank to board and batten. The wood frame windows are twelve-light, double hung. A recessed porch is located in the central section, west side of the building sheltered by a shed roof. The building seems to have been constructed in several stages. The structure is in very deteriorated condition, and is slated for demolition.

BAR MOVED TO BLDG 62 AFTER 1977, ORIGIWALLY BAR W BLDG 298-A NOW DEMOLISHED

SIGNIFICANCE: Date should be research. Somewhat similar to Building 104.

MAINTENANCE COST: No estimate
FUTURE MAINTENANCE COST: No estimate
DATE OF REPORT: January 17, 1977

G - 42

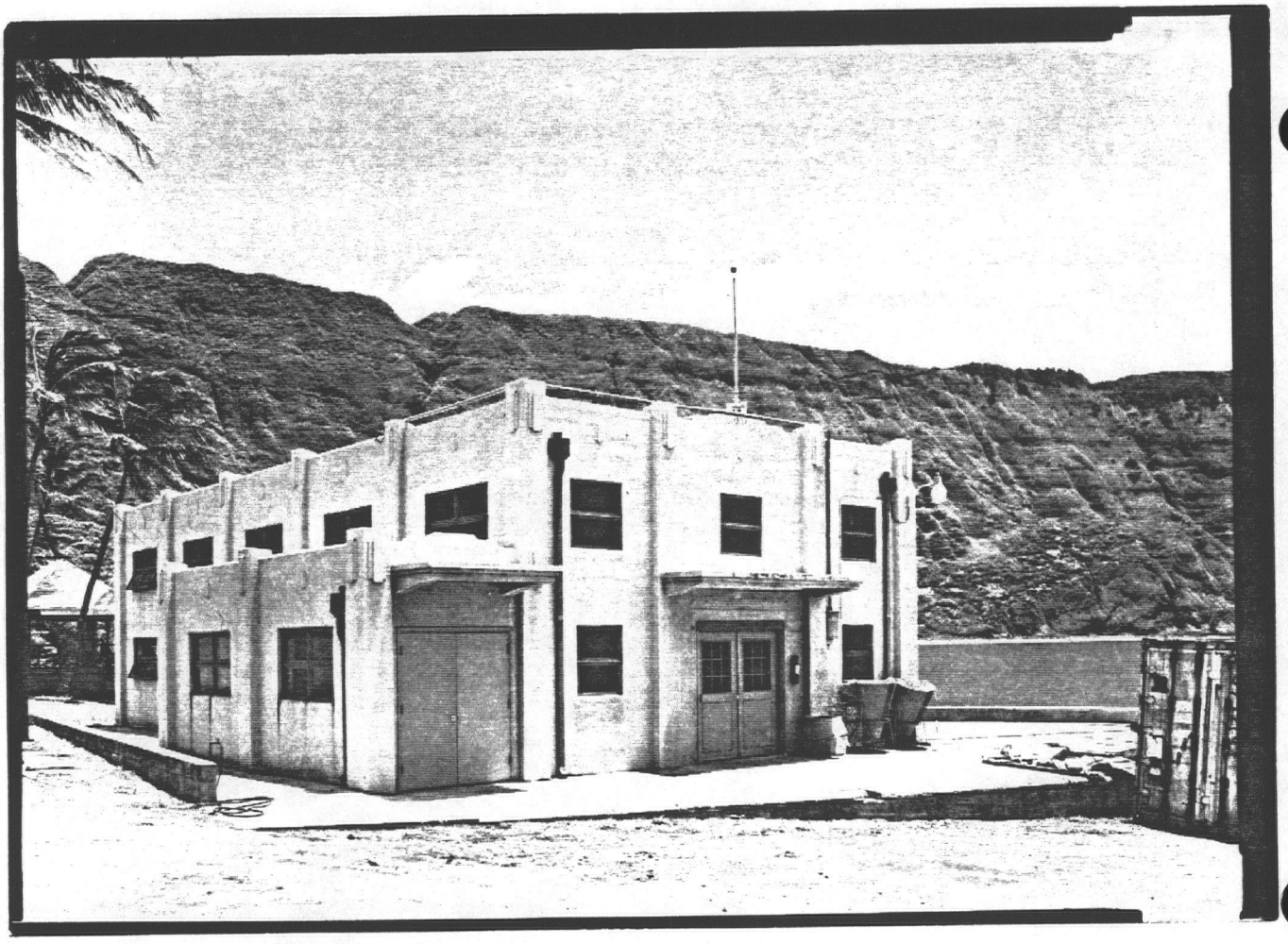


STRUCTURE: Building 286
LOCATION: Calvinist Mission – KANAANNA HOU
USE: Church
SIZE: Approx. 34 x 60 OWNERSHIP: United Church of Christ
DATE OF STRUCTURE: 1915
DESCRIPTION: The structure is a frame building of single wall construction, with a foundation consisting of stone footings and wood posts, and concrete. The main gable roof is transected by two smaller gables which cover the windows projecting from the middle sections of the east and west walls. These gables are approximately two feet lower than the main gable. A tower which designates the main entrance to the building is located in the northwest corner of the structure. The tower has a hip roof finished with wood shingles, and ventilating louvers in the shapes of pointed arches on all four sides. Walls consist of vertical plank siding, surrounded by a continuous girt just below window level, and a water table at the sole plate. The large window areas - one at each gable end and each wing - are broad, pointed arches filled with fixed sash and double hung windows. Structural outlookers project beyond the roof-lines at the gable ends. The interior space is articulated with wood barrel vaults and exposed trusses. The building is in very deteriorated condition, and is in need of virtual board-by-board reconstruction.
SIGNIFICANCE: According to the Pastor, nearly similar to Nanikoole Church on Oahu. ". . . in 1915 the present ornate building was erected by Sam Kaaumoana, leader of the choir of Kaumakapili Church, who brought his crew of carpenters and painters with him from Honolulu. This crew consisted of his two brothers-in-law, and son-in-law and three sons." (Ethel Damon, Siloama, Church of the Healing Spring. Honolulu: Hawaiian Board of Missions. 1945. p. 82) Simplified Stick Style.

HABS PHOTO # HI-123-3

MAINTENANCE COST: $75,000
FUTURE MAINTENANCE COST: $1,000/annum
DATE OF REPORT: January 17, 1977

G - 43



STRUCTURE: Building 271
LOCATION: Industrial area
USE: Food warehouse
SIZE: Approx. 2050 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1937
DESCRIPTION: The structure is a reinforced concrete building, constructed on a concrete foundation. Walls are divided into sections by concrete buttresses. The buttresses makai have exposed re-bars, and spalling concrete, because they are constantly battered by salt spray and sometimes by high surf. The main warehouse door (wood) is located at the north wall. A one-story attachment (Office?) is located at the northeast corner of the building. Windows on the first story are jalousie, or double hung wood frame. First story windows makai have been filled-in with concrete. Second story windows are industrial six-light metal sash. The structure is in fair to poor condition. The spalling concrete should be repaired. Some window panes need replacement. Window frames should be painted. The exterior should be painted.

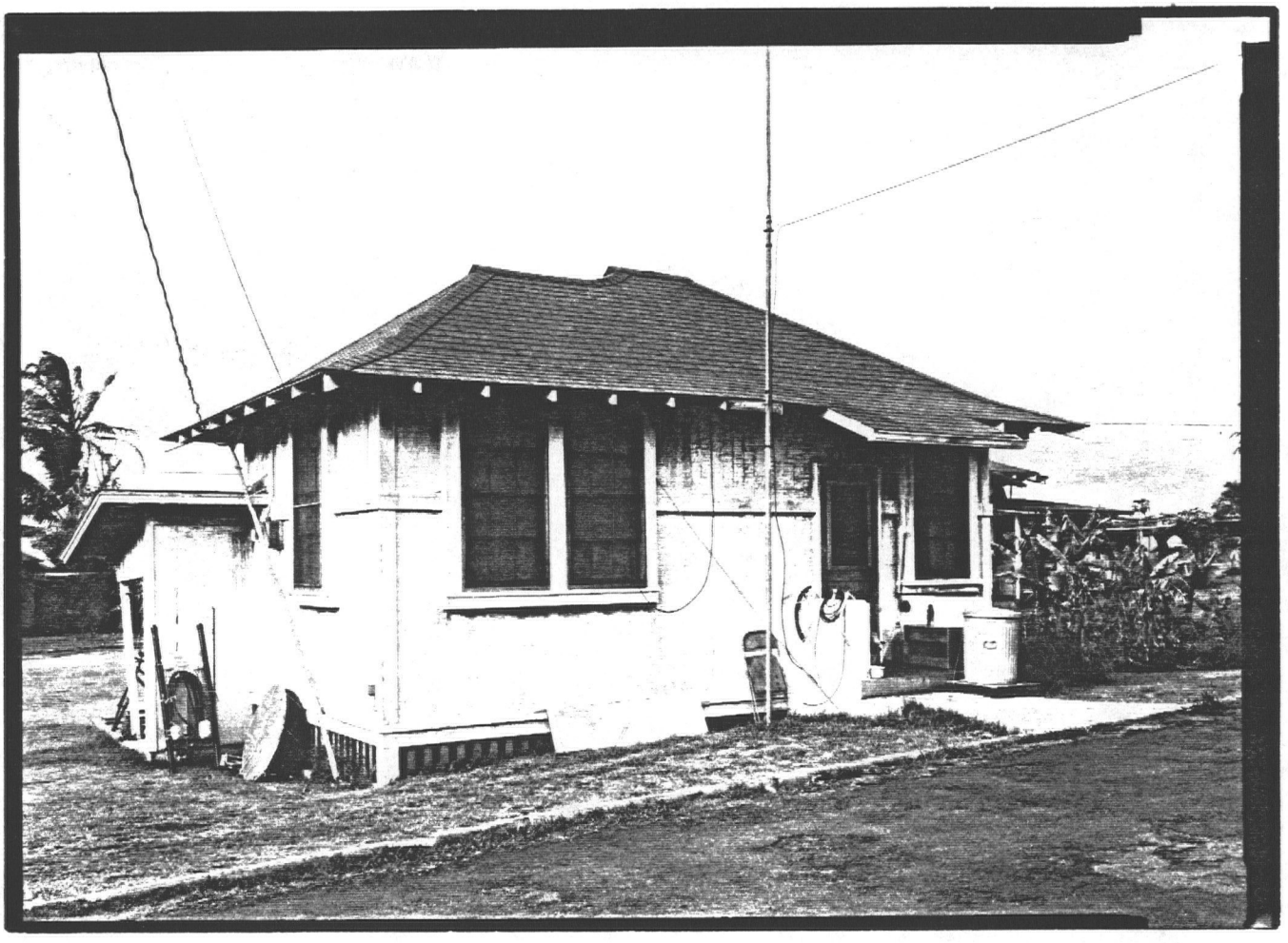
HABS PHOTO # HI-122-1

SIGNIFICANCE: None. Somewhat similar in design to store, but constructed later.

STEEL MULT-LIGHT SASH REPLACED WITH ANODIZED ALUMINUM 1 OVER 1 SASH OR 2 OVER 2 AFTER 1977

MAINTENANCE COST: $3350
FUTURE MAINTENANCE COST: $150/annum
DATE OF REPORT: January 18, 1977

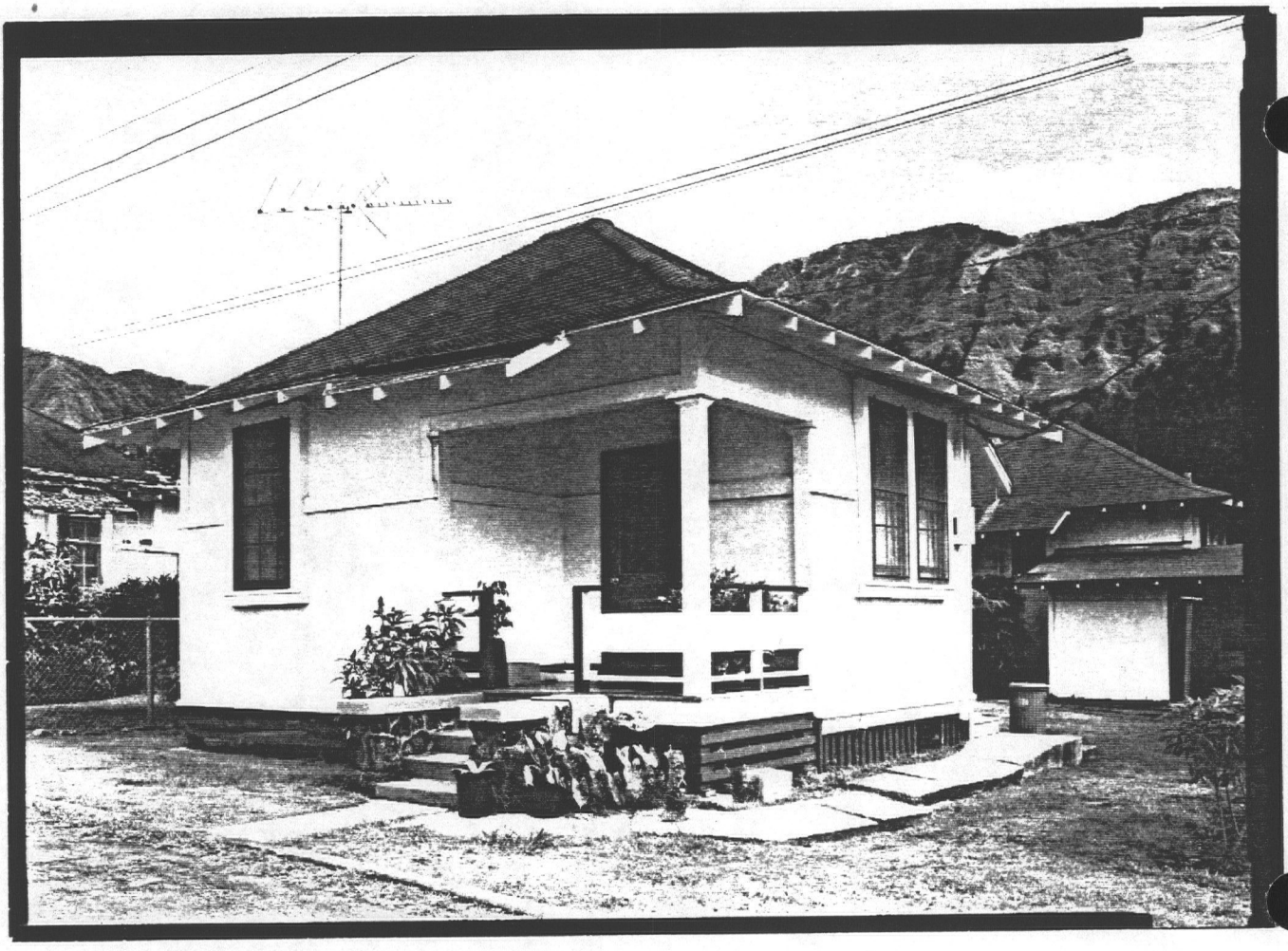
G - 44



STRUCTURE: Building 27 HABS PHOTO #
LOCATION: McVeigh Home HI-95-G-1
USE: Residence
SIZE: Approx. 420 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1932
DESCRIPTION: The structure is a one-story building of single wall construction, with a concrete pad and post foundation which is obscured by vegetation. The irregularly shaped hip roof has a broken pitch, and is finished with composition shingles. A small concrete entrance porch at the front of the structure is edged by hollow tile solid railings. The wood frames of the 12-light double-hung windows project several inches from the exterior wall. A broken girt encircles the exterior. The corners of the structure are finished with cornerboards. A shed is located at the rear of the structure. The structure is not occupied, and in fair to poor condition. Old roofing should be stripped when new roofing is applied. Vegetation should be cleared from the base and sides of the building. Some wood needs replacement. The structure should be fumigated, scraped and painted.

SIGNIFICANCE: McVeigh Home

MAINTENANCE COST: $1460 G - 45
FUTURE MAINTENANCE COST: $340/annum
DATE OF REPORT: January 11, 1977



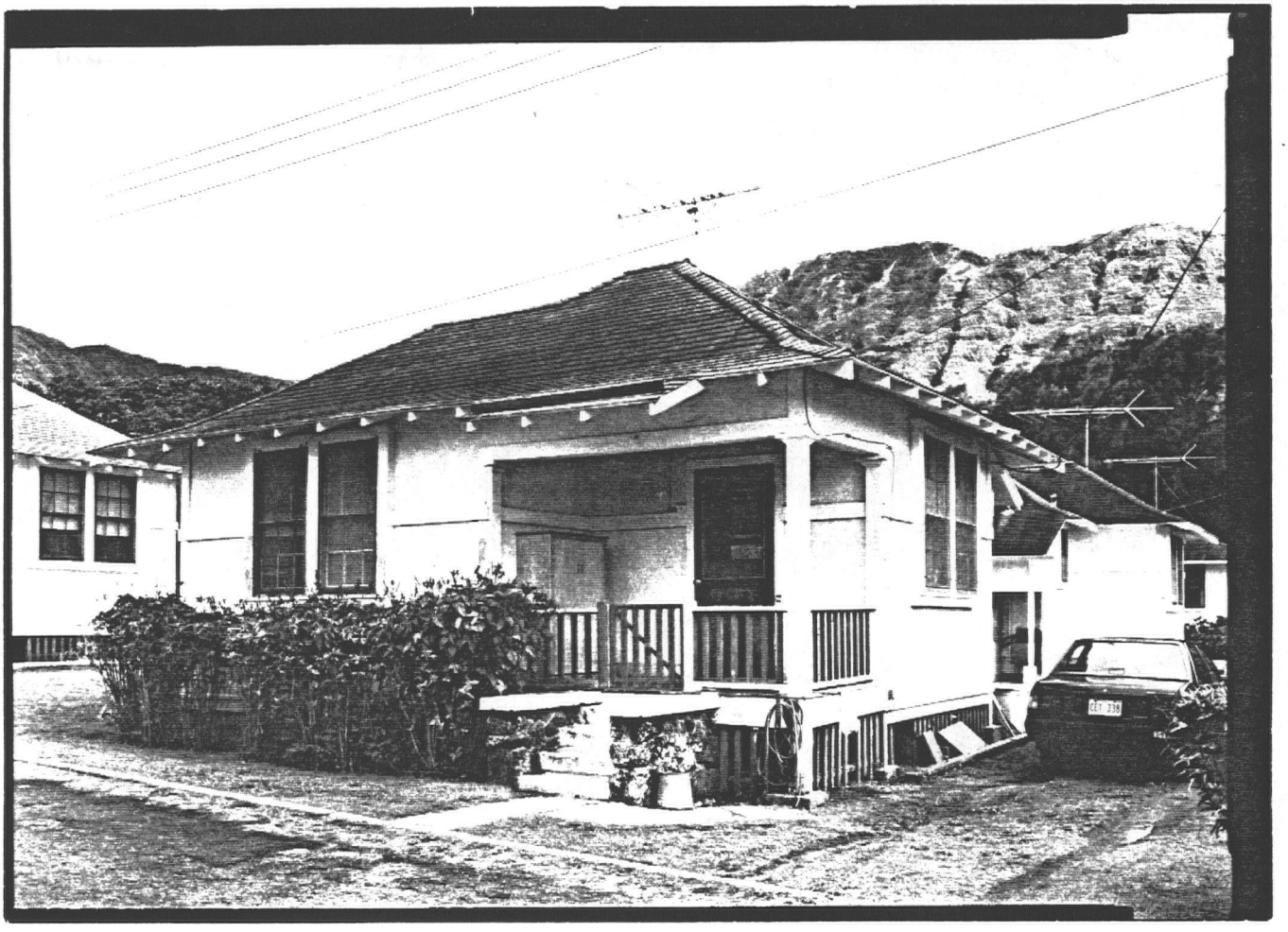
STRUCTURE: Building 13
LOCATION: McVeigh Home
USE: Residence
SIZE: Approx. 450 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1933
DESCRIPTION: The structure is a one-story building of single wall construction, with a pad and post foundation. The broken-pitch hip roof is finished with green composition shingles. Concrete and stone steps provide access to the recessed corner porch which is incorporated under the hip roof. A post and two pilasters articulate the edges of the porch. Other corners of the structure are finished with cornerboards. The wood frames of the 12-light double-hung windows project several inches from the exterior wall. A broken girt encircles the exterior. A partially enclosed exterior washroom, constructed on a concrete slab and with a shed roof, is located at the rear of the rectangular structure. The structure is in poor condition. Vegetation and earth should be cleared away from the base of the structure. Much of the wood in the structure, including some in the settling foundations should be replaced. The building should be fumigated, and painted.

SIGNIFICANCE: McVeigh Home

MAINTENANCE COST: $4900
FUTURE MAINTENANCE COST: $350/annum
DATE OF REPORT: January 11, 1977

HABS PHOTO #
HI-95-H-1

G - 46



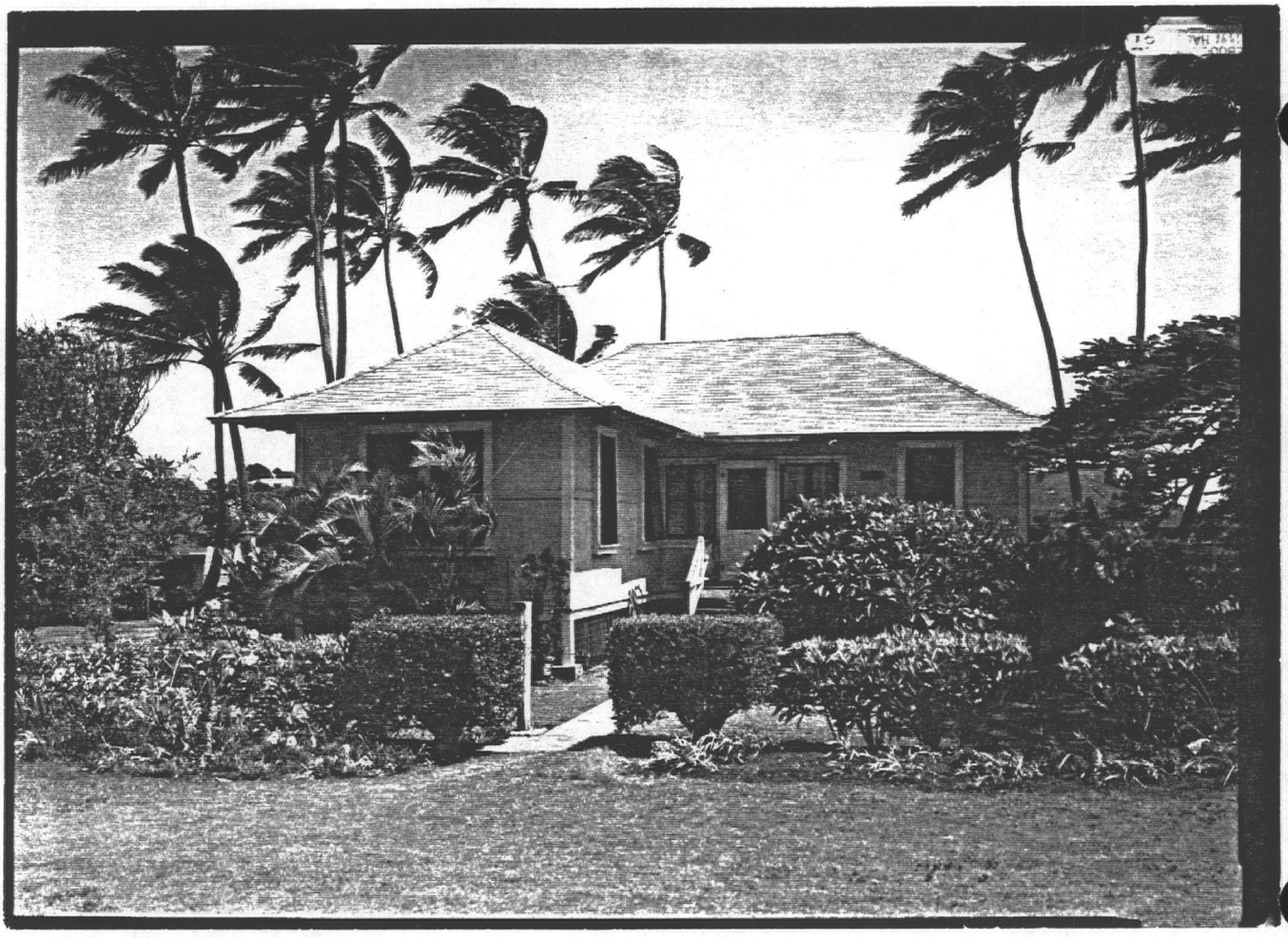
STRUCTURE: Building 15
LOCATION: McVeigh Home
USE: Residence
SIZE: Approx. 550 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1932
DESCRIPTION: The structure is a one-story building of single wall construction, with a concrete pad and post foundation. The irregularly-shaped hip roof has a broken pitch, and is finished with composition shingles. Concrete and stone steps provide access to the recessed corner porch which is incorporated under the hip roof. A post and two pilasters articulate the edges of the porch. Other corners of the structure are finished with cornerboards. The wood frames of the 12-light double-hung windows project several inches from the exterior wall. A broken girt encircles the exterior. A frame carport with a shed roof has been added to the west side of the structure. The building is in fair condition, although in need of lumber replacement particularly in the foundation, painting and fumigation. The structure is occupied.

SIGNIFICANCE: McVeigh Home

MAINTENANCE COST: $2800
FUTURE MAINTENANCE COST: $350/annum
DATE OF REPORT: January 11, 1977

HABS PHOTO #
HI-95-I-1

G - 47



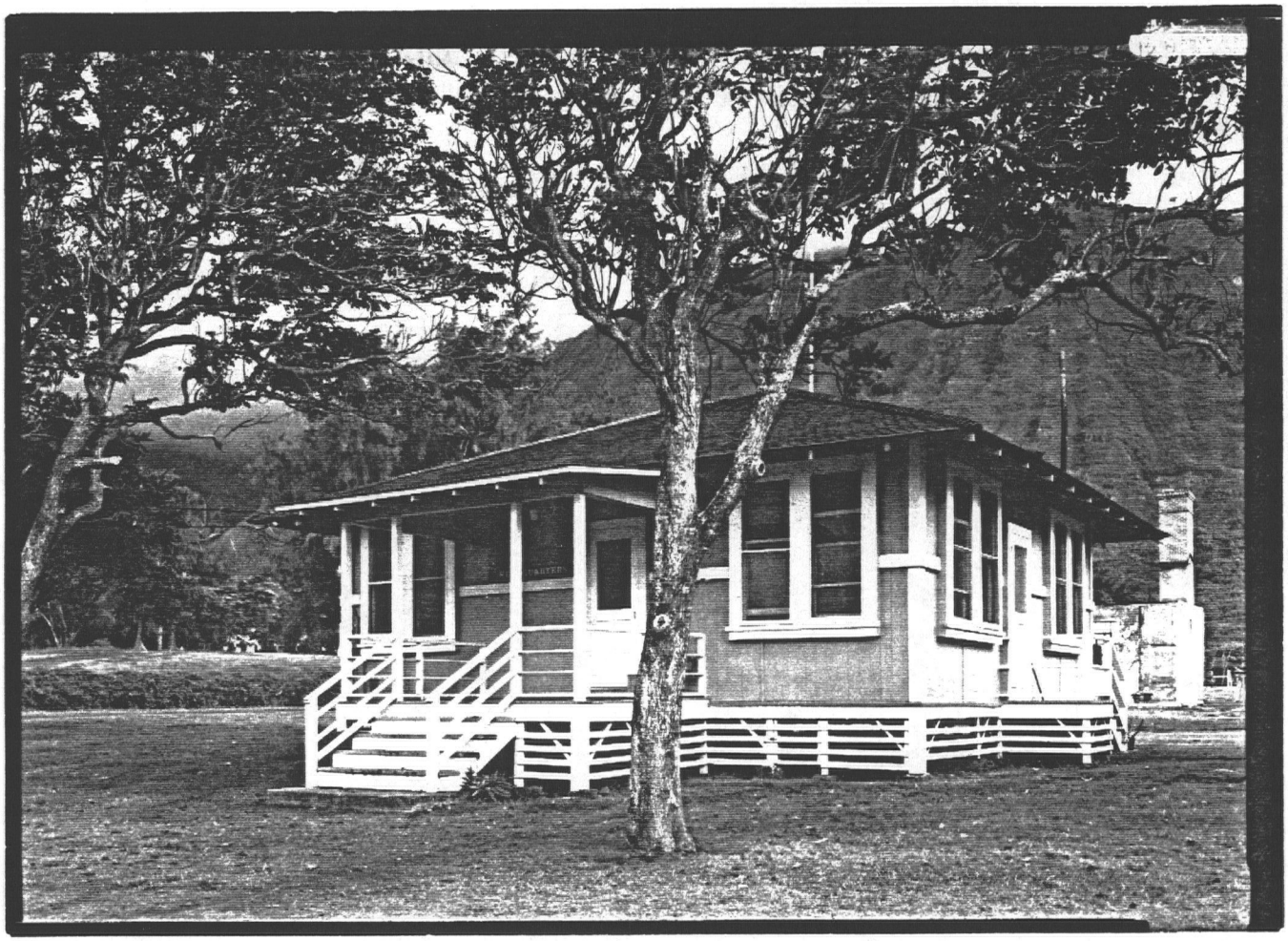
STRUCTURE: Building 288
LOCATION: Calvinist Mission
USE: Residence
SIZE: Approx. 1000 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1932
DESCRIPTION: The structure is a frame building of single wall construction. The intersecting hip roofs are finished with composition shingles. The foundation consists of footings and posts. The corners of the building are finished with cornerboards. A girt encircles the structure, and is broken by the wood frames of the double-hung windows which project several inches from the exterior of the vertical plank wall. A water table surrounds the sole plate. The structure is occupied, and seems to be in good condition. Any termite damage should be repaired. The building should be fumigated.

HABS PHOTO #
HI-118-1

SIGNIFICANCE: An extended McVeigh-type home.

MAINTENANCE COST: $1300
FUTURE MAINTENANCE COST: $400/annum
DATE OF REPORT: January 17, 1977

G - 48



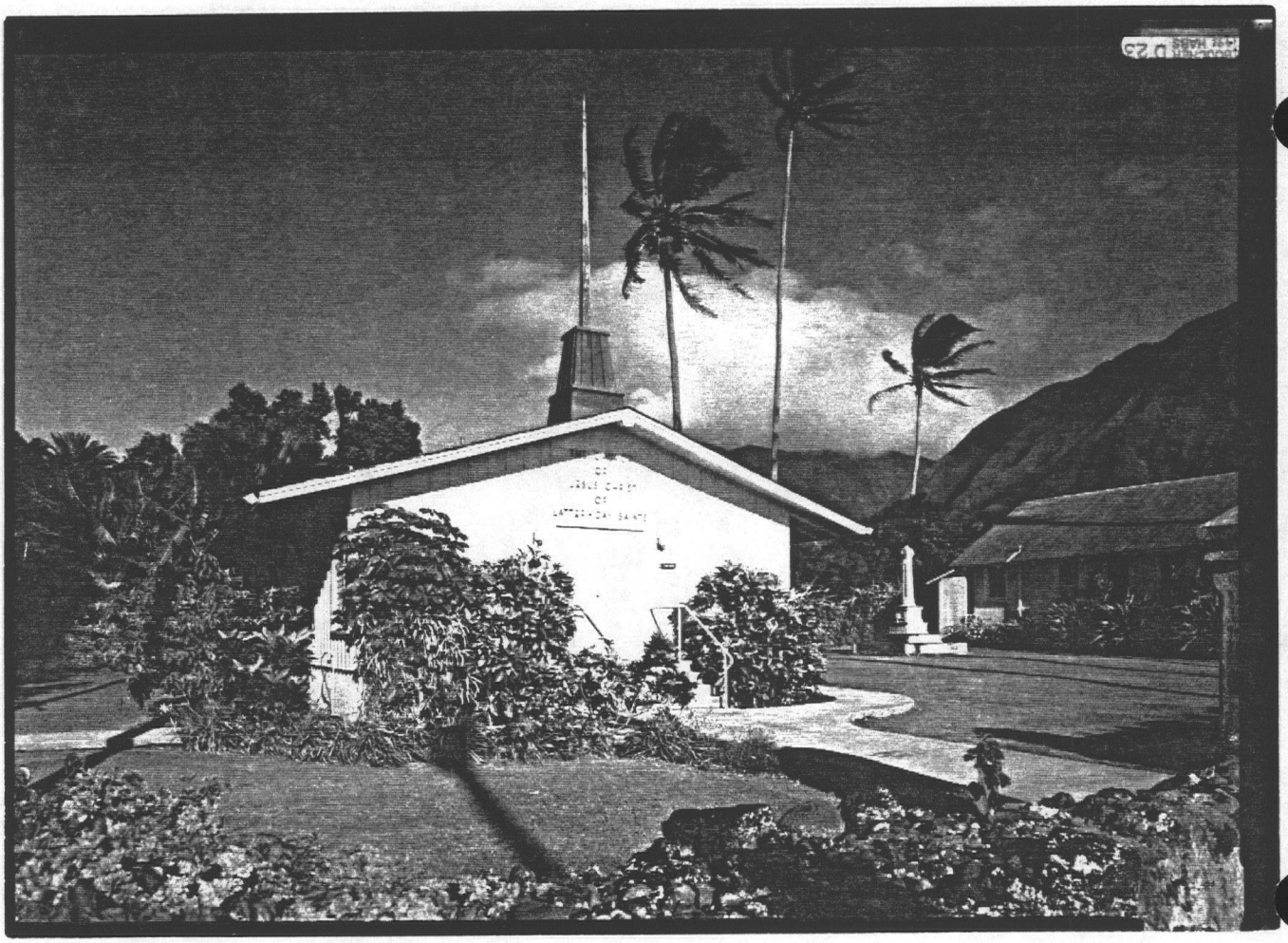
STRUCTURE: Building 7
LOCATION: Hospital
USE: Formerly out patient clinic
SIZE: Approx. 572 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a frame building of single wall construction. The foundation consists of stone pads and wood posts, camouflaged by a skirting made up of horizontal wood strips. A girt, broken by the wood frames of the double-hung windows encircles the structure. A water table surrounds the sole plate. The hip roof is finished with composition shingles. The structure is in poor condition. Termite and rot damaged wood should be replaced (including the front steps to the building which are in an advanced state of collapse.) The building should be cleaned and painted, interior and exterior, and it should be fumigated.

HABS PHOTO #
HI-117-1

SIGNIFICANCE: No architectural significance. Historically connected with hospital, though.

MAINTENANCE COST: $6,000
FUTURE MAINTENANCE COST: $400/annum
DATE OF REPORT: January 17, 1977

G - 49



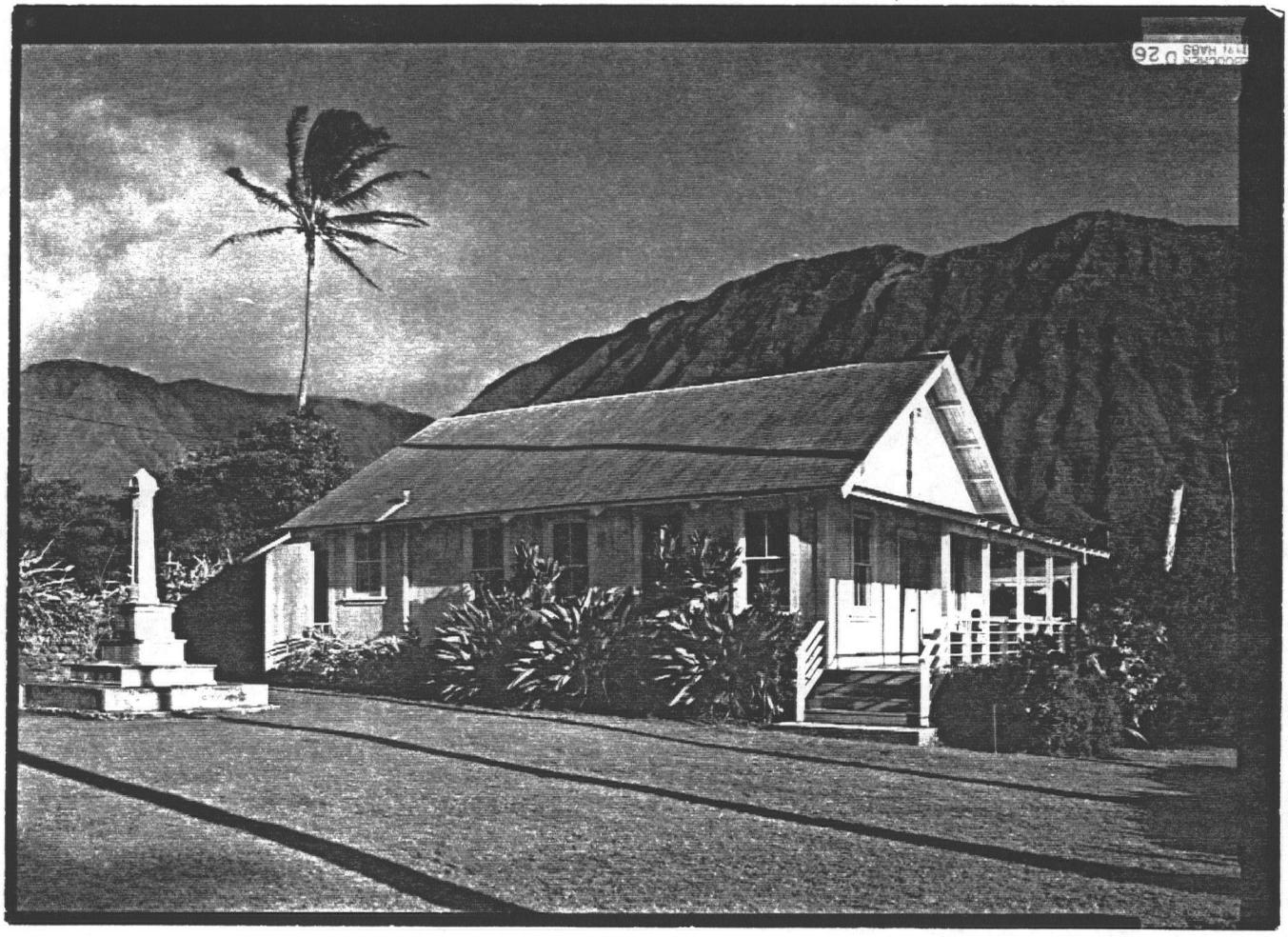
STRUCTURE: Building 257
LOCATION: Kamehameha Street
USE: Church (LDS)
SIZE: Approx. 25 x 40 OWNERSHIP: Private
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a frame building (plywood and batten exterior finish?) with a concrete foundation. The gable roof is finished with grey composition shingles. The structure is used intermittently, and seems to be in good condition.

HABS PHOTO # HI-116-2

SIGNIFICANCE: None -severely contrasts with the gentle Hawaiian vernacular of Kalaupapa.

MAINTENANCE COST: No estimate
FUTURE MAINTENANCE COST: No estimate
DATE OF REPORT: Ocotber 14, 1976

G - 50



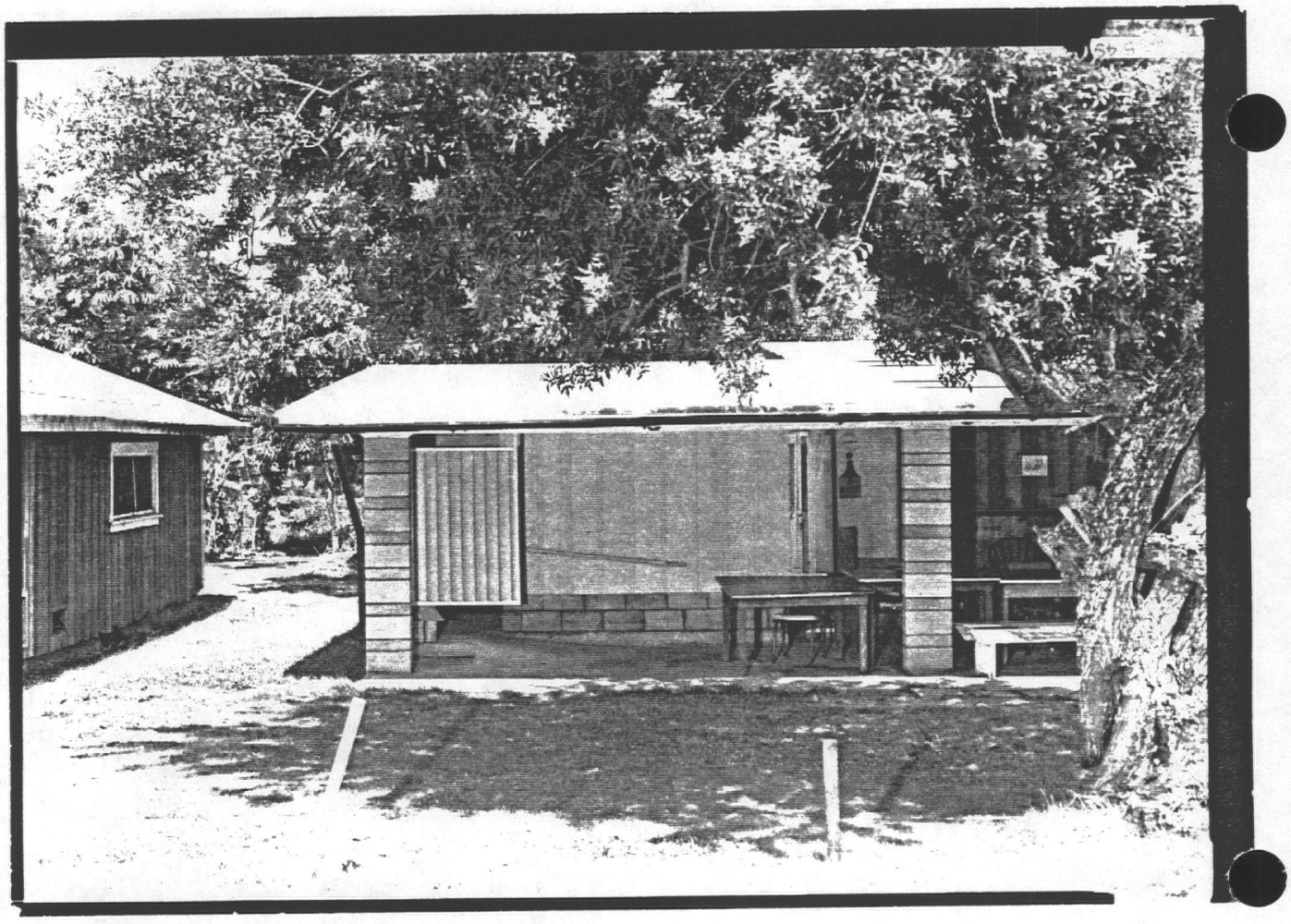
STRUCTURE: Building 257-A
LOCATION: Kamehameha Street
USE: Parish Hall for Mormon Church
SIZE: Approx. 25 x 40 OWNERSHIP: Private
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a frame building of single wall construction, with a foundation consisting of concrete pads. The gable roof is finished with grey composition shingles. A shed roof shelters a veranda at the west gable end of the building. The shed roof is also covered with composition shingles. The walls are vertical wood siding, with horizontal siding filling in the gable ends. A round window in the west gable end is divided by horizontal and vertical glazing bars in a decorative pattern (Japanese?). The horizontal and vertical interplay is enclosed in the porch railing. The structure is in fair condition, and is used intermittently.

HABS PHOTO #
HI-115-2

SIGNIFICANCE:

MAINTENANCE COST: No estimate done
FUTURE MAINTENANCE COST: No estimate done
DATE OF REPORT: October 14, 1976

G - 51



HABS PHOTO #
HI-124-A-1

STRUCTURE: REPLACEMENT FOR BUILDING 624
LOCATION: CORNER PUAHI and SCHOOL STREETS
USE: GARAGE
SIZE: 20 X 20 OWNERSHIP: PRIVATE
DATE OF STRUCTURE: POST 1977
DESCRIPTION: The structure is a concrete block and wood building of single wall construction of plywood siding. The roof material is roll roofing placed on plywood decking supported by wood rafters. The floor is concrete. The structure is in good condition. This building replaced the restroom structure pictured in the 1977 Architectural Evaluation and identified as Building 624 which was demolished.

STRUCTURE: Building 1
LOCATION: Bay View Home
USE: Residence
SIZE: Approx. 3700 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1916

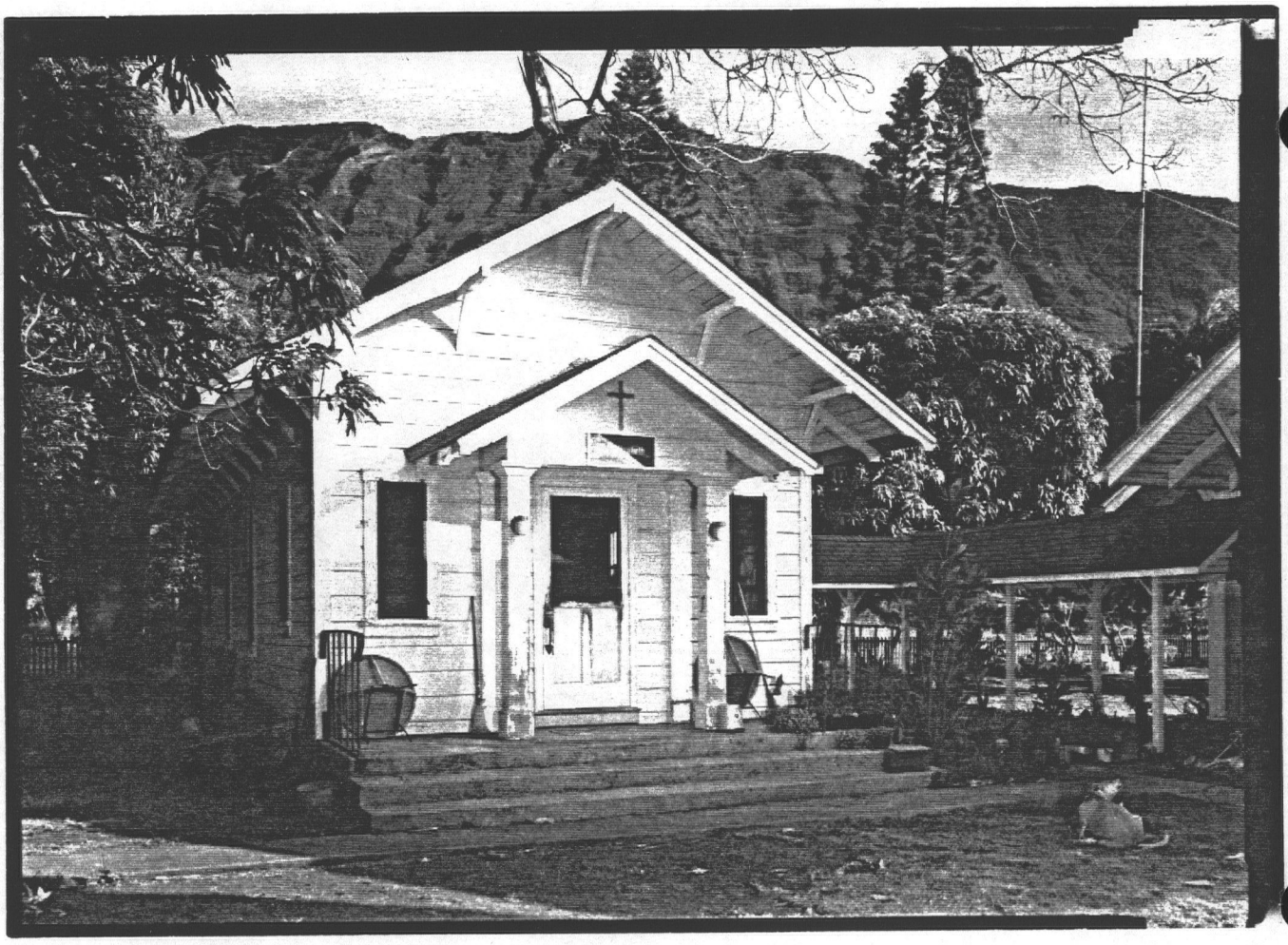
HABS PHOTO #
HI-85-A-3

DESCRIPTION: The structure is a frame building of single wall construction. The plan is generally symmetrical: a main section with a veranda is flanked by two smaller wings to the east and west and a third wing to the north. The dominant architectural feature of the building is the combination of the intersecting hip roofs, all with louvered gablets at the ridges. Another louvered gablet projects from the roof directly above the main entrance to the building. The veranda which is recessed under the main roof is bordered by a diamond-patterned railing and chamfered posts and pilasters with jigsawn bracketing. The foundations are concrete piers. Concrete steps, edged with concrete and wood railings provide access to the veranda from the east, west and south. The walls are vertical plank siding. Windows are usually double hung, twelve-light. The structure is identical in plan to Building 3. Termite and rot damaged wood should be replaced. The foundation needs reconstruction. Grade and vegetation should be cleared. The interior and exterior should be painted. The building should be fumigated. The building is in poor condition. Further information is provided in the cost estimates.

SIGNIFICANCE: Identical to Building 3. Building 4 (now gone) would have been identical to Building 2. Historically the Bay View Home was the residential area for elderly and blind patients (now occupied by male patients. This is the least altered of the Bay View group. Other than that, same significance as the others.

MAINTENANCE COST: $30,400
FUTURE MAINTENANCE COST: $1650/annum
DATE OF REPORT: January 16, 1977

G - 53



STRUCTURE: Building 16
LOCATION: Bishop Home
USE: Chapel
SIZE: Approx. 16 x 42 OWNERSHIP: Private (Catholic Church)
DATE OF STRUCTURE: 1934
DESCRIPTION: The structure is a frame building of double wall construction. The foundation is concrete, the gable roof is finished with composition shingles, although the small gable portico over the entrance has a wood shingle finish. The exterior wall consists of horizontal rustic channel siding. The corners are finished with cornerboards. All of the eaves are bracketed. The small entrance portico, constructed on concrete steps which run the width of the building, is articulated by handsomely detailed columns and pilasters. The building has been altered - perhaps doubled in size. All of the windows are double hung. Two thin windows with pointed arches are located on the east and west sides of the building. The building is used daily, and in fair condition. Any termite damage should be repaired (floors, doors, roof, etc.). The building should be re-roofed, fumigated and painted.

SIGNIFICANCE: Mainly historical.

HABS PHOTO #
HI-83-A-1

MAINTENANCE COST: $9100
FUTURE MAINTENANCE COST: $600/annum
DATE OF REPORT: January 16, 1977

G - 54

STRUCTURE: Building 60R-119
LOCATION: School Street
USE: Residence
SIZE: Approx. 1050 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1937 (according to files)
DESCRIPTION: The structure is a one-story building of single wall construction with a concrete pad and post foundation. A recessed porch is located under the southwest corner of the gable (with gablet) roof. The roof is finished with rolled composition roofing paper. At the rear of the irregularly shaped structure (northeast corner) is a washing area with a concrete slab foundation. The structure is in poor condition. The building is in need of re-roofing, board replacement, fumigation and painting.

HABS PHOTO #
HI-109-1

SIGNIFICANCE: Unusual, for a residence. Similar to Wilcox Memorial building at the Visitor's Quarters. Another type of Hawaiian vernacular found at Kalaupapa.

MAINTENANCE COST: $8700
FUTURE MAINTENANCE COST: $600/annum
DATE OF REPORT: January 13, 1977

G - 55

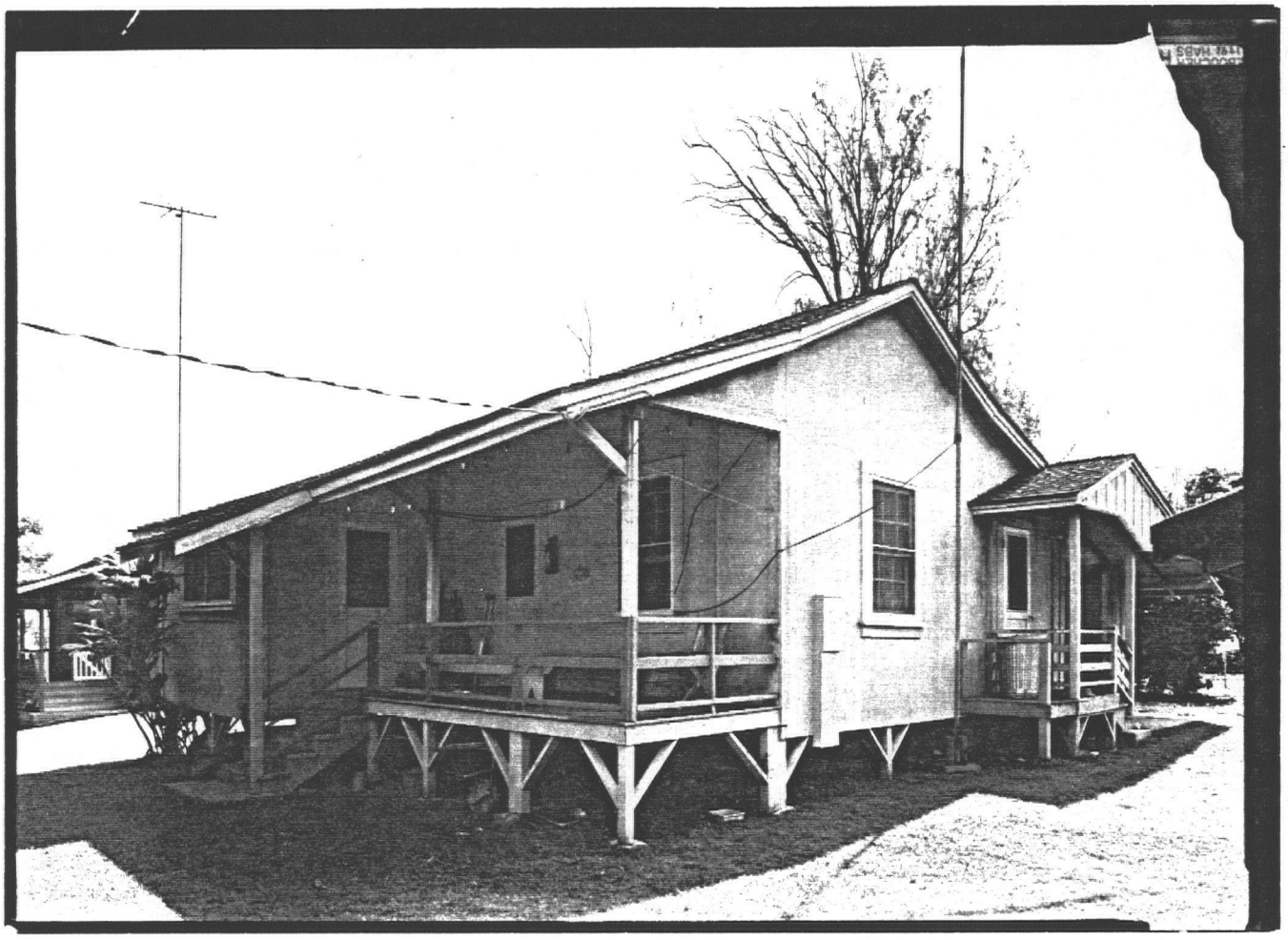
HABS PHOTO #
HI-107-1

STRUCTURE: Building 114
LOCATION: Goodhue Street
USE: Residence
SIZE: 30 x 28 840SF OWNERSHIP: State
DATE OF STRUCTURE: 1931
DESCRIPTION: The structure is a one-story building of single wall construction, with a stone pad and post foundation. The gable roof extends into shed roofs at the front and rear of the house. The roof is finished with rolled composition roofing material. A veranda runs the entire length of the building on the west side of the structure. The exterior finish is simply vertical plank siding. Wood steps and railings led up to the veranda. A skirting of horizontal wood strips surrounds the foundations. The structure is occupied, and seems to be in fair condition. The building should be fumigated, and termite damage repaired. Roofing should be removed and replaced. Grade should be cleared.

SIGNIFICANCE: The structure is very similar to the types of residences existing at Kalaupapa prior to 1900. The above date, taken from the Maintenance files is very possibly incorrect.

MAINTENANCE COST: $5100
FUTURE MAINTENANCE COST: $500/annum
DATE OF REPORT: January 13, 1977

G - 56



HABS PHOTO #
HI-106-1

STRUCTURE: Building 115
LOCATION: Goodhue Street
USE: Residence
SIZE: Approx. 1000 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1931
DESCRIPTION: The structure is a one-story building of single wall construction. The exterior finish is board and batten and verticle plank siding, with corner boards at the corness. The gable roof is finished with green rolled composition roofing material. The wood frame windows are double hung (twelve light). A recessed porch is incorporated under the roof is sagging. The structure is occupied and in fair to poor condition. The building should be painted. Termite damage should be replaced. The structure should be re-roofed with the original roofing material (shingles?). The building should be fumigated.

SIGNIFICANCE: The structure is very similar to the types of residences existing at Kalaupapa prior to 1900. The above date, taken from the maintenance file could incorrect.

MAINTENANCE COST: $7,600
FUTURE MAINTENANCE COST: $500/annum
DATE OF REPORT: January 13, 1977

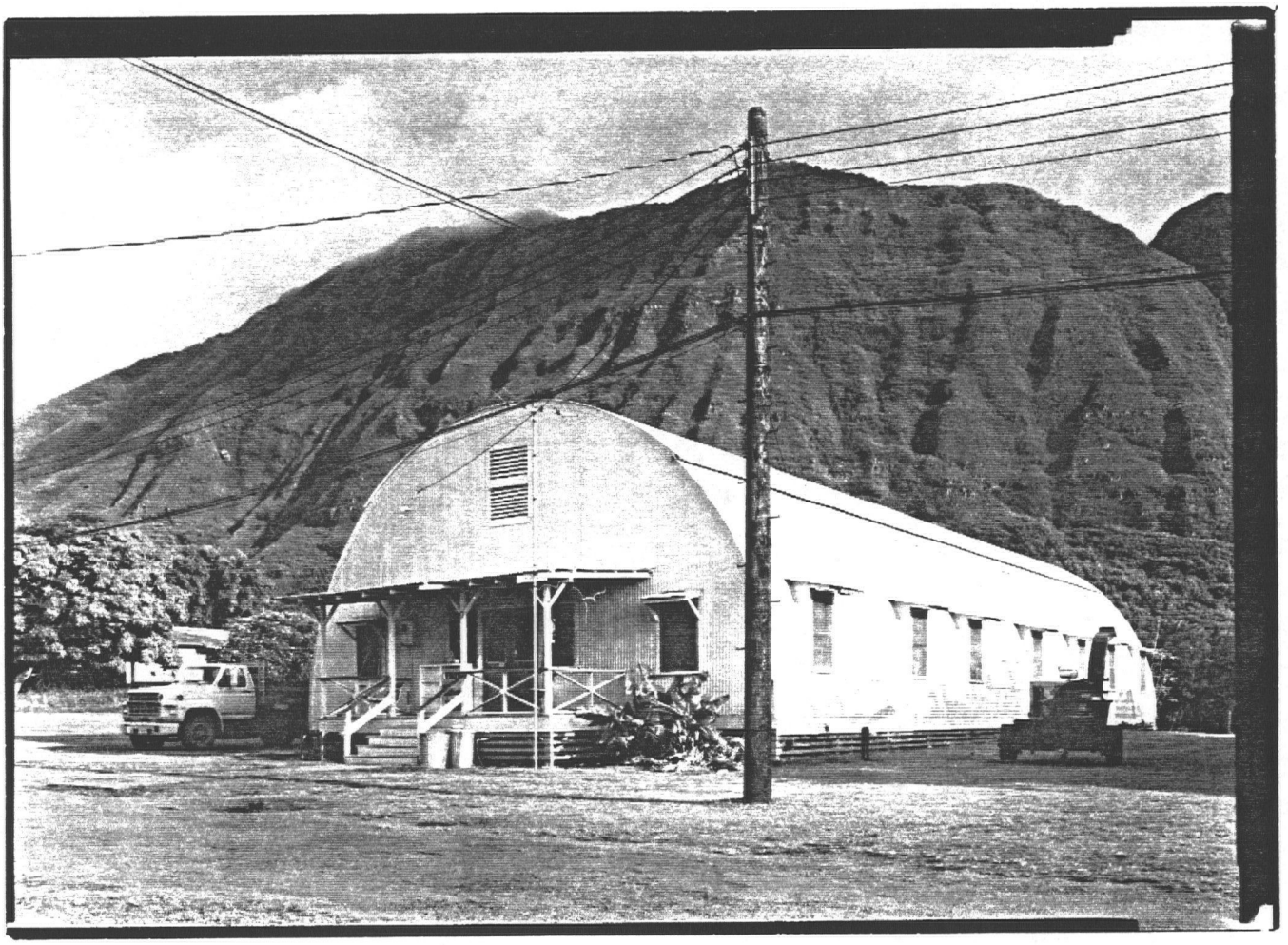
G - 57

HABS PHOTO #
HI-108-1

STRUCTURE: Building 116
LOCATION: Goodhue Street
USE: Residence
SIZE: Approx. 34 x 26 OWNERSHIP: State
DATE OF STRUCTURE: 1931
DESCRIPTION: The structure is a one-story building of single wall construction, with a pad and post foundation. Stone and concrete steps provide access to the recessed corner porch which is incorporated under the hip roof. One chamfered post and two chamfered pilasters articulate the edges of the porch. The corners of the building are finished with corner boards. A girt encircles the structure and is broken by the wood frames of the double-hung windows which project several inches from the exterior of the vertical plank wall. The hip roof is finished with composition shingles. A wood porch is located at the rear of the structure. The building is occupied and in good condition. The structure was recently painted. Fumigation is recommended. Termite damage should be repaired. The masonry of the front steps is in need of minor repointing.

SIGNIFICANCE: One of many

MAINTENANCE COST: $1500
FUTURE MAINTENANCE COST: $500
DATE OF REPORT: January 13, 1977



HABS PHOTO #
HI-85-I-1

STRUCTURE: Building 10
LOCATION: Bay View Home
USE: Residence
SIZE: Approx. 4600 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: Prior to 1939
DESCRIPTION: The structure is a large quonset hut constructed on a foundation of concrete footings and wood posts. The semi-cylindrical structure is covered with corrugated metal. Double hung windows, all sheltered by small shed roofs are evenly spaced along the long sides of the building. A frame porch with a shed roof is located on the north side of the structure. Metal ventilation louvers are located near the roofline at the east and west sides of the building. The structure is occupied, and in poor condition. To keep the building habitable, it should be fumigated for termites. Termite damage affecting the structure should be repaired. Vegetation should be cleared from the base of the building. The interior and exterior should be painted.

SIGNIFICANCE: None, other than part of Bay View.

MAINTENANCE COST: $18,250
FUTURE MAINTENANCE COST: $600/annum
DATE OF REPORT: January 15, 1977

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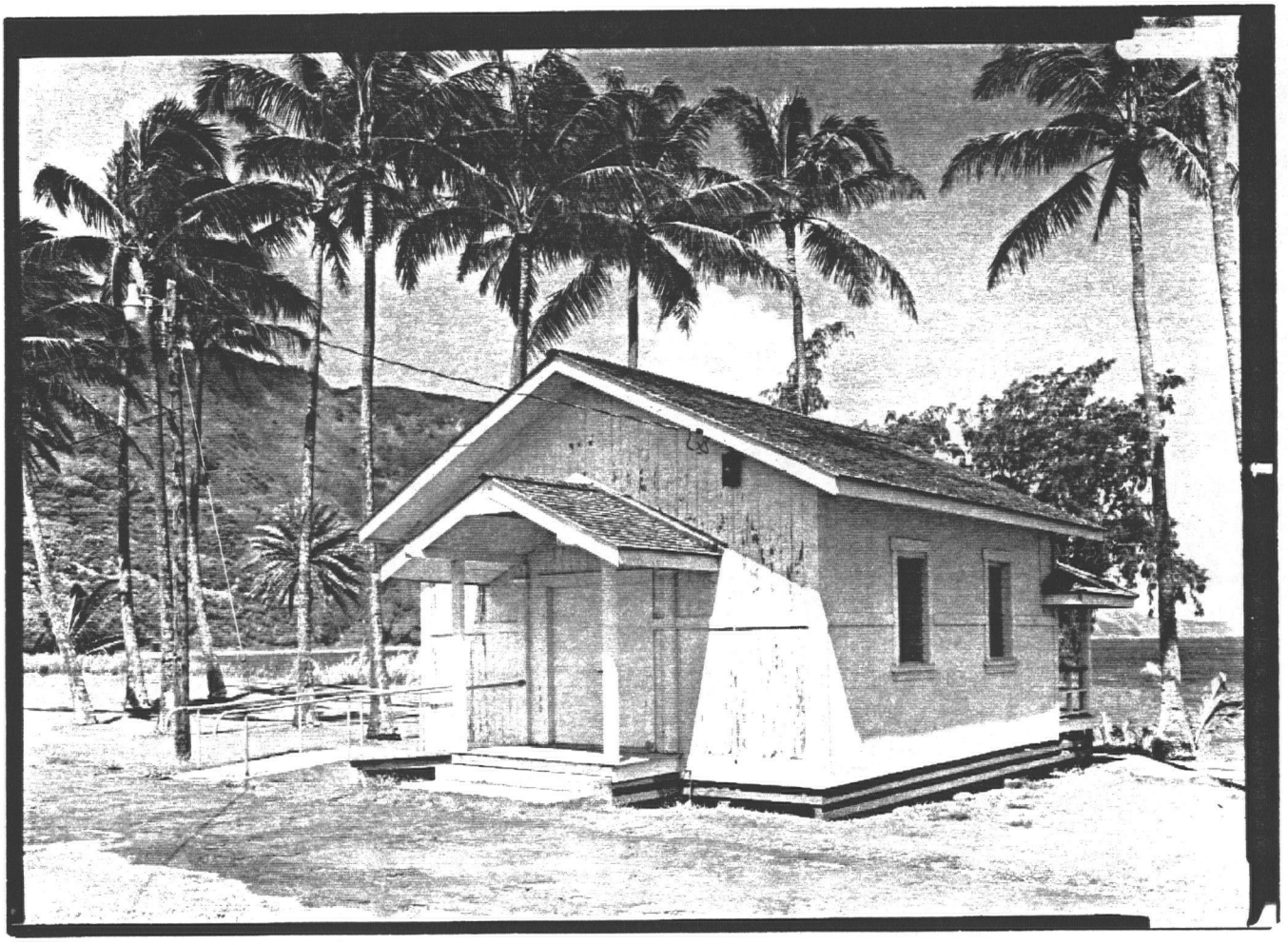
HABS PHOTO #
HI-105-2

STRUCTURE: Building 118
LOCATION: Goodhue Street
USE: Residence
SIZE: 1000 sq. ft., incl porch OWNERSHIP: State
DATE OF STRUCTURE: 1931 (?)
DESCRIPTION: The structure is a one-story building of single wall construction, with a stone pad and post foundation. The building has a saltbox roof, with another extension at the front of the structure which shelters the recessed veranda. The veranda, which runs the length of the front of the building still has some of the original details - chamfered posts, jigsaw work, diamond-patterned railing. The exterior finish is vertical plank. The structure is in deteriorated condition, but should be preserved because it is occupied, and because it is an example of a type. The building should be fumigated. Termite damage (floor, footings, walls, siding) should be repaired. The building should be re-roofed with original material, and the structure should be painted.

SIGNIFICANCE: A fairly preservable example of a type of architecture which is fast dying out in the islands (and Kalaupapa).

MAINTENANCE COST: $8700
FUTURE MAINTENANCE COST: $500/annum
DATE OF REPORT: January 13, 1977

G - 60



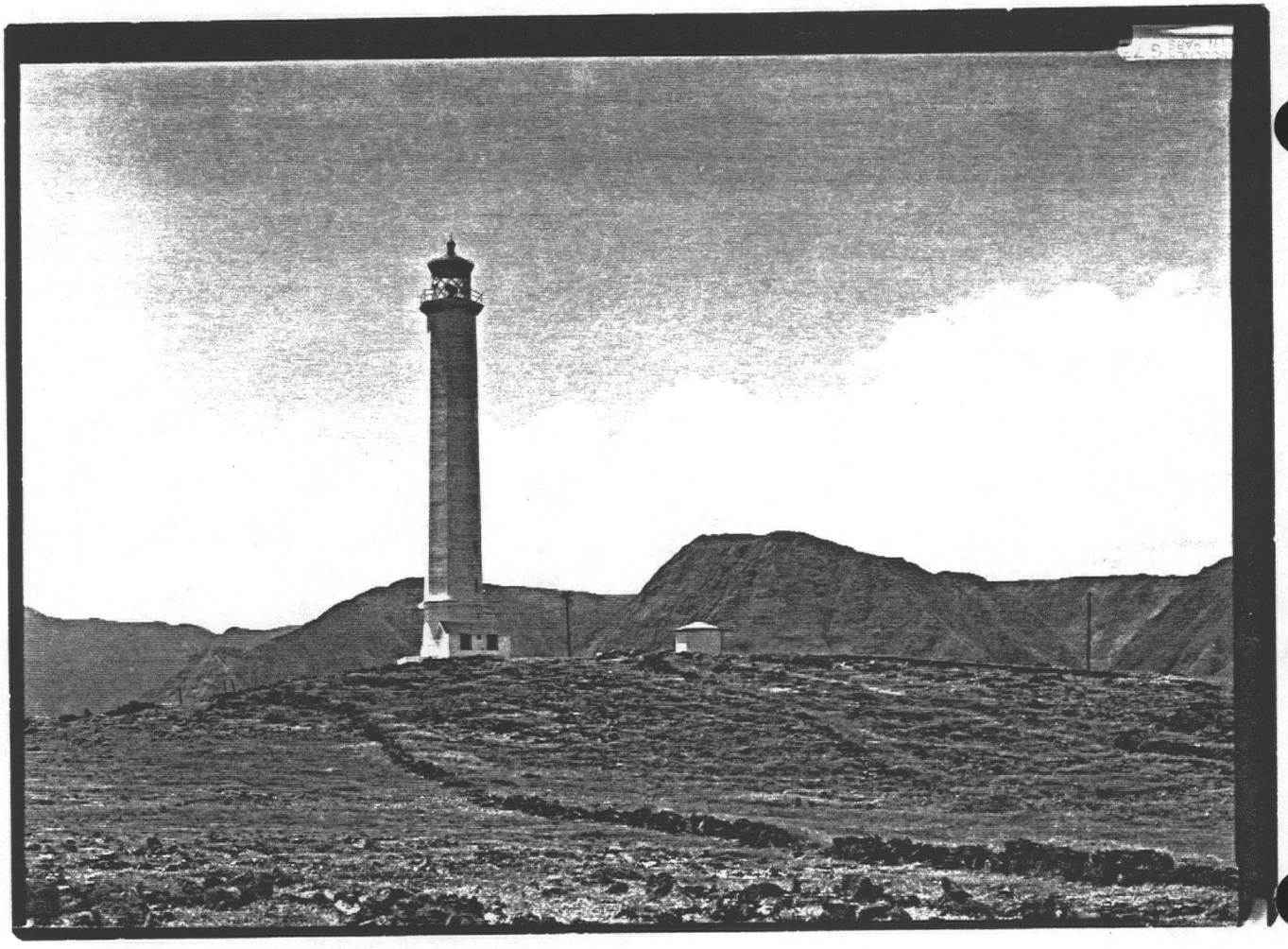
HABS PHOTO #
HI-85-J-1

STRUCTURE: Building 8
LOCATION: Bay View Home
USE: Storage Area
SIZE: Approx. 800 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1928
DESCRIPTION: The structure is a frame building of single wall construction. The foundation is mainly stone footings and wood posts. The gable roof is finished with composition shingles. A portico sheltered by a small gable roof is located at the front (east) of the building. A corner porch and an enclosed addition (?) are covered by a hip roof at the rear (west of the building). The porch is bordered by a diamond-patterned railing and chamfered posts and pilasters. The addition is constructed on a concrete slab. A girt, broken by the wood frame of the twelve-light double hung windows and by the door frames, encircles the structure. A water table surrounds the sole plate. The corners of the building are finished with cornerboards. The building is in fair to poor condition, and is used for storage. Some wood needs replacement due to rot and termite damage. The building should be painted. Vegetation should be cleared from the base of the structure. The building should be fumigated.

SIGNIFICANCE: One of the patients stated that this building was used intermittently as a morgue. No singular architectural significance. The building seems similar to some of those constructed at Kalawao. During the 1930's this building was changed from a chapel - its original use - to a recreation building.

MAINTENANCE COST: $5000
FUTURE MAINTENANCE COST: $450/annum
DATE OF REPORT: January 15, 1977

G - 61



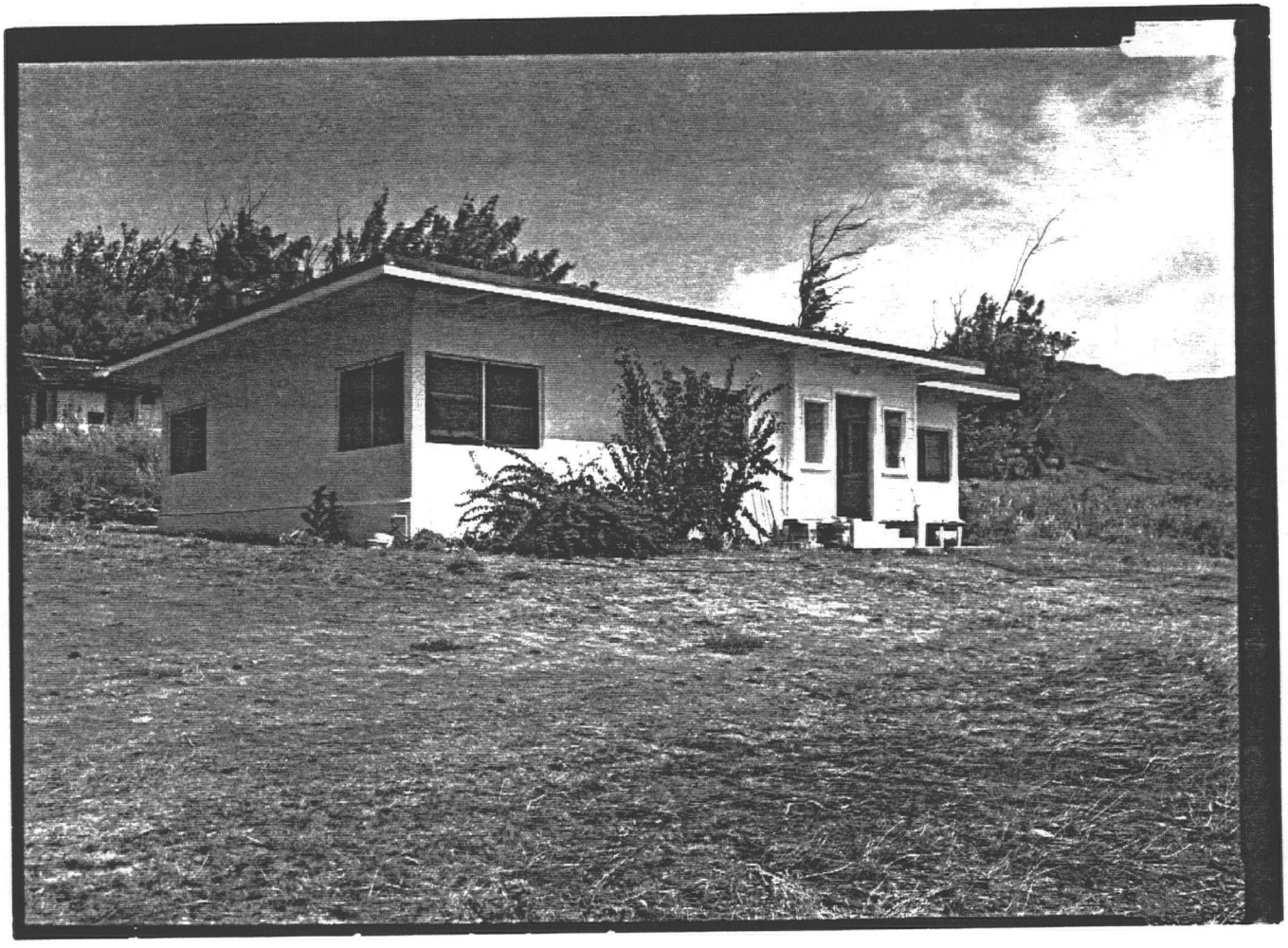
HABS PHOTO #
HI-99-A-3

STRUCTURE: Building 715
LOCATION: Lighthouse area
USE: Molokai Light
SIZE: 138' high OWNERSHIP: U.S. Coast Guard
DATE OF STRUCTURE: 1909
DESCRIPTION: The structure is a reinforced concrete tower, 138' high. The octagonal building is constructed on a larger octagonal base, which originally was enclosed with a railing. The octagonal tower rises up (189 step climb on the interior) to the light and its glass enclosure, and the exterior observation platform which surrounds it. The light, when operating at full power, is said to have the capacity of 2,500,000 candlepower. Conflicting records in the Coast Guard office have confirmed and denied this. The lens itself is a first or second order lens, however. Coast Guard records present conflicting information on this, also. The building is in fair condition, considering its severe exposure. The building seems to have some condensation and rust problems, but minor ones (compared to the Point Reyes Light, for example). The interior and exterior should be cleaned and painted.

SIGNIFICANCE: Architectural and historical. Save this building, and the light.

MAINTENANCE COST: $15,000
FUTURE MAINTENANCE COST: $2,000/annum
DATE OF REPORT: January 28, 1977

G - 62



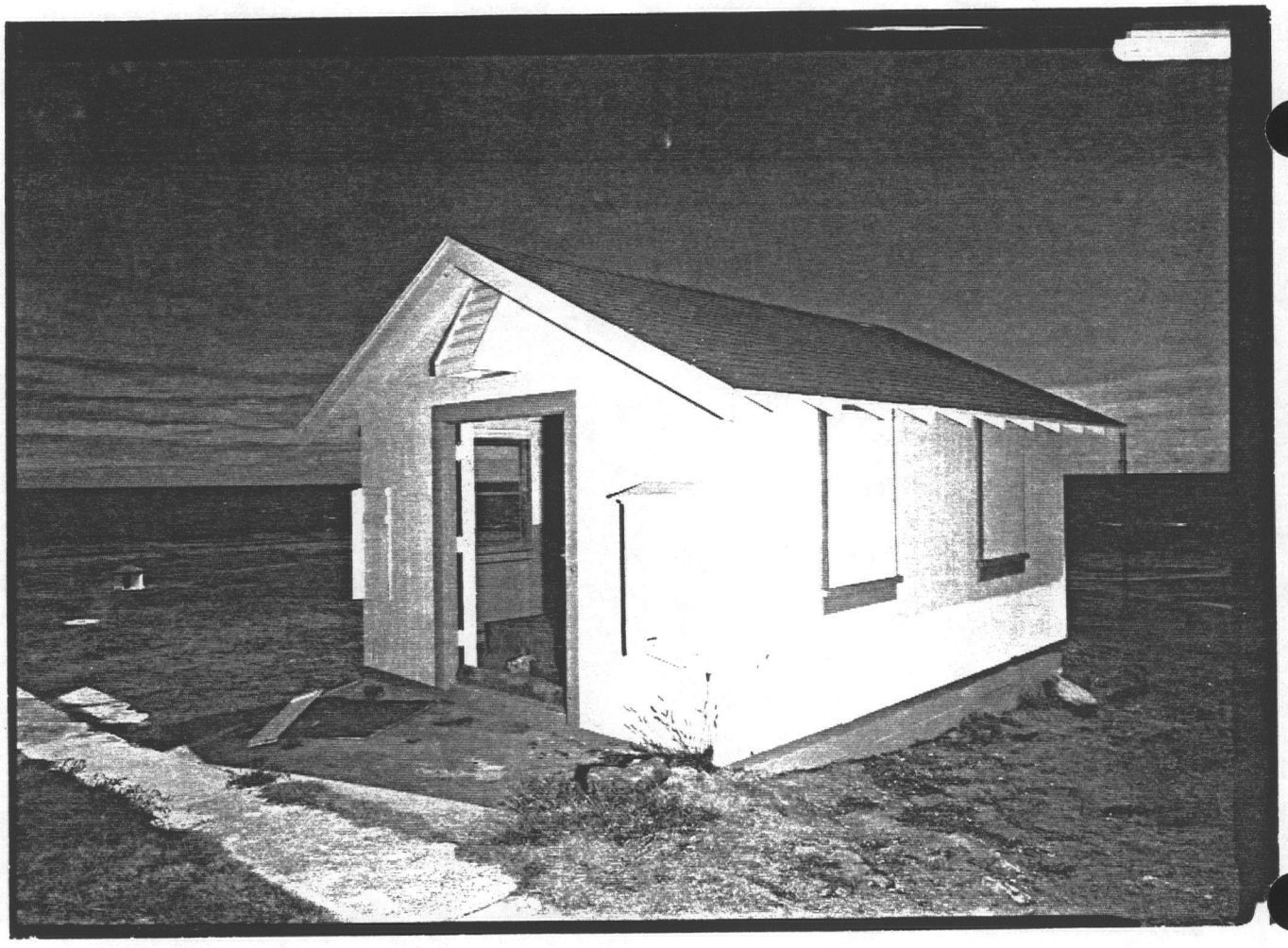
HABS PHOTO #
HI-99-B-1

STRUCTURE: Building 706
LOCATION: Lighthouse area
USE: Residence (intermittent use)
SIZE: Approx. 20 x 40 OWNERSHIP: G.S.A.
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a single story building of frame construction, with a cement stucco exterior and gently sloping shed roof. The foundation is concrete. The structure is in fair to poor condition.

SIGNIFICANCE: None

MAINTENANCE COST: No estimate
FUTURE MAINTENANCE COST: No estimate
DATE OF REPORT: October 14, 1976

G - 63

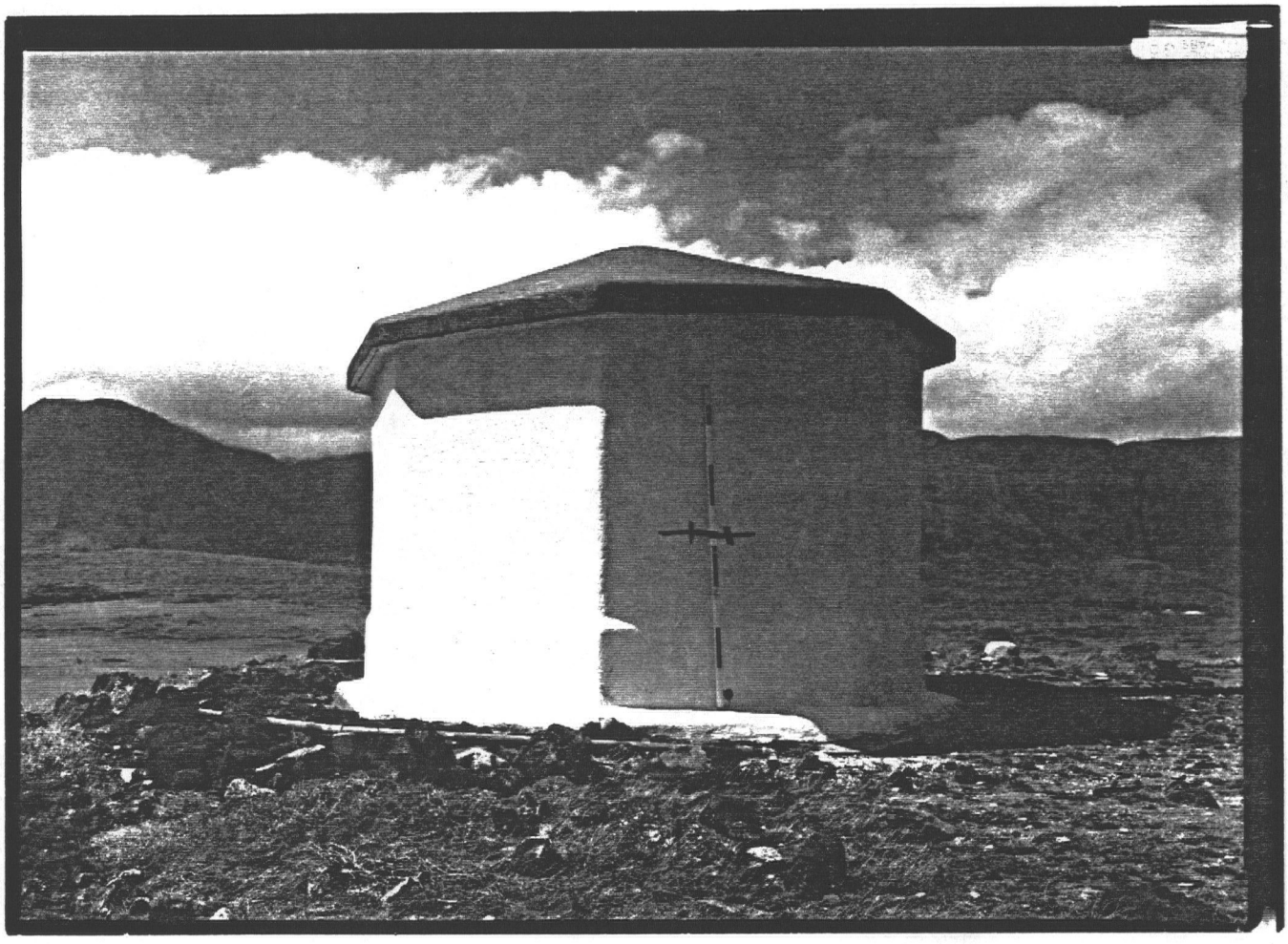


HABS PHOTO #
HI-99-E-1

STRUCTURE: Building 713
LOCATION: Lighthouse area
USE: Generator Building (abandoned)
SIZE: Approx. 18 x 14 OWNERSHIP: Coast Guard or G.S.A.
DATE OF STRUCTURE: Unknown (1909?)
DESCRIPTION: The structure is a frame building of single wall construction, constructed on a concrete slab. The walls are vertical plank siding. The gable roof is finished with rolled composition roofing material, which has weathered away in several large areas, exposing the decking underneath. The wood frame windows are double hung (twelve light). The building was last painted in 1964. The double door at one gable end is deteriorated and open. Local cattle have taken advantage of that fact and constantly wander in and out. The building is in very deteriorated condition.

SIGNIFICANCE: Further research should be done to determine if this structure was part of the historic scene (it probably was not). Appropriate action should be delayed until that time.

MAINTENANCE COST: No estimate done
FUTURE MAINTENANCE COST: No estimate done
DATE OF REPORT: January 28, 1977



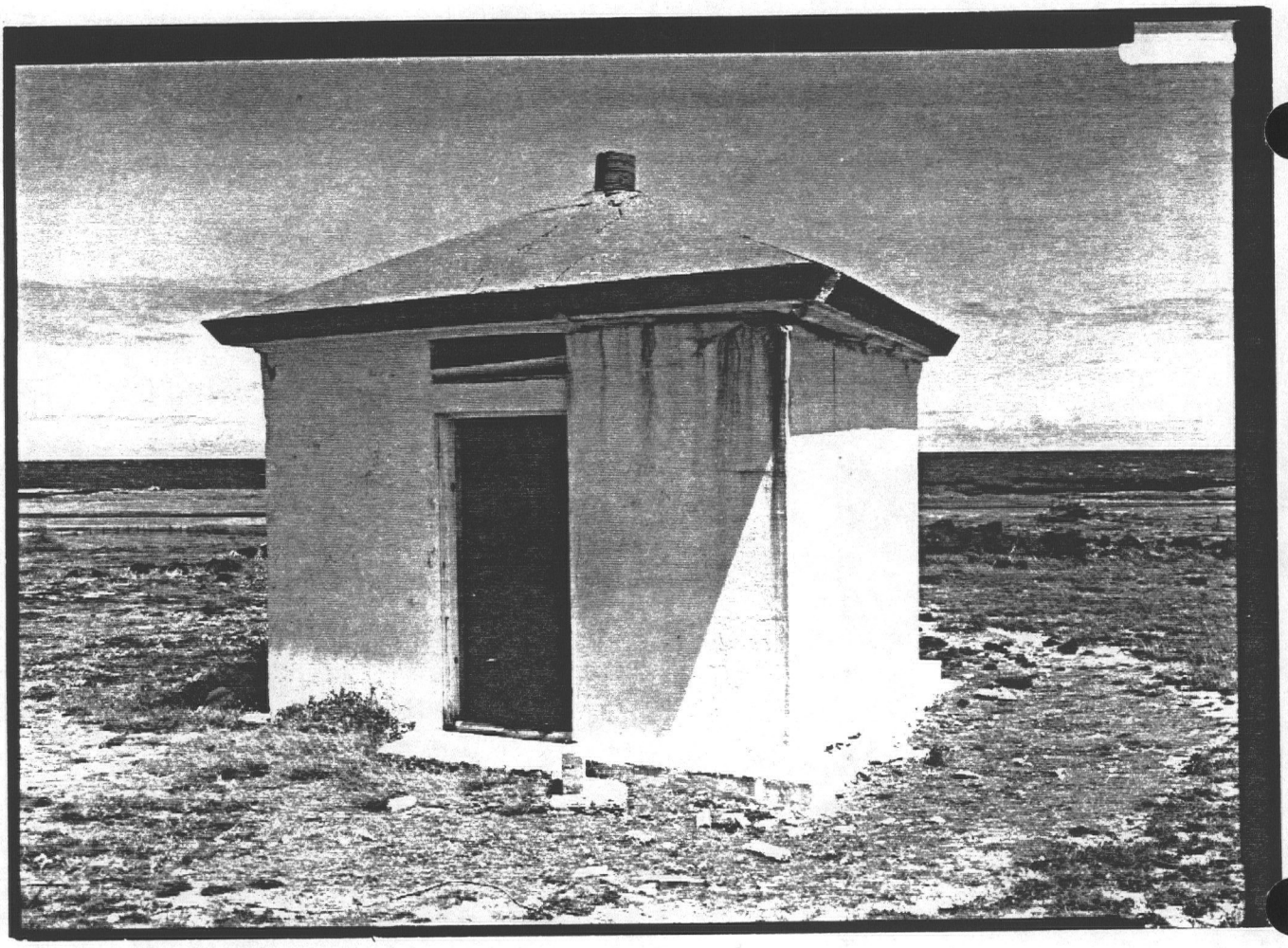
HABS PHOTO #
HI-99-D-1

STRUCTURE: Building 712
LOCATION: Lighthouse area
USE: Water Tank (probably no longer used)
SIZE: Approx. 150 sq. ft. OWNERSHIP: Coast Guard or G.S.A.
DATE OF STRUCTURE: 1909?
DESCRIPTION: The structure is an octagonal water tank constructed of reinforced concrete. The concrete roof rises in sections from each of the building sides up a gentle slope to a rounded point. The roof has remnants of red paint. The exterior should be cleaned and painted and the rusted pipe replaced.

SIGNIFICANCE: Probably part of historic scene for lighthouse.

MAINTENANCE COST: $575
FUTURE MAINTENANCE COST: $75/annum
DATE OF REPORT: January 28, 1977

G - 65



HABS PHOTO #
HI-99-C-1

STRUCTURE: Building 714
LOCATION: Lighthouse area
USE: Abandoned - previous use not known
SIZE: Approx. 150 sq. ft. OWNERSHIP: Coast Guard or G.S.A.
DATE OF STRUCTURE: 1909?
DESCRIPTION: The structure is a reinforced concrete building with a concrete foundation. The hip roof is also reinforced concrete. The structure has one door and no other openings. The structure is in very deteriorated condition. Much of the roof reinforcing is exposed and the concrete is spalling and has very large cracks.

SIGNIFICANCE: Although the structure is probably part of the historic scene of the lighthouse, it is in such deteriorated condition that total reconstruction would be necessary to "preserve" it.

MAINTENANCE COST: No estimate
FUTURE MAINTENANCE COST: No estimate
DATE OF REPORT: January 28, 1977

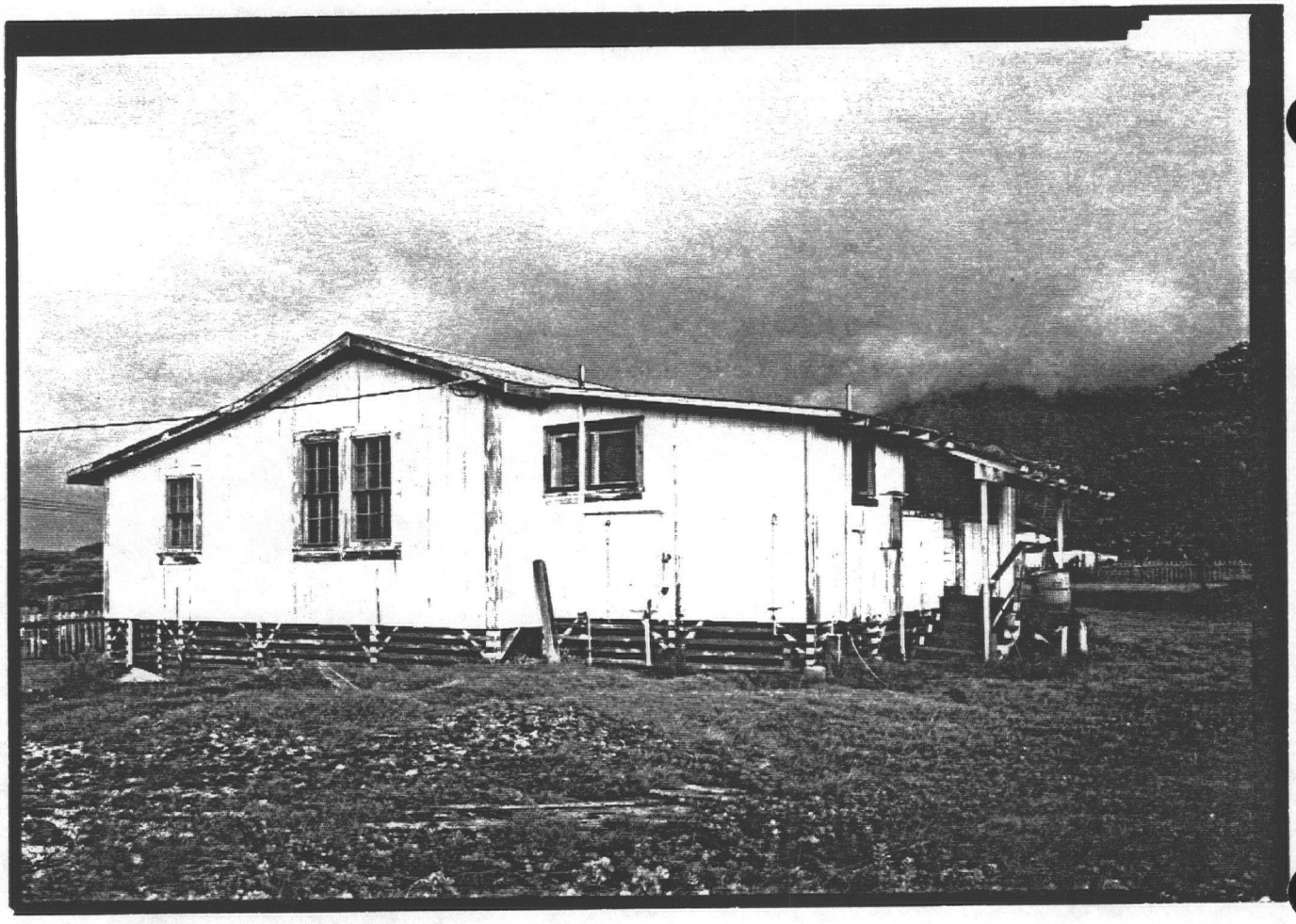
HABS PHOTO #
HI-104-1

STRUCTURE: Building 703
LOCATION: Airport
USE: Airport Terminal
SIZE: Approx. 1200 sq. ft. OWNERSHIP: Department of Transportation
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a frame building of single wall construction, with a concrete slab foundation. The hip roof is finished with green composition shingles, and is extended over verandas on sides of the structure. The exterior wall finish is asbestos siding. The wood frame jalousie windows are paired. Most of the north side of the building is open. The structure houses a waiting area for leaving and arriving passengers and restrooms for visitors. The building receives daily use and seems to be in good condition, although it should be fumigated and have small areas painted.

SIGNIFICANCE: None

MAINTENANCE COST: $1370
FUTURE MAINTENANCE COST: $300/annum
DATE OF REPORT: January 28, 1977

G - 67



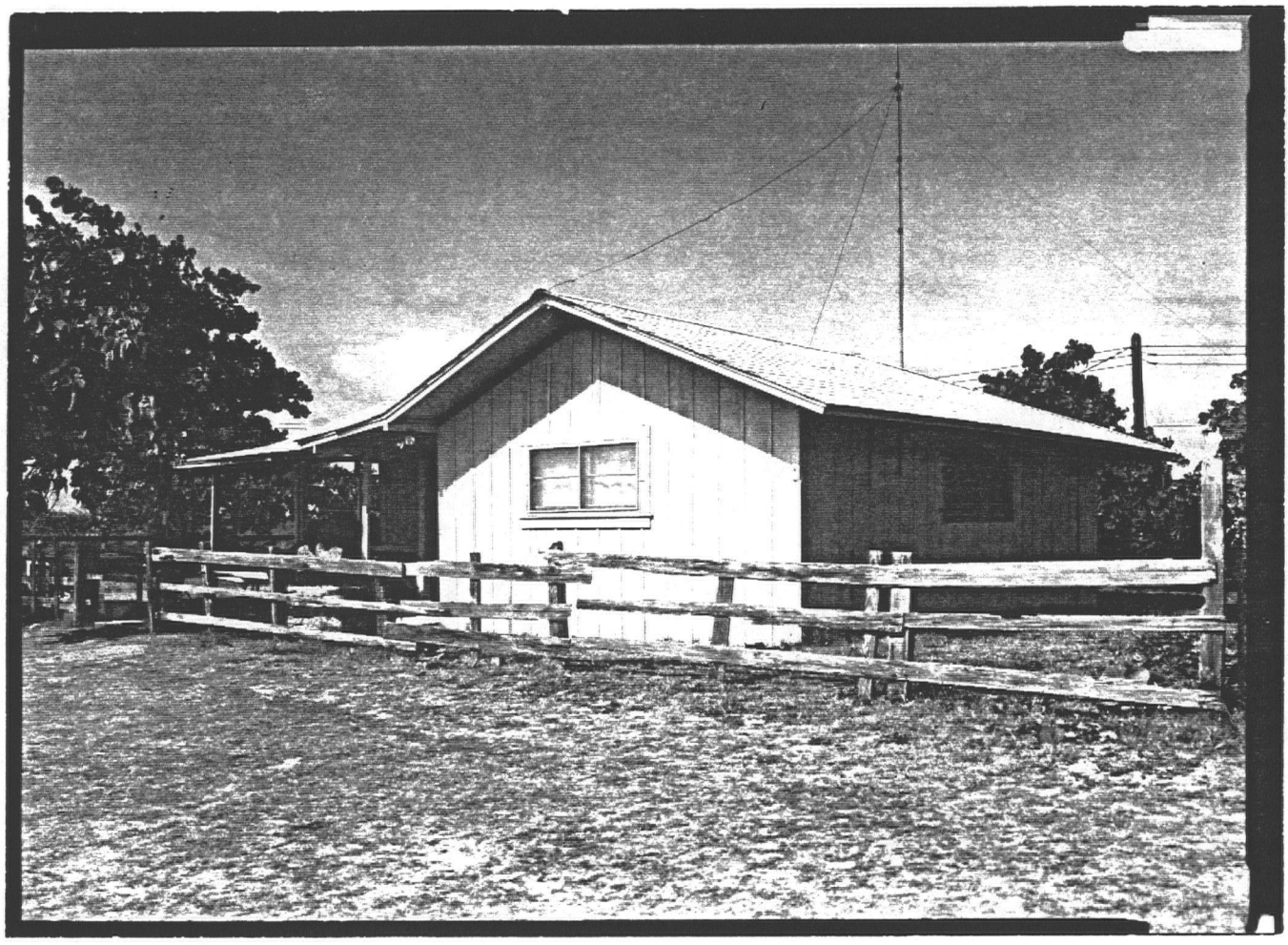
HABS PHOTO #
HI-103-1

STRUCTURE: Building 699
LOCATION: Airport Road
USE: Beach house
SIZE: Approx. 25 x 30 OWNERSHIP: Private
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a frame building of single wall construction, with an exterior finish of board and batten. The combination of gable and shed roofs are finished with composition shingles. The foundations consist of concrete footings. The central section of the building (located under the gable) has walls which are finished in the same manner as those in Buildings 5 and 8, Staff Row (Dining Hall and Residence). A portion of this building might have been taken from Staff Row. The building receives intermittent use, and seems to be in fair condition.

SIGNIFICANCE: None

MAINTENANCE COST: No estimate
FUTURE MAINTENANCE COST: No estimate
DATE OF REPORT: October 14, 1976

G - 68



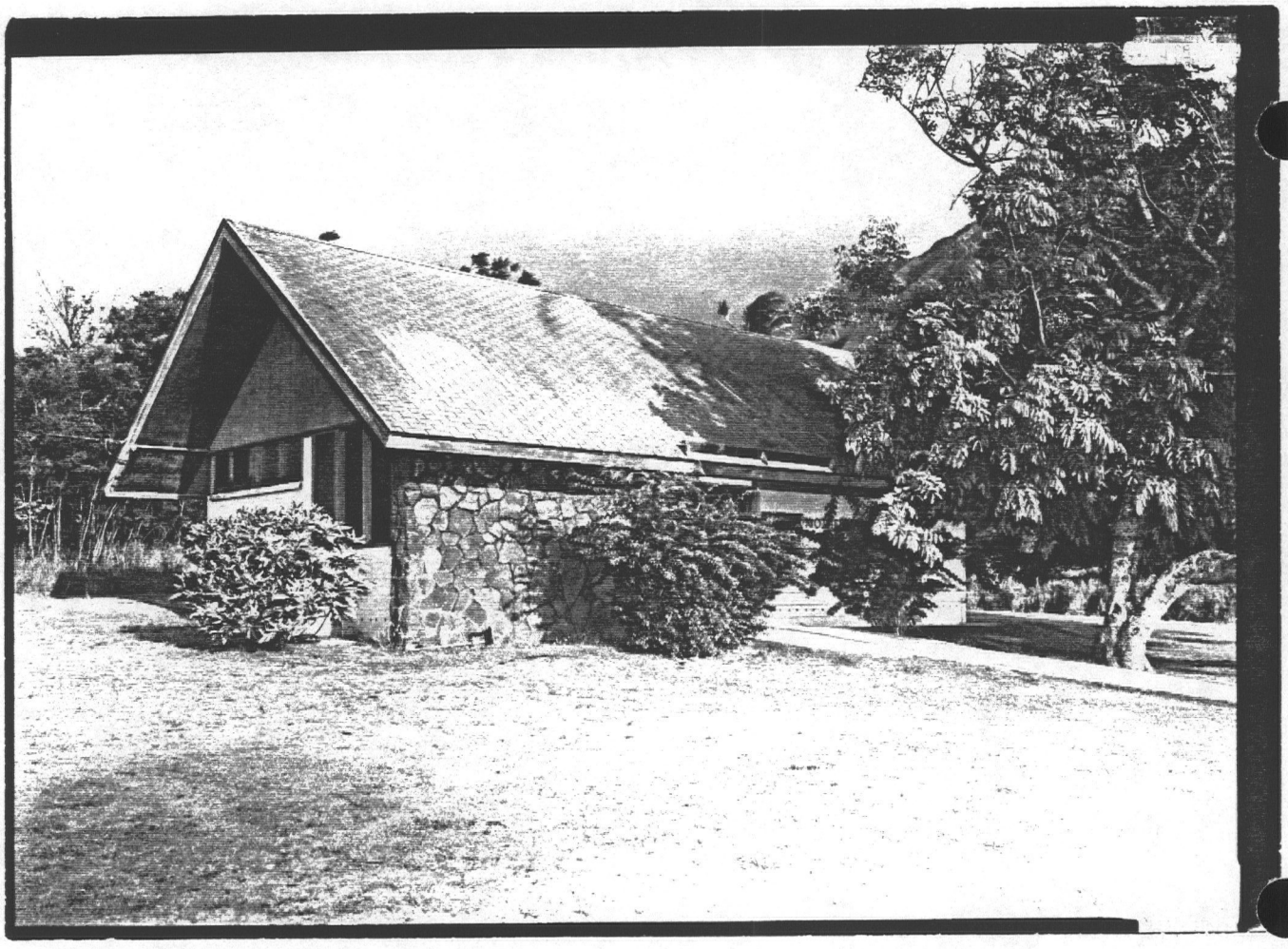
STRUCTURE: Building 695
LOCATION: Airport Road
USE: Beach house
SIZE: Approx. 20 x 40 OWNERSHIP: Private
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a frame building of single wall construction, with a board and batten exterior finish. The combination gable-hip roof is finished with rolled composition roofing material. The building receives intermittent use, and seems to be in fair condition.

HABS PHOTO #
HI-102-1

SIGNIFICANCE: None

MAINTENANCE COST: No estimate
FUTURE MAINTENANCE COST: No estimate
DATE OF REPORT: October 14, 1976

G - 69



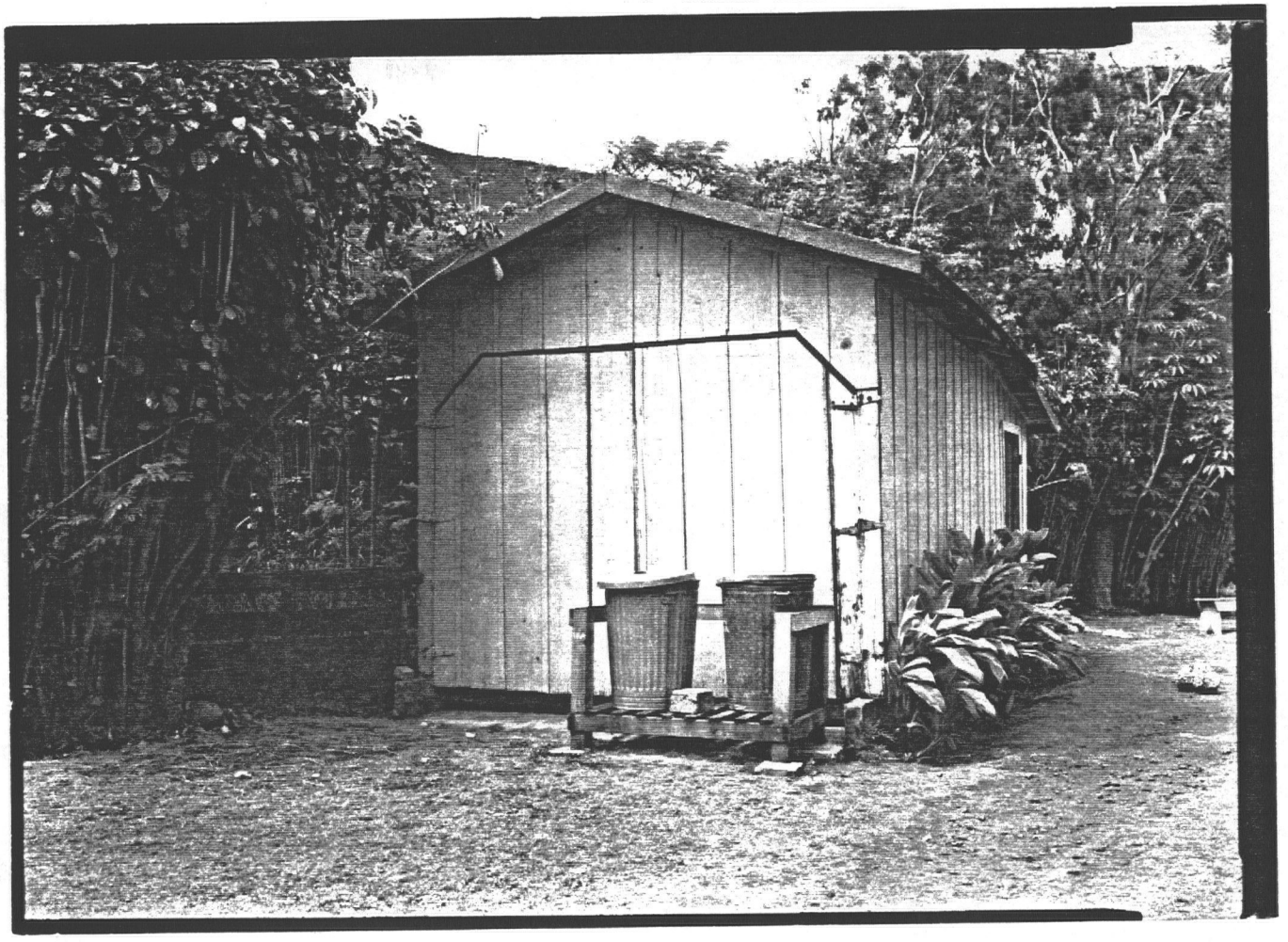
HABS PHOTO #
HI-101-1

STRUCTURE: Building 65-296
LOCATION: Administrative area
USE: Library
SIZE: Approx. 26 x 38 OWNERSHIP: State
DATE OF STRUCTURE: 1965
DESCRIPTION: The building is a hollow tile, frame and stone masonry structure. The foundation is concrete. The gable roof is finished with composition shingles. The entire roof overhangs by approximately four feet. Tie rods and rafters are exposed in the interior. The gable ends are finished with vertical plank siding. The entrance to the building through a glazed double door is located on the west side of the building to the right of the stone wall. The windows are in wood frames and vary from fixed sash to jalousie. The structure is in fair condition. Exterior wood should be painted, and the building should be fumigated. A tree at the west side of the structure should be trimmed to prevent further damage to the roof at that spot. The roof should be repaired.

SIGNIFICANCE:

MAINTENANCE COST: $1540
FUTURE MAINTENANCE COST: $300/annum
DATE OF REPORT: January 17, 1977

G - 70



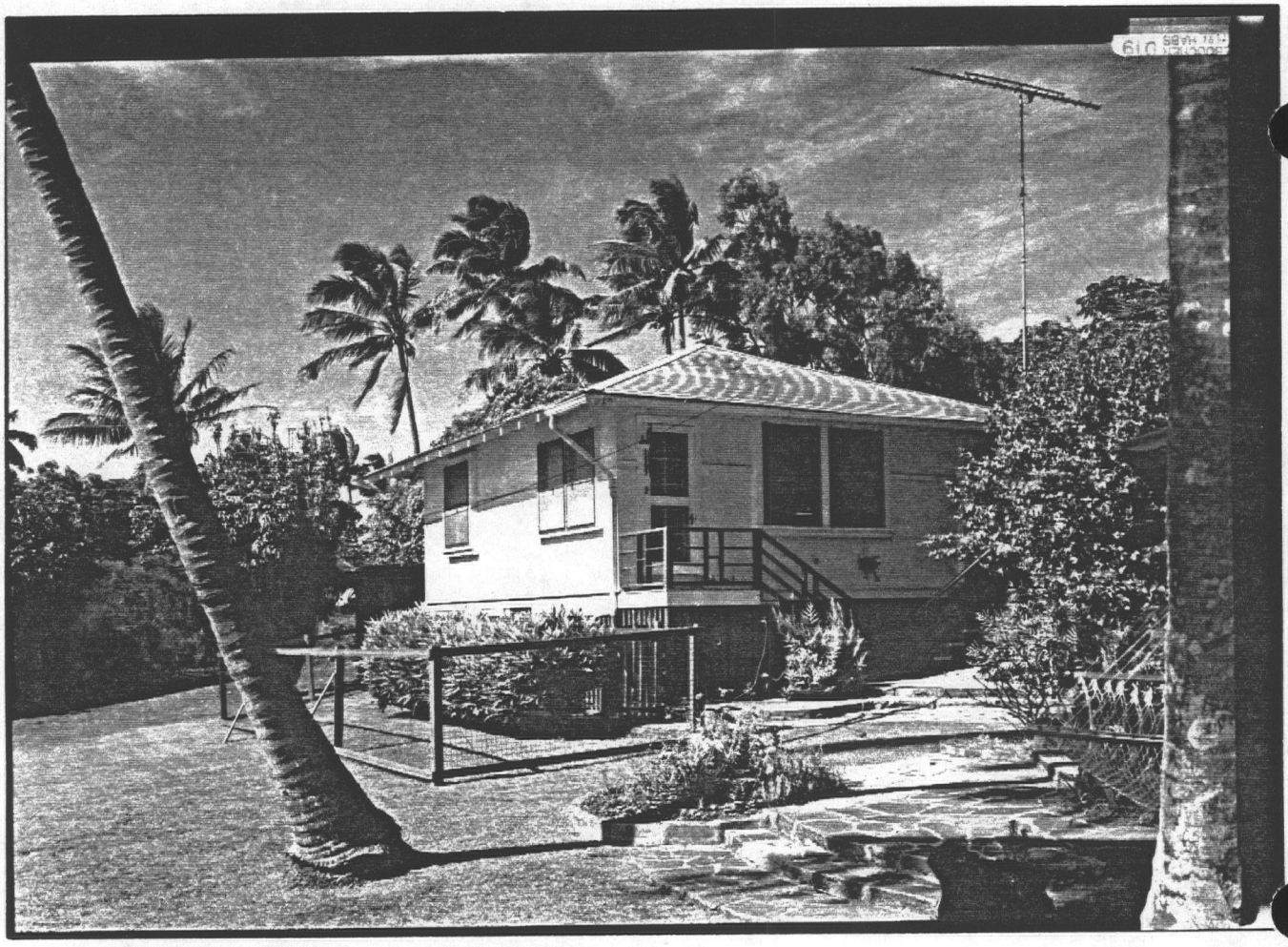
HABS PHOTO #
HI-71-E-2

STRUCTURE: Building 522
LOCATION: Visitors' Quarters
USE: Former garage (?). telephone sub-station
SIZE: Approx. 10 x 19 OWNERSHIP: State
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a frame building of single wall construction with a board and batten exterior finish. The building rests on a concrete foundation. The gable roof (with shed extension covering alteration to rear) is finished with rolled composition roofing material. The main double doors are located at the northeast side of the building. A smaller door is located on the north side. The building is used. and is in fair condition. The structure should be fumigated, and termite damage repaired. The building should be re-roofed and painted. Vegetation should be cleared from the base of the structure.

SIGNIFICANCE: None

MAINTENANCE COST: $2900
FUTURE MAINTENANCE COST: $150/annum
DATE OF REPORT: January 16, 1977

G - 71



HABS PHOTO #
HI-85-G-1

STRUCTURE: Building 11
LOCATION: Bay View Home
USE: Residence
SIZE: Approx. 672 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1936
DESCRIPTION: The structure is a frame building of single wall construction, with a concrete foundation. A recessed corner porch is incorporated under the hip roof in the southwest corner of the building. The corners of the building are finished with cornerboards. A girt encircles the structure, and is broken by the wood frame of the doors and the double-hung windows which project several inches from the exterior of the vertical plank wall. The hip roof is finished with composition shingles. A water table surrounds the sole plate. The concrete footing-and-wood posts foundation is camouflaged by a vertical wood strip skirting. (The poured concrete foundation of the basement washroom is not camouflaged). The building is occupied and in fair condition. Termite damage should be repaired. The building should be fumigated and painted. Vegetation should be cleared from the base of the building.

SIGNIFICANCE: No architectural significance. The building is occupied by the Supervisor of the Bay View Home.

MAINTENANCE COST: $3,500
FUTURE MAINTENANCE COST: $500
DATE OF REPORT: January 16, 1977

STRUCTURE: Building 62-117
LOCATION: Goodhue Street
USE: Residence
SIZE: 880 house, 460 carport + OWNERSHIP: State
DATE OF STRUCTURE: 1962
DESCRIPTION: The structure is a one-story building of single wall construction, with a concrete pad and post foundation. A small wood porch, sheltered by an extension of the gable roof, provides access to the front door. The gable roof is finished with composition shingles. The wood frames of the jalousie windows project several inches from the exterior walls. A continuous girt surrounds most of the exterior of the structure. The girt is broken at the south east corner by two-sash windows, divided vertically. A carport with a shed roof and a concrete slab foundation is located at the southwest corner of the structure. The structure is occupied and seems to be in good condition. The eaves should be painted, to protect them from weather and termites, and the structure should be fumigated.

SIGNIFICANCE: Hicks Home - none

MAINTENANCE COST: $950
FUTURE MAINTENANCE COST: $500/annum
DATE OF REPORT: January 13, 1977

HABS PHOTO #
HI-100-1

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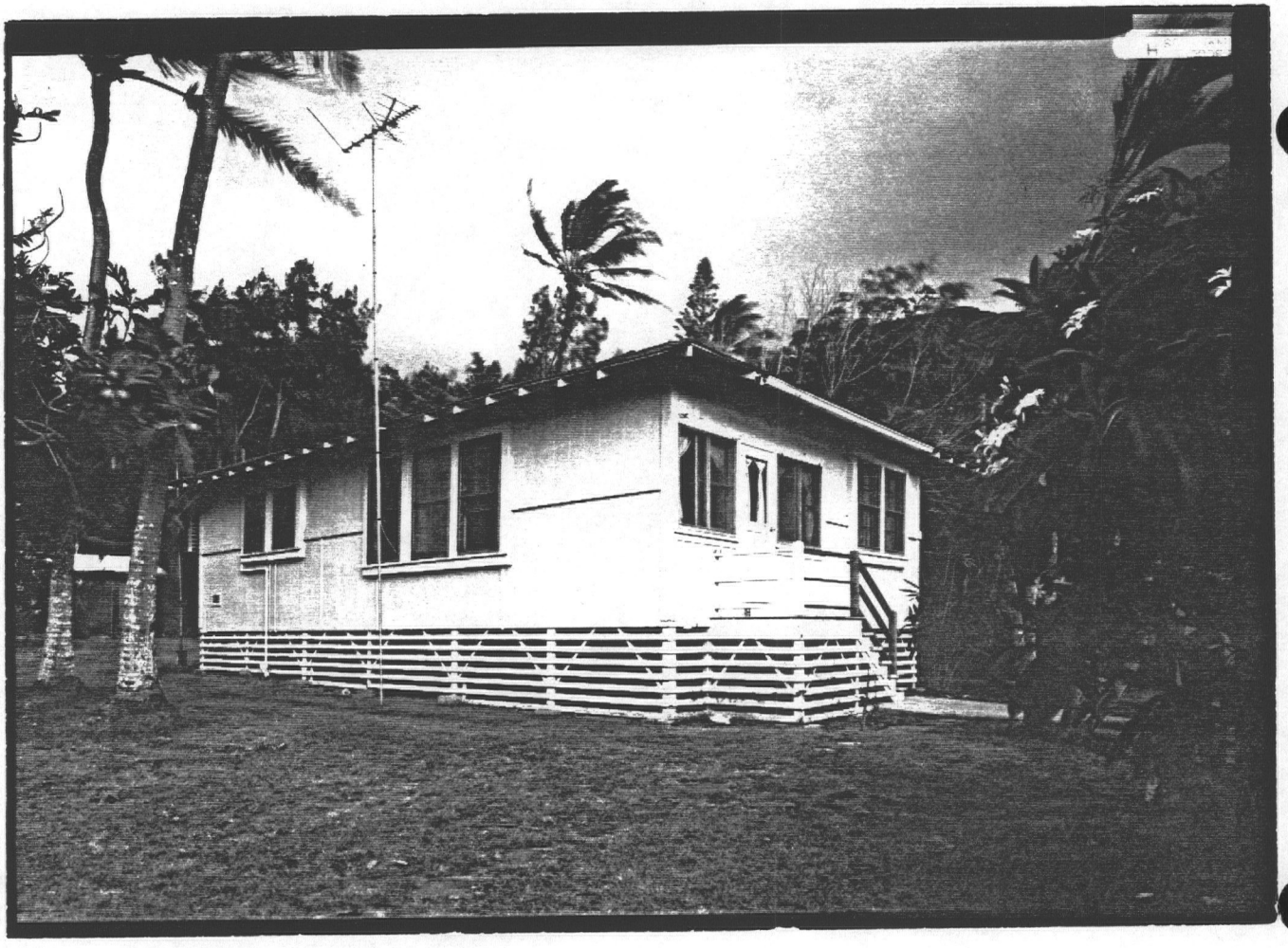
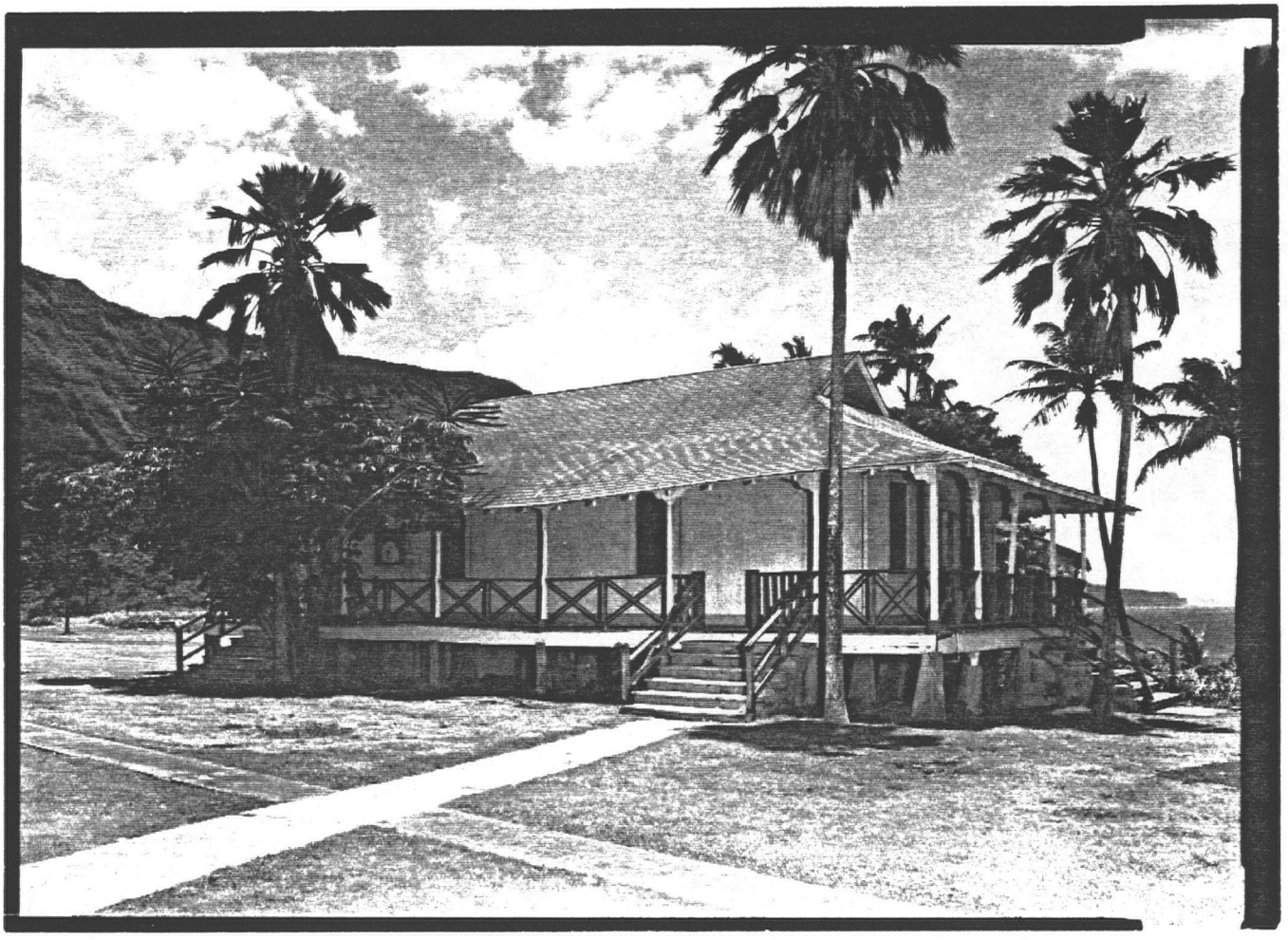


HABS PHOTO #
HI-88-G-3

STRUCTURE: Building 14
LOCATION: Staff Row
USE: Doctor's Residence
SIZE: Approx. 900 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a one-story building of single wall construction, with a concrete pad and post foundation. The hip roof is finished with red composition shingles. A broken girt encircles the exterior of the structure. A water table finishes the lower edges of the structure, and the corners are finished with end boards. The structure has been very recently painted. The building is occupied intermittently, since there is no resident doctor. The structure is in good condition, but should be fumigated.

SIGNIFICANCE: None

MAINTENANCE COST: $800
FUTURE MAINTENANCE COST: $500/annum
DATE OF REPORT: January 12, 1977

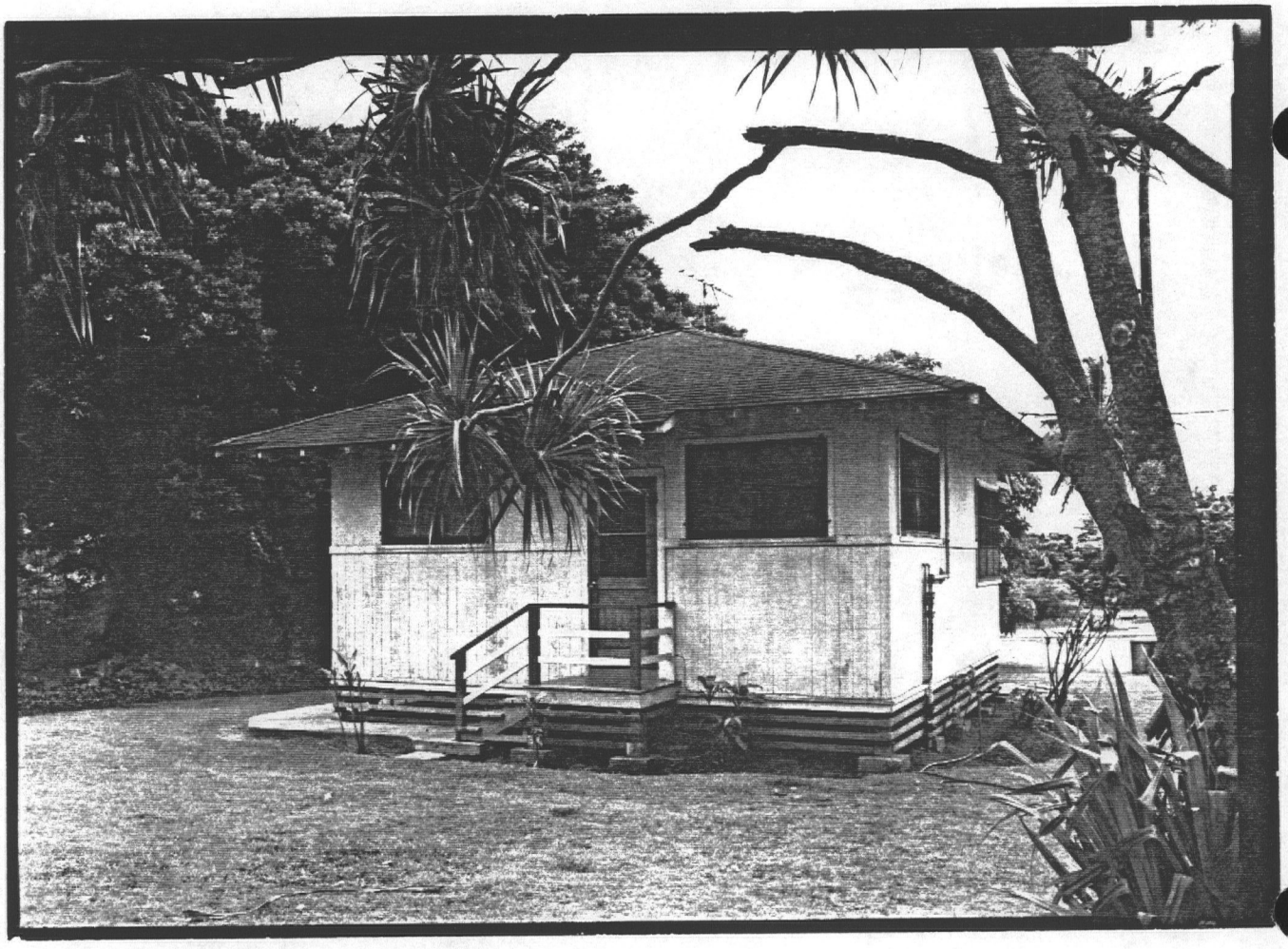


STRUCTURE: Building 6
LOCATION: Bay View Home
USE: Presently Craft Shop, formerly Kitchen and Dining Room
SIZE: Approx. 3000 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1916
DESCRIPTION: The structure is a frame building of single wall construction. The foundation consists of concrete piers. The symmetrical structure has a main section, with one wing nearly as large at the rear (west). The dominant architectural feature of the building is the combination of the intersecting hip roofs, with louvered gablets at the ridges. The veranda with wraps around three sides of the main building section is bordered by a diamond-patterned railing and chamfered posts with jigsawn brackets. The wing at the west side of the building (partially or all an addition?) is constructed on poured concrete and smaller concrete footings. Four sets of steps provide access to the veranda for the north (1), east (2) and south (1). The walls are vertical plank siding. Windows are usually double hung (twelve light). The building is in poor condition. The foundation, siding, roof, chimney, as well as other major parts need repair. The building should be paint, interior and exterior. When the structure need re-roofing again, the original material should be replaced (wood shingles). The building should be fumigated. For further details, see cost estimate sheets.
SIGNIFICANCE: Seems to be altered - needs more research. An integral park historically and architecturally of the Bay View Home.

HABS PHOTO #
HI-85-E-3

MAINTENANCE COST: $25,800
FUTURE MAINTENANCE COST: $1,200/annum
DATE OF REPORT: January 15, 1977

G - 75



HABS PHOTO #
HI-88-I-3

STRUCTURE: Building SR-1-A
LOCATION: Staff Row
USE: Guest Cottage
SIZE: Approx. 675 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a one-story building of single wall construction. The hip roof is finished with red composition shingles. The foundation consists of concrete pads and posts. A broken girt encircles the exterior of the structure. A shed roof, which extends from the west side of the structure, shelters a small wood porch which provides access to the front door. A water table finishes the lower edge of the structure. The structure is used intermittently as a guest house for non-patient guests, and living quarters for visiting outside staff members on duty tours. The structure is in fair to good condition, and in need of fumigation and painting.

SIGNIFICANCE: None

MAINTENANCE COST: $2250.
FUTURE MAINTENANCE COST: $400/annum
DATE OF REPORT: January 12, 1977

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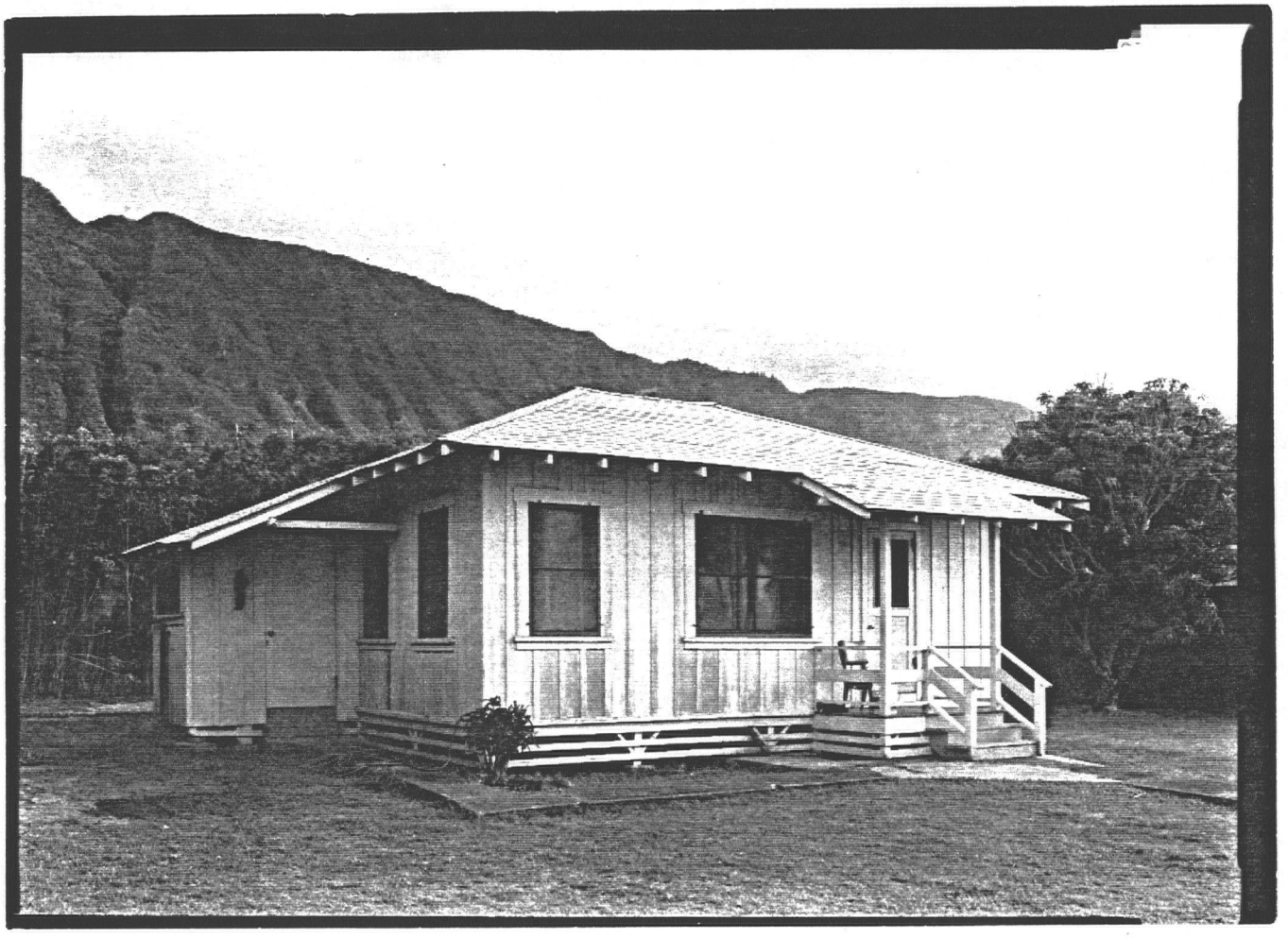


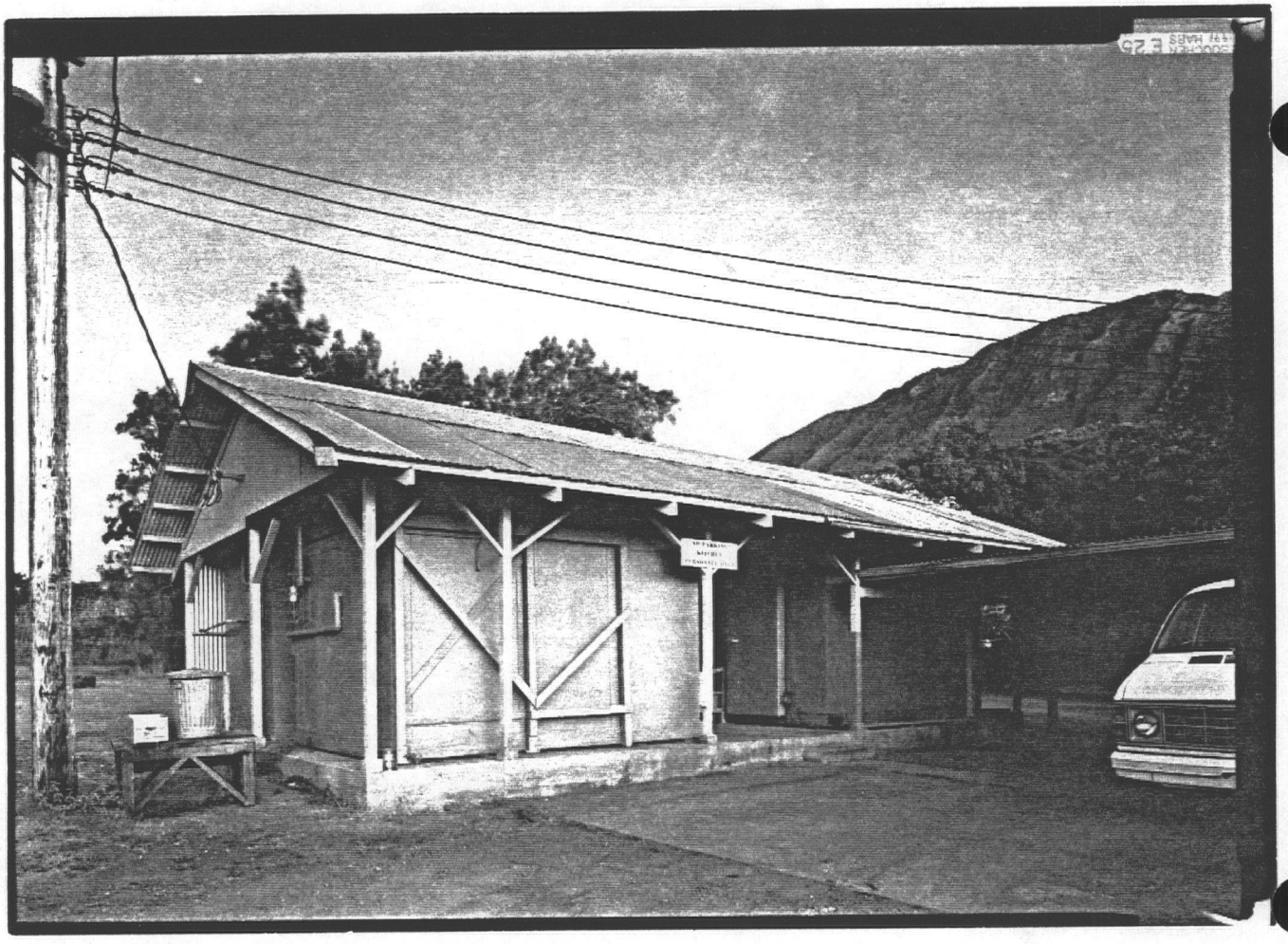
STRUCTURE: Building 64
LOCATION: Bay View Home
USE: Residence
SIZE: Approx. 624 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a frame building of single wall construction, with a board and batten exterior finish. The foundation is made up of stone and concrete footings and wood posts. The foundation is camouflaged by horizontal wood strips. The hip roof is finished with composition shingles. A partially enclosed wash room with a shed roof, is constructed on a concrete pad at the rear of the building. The building is occupied and seems to be in fair condition. The structure should be fumigated. Termite damaged wood should be replaced. Vegetation should be cleared from the base. The building should be painted.

SIGNIFICANCE:

MAINTENANCE COST: $2120
FUTURE MAINTENANCE COST: $400/annum
DATE OF REPORT: January 15, 1977

HABS PHOTO #
HI-85-F-2

G - 77



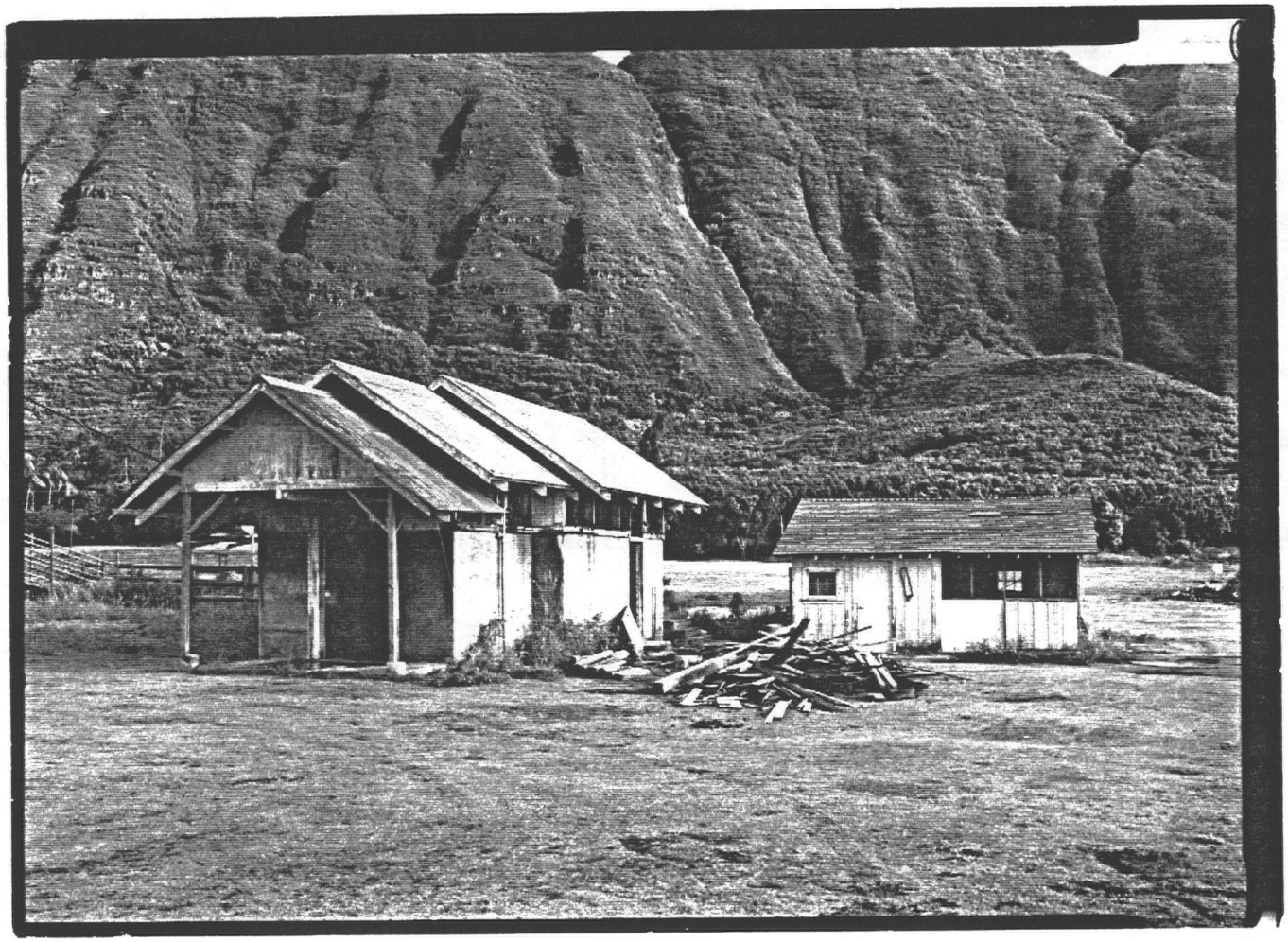
STRUCTURE: Building 6
LOCATION: Staff Row
USE: Freezer Shelter
SIZE: 28 x 40 OWNERSHIP: State
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a frame building with a gable roof and a concrete slab foundation. The roof, gable ends, and the east side are finished with corrugated metal. The building is connected to the dining hall (Building 5) immediately to the west of it by a walkway covered with a corrugated metal roof. The structure houses the freezers for the dining hall. The building is in good condition. Ferns growing from the base of the freezer should be removed.

HABS PHOTO #
HI-88-E-1

SIGNIFICANCE: None

MAINTENANCE COST: $50
FUTURE MAINTENANCE COST: $100/annum
DATE OF REPORT: January 12, 1977

G - 78



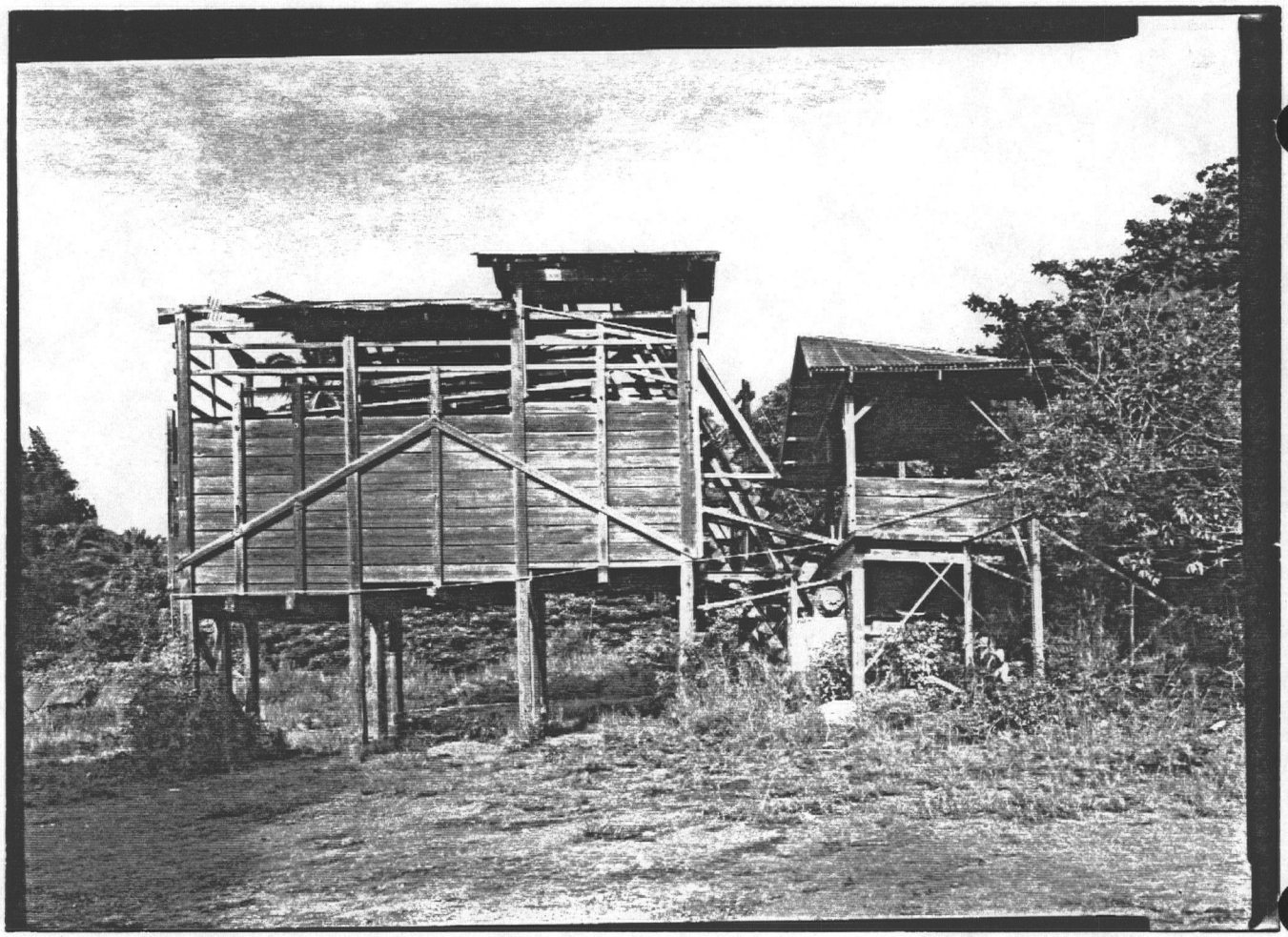
HABS PHOTO #
HI-97-1

STRUCTURE: Building 630
LOCATION: Slaughter house
USE: Slaughter house
SIZE: Approx. 450 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a reinforced concrete and frame building (lower 2/3 concrete, upper 1/3 and roof, frame), with a concrete foundation. The gable roof is divided into three sections, and is covered with corrugated metal. Attached to the building on the southeast side are a corral and chute. The building is used once a month, for slaughter. The structure is in fair condition, for a slaughter house. The building should be fumigated to protect the wood from termites. The interior and exterior should be cleaned and painted.

SIGNIFICANCE: No known

MAINTENANCE COST: $2,300
FUTURE MAINTENANCE COST: $200/annum
DATE OF REPORT: January 15, 1977

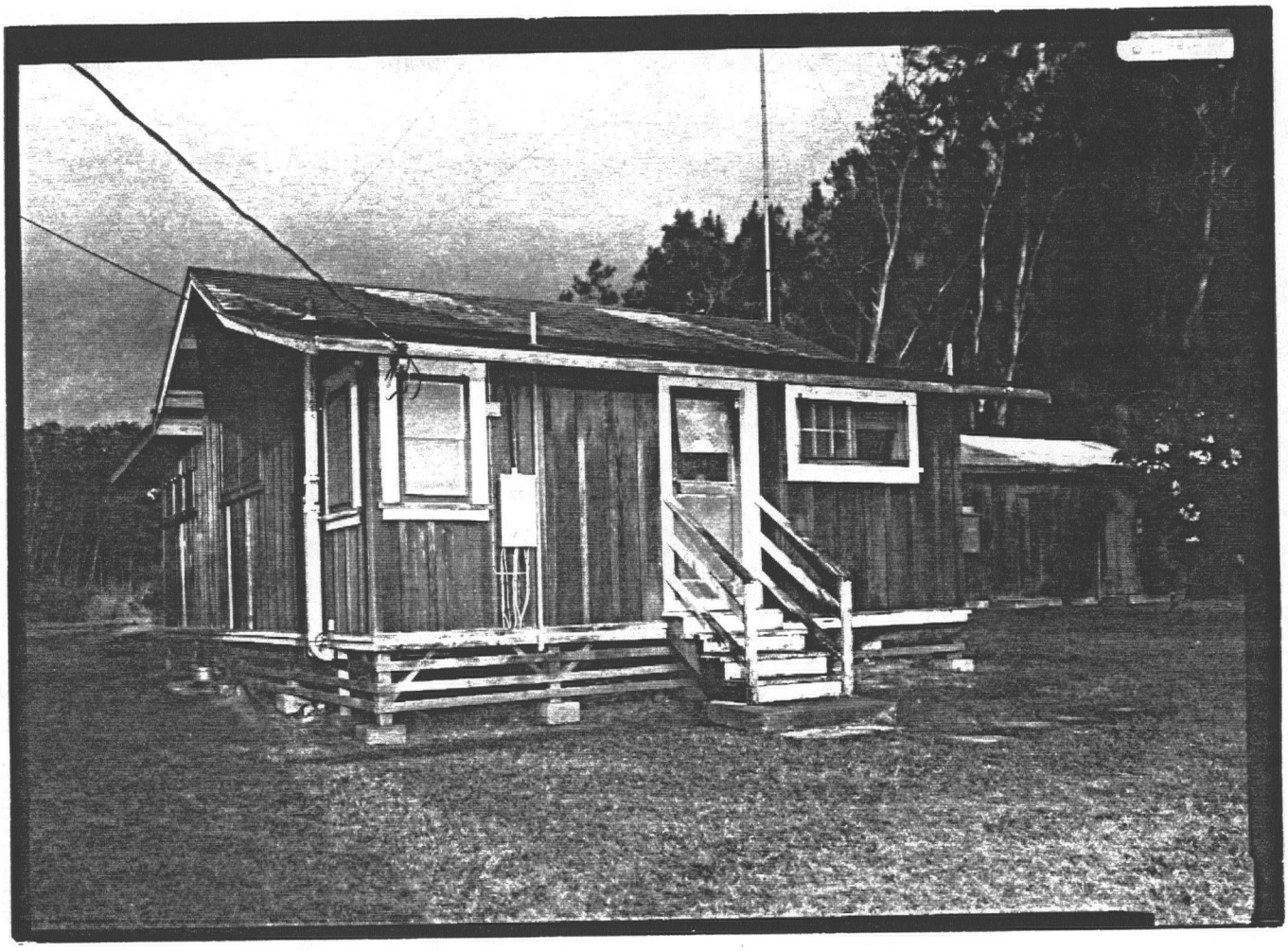
G - 79



STRUCTURE: Structure 635 HABS PHOTO #
LOCATION: Former Baldwin Home HI-89-2
USE: Rock Crusher and gravel separator
SIZE: Approx. 20 x 50 OWNERSHIP: State
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a timber frame rock crushed and gravel separator, with each section appropriately divided (one crushed, 3 separators for different sizes). The gable and shed roofs which protect the structure are covered with corrugated metal. The structure seems to be in fair condition.

SIGNIFICANCE: None

MAINTENANCE COST: No estimate G - 80
FUTURE MAINTENANCE COST: No estimate
DATE OF REPORT: January 15, 1977



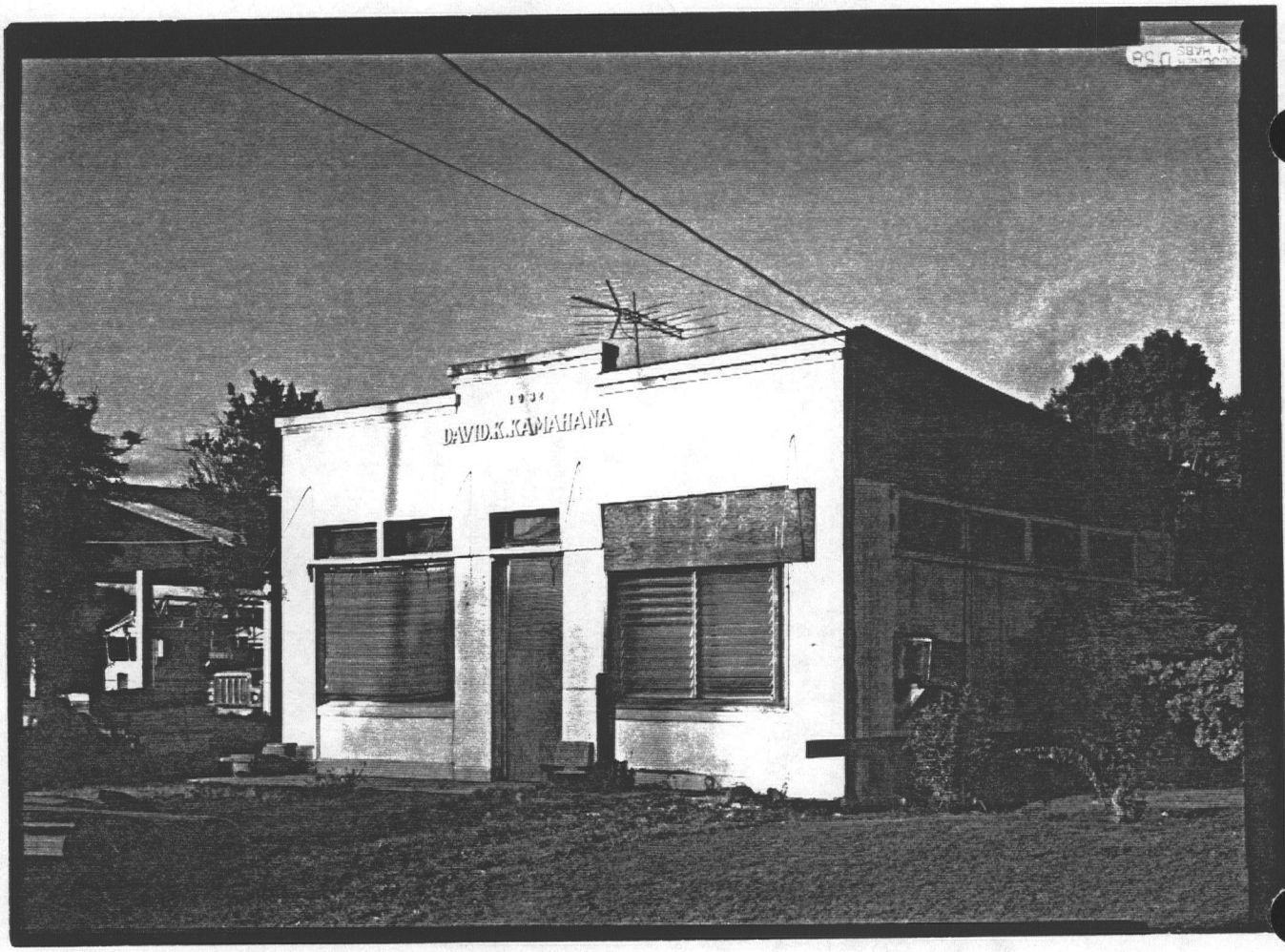
HABS PHOTO #
HI-88-D-2

STRUCTURE: Building 16
LOCATION: Staff Row
USE: Electrician's Residence
SIZE: Approx. 350 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a one-story building of single wall construction (board and batten), with a concrete pad and post foundation. The gable roof, with a shed extension at the front of the structure is finished with rolled composition roofing material. Wood steps provide access to the front door. A water table encircles the base of the structure. The building is occupied, but in poor condition. In order to keep the building in a maintenance state, the rotted eaves and decking should be replaced, as well as other wood throughout the structure: the building should be re-roofed, painted, and fumigated.

SIGNIFICANCE: The structure is probably one of the outbuildings dating back to the early days of staff row (circa the turn of the century), however, is not of enough architectural or historical significance to warrant long term preservation. Removal is recommended after the structure no longer is used.

MAINTENANCE COST: $3200.
FUTURE MAINTENANCE COST: $300
DATE OF REPORT: January 12, 1977

G - 81



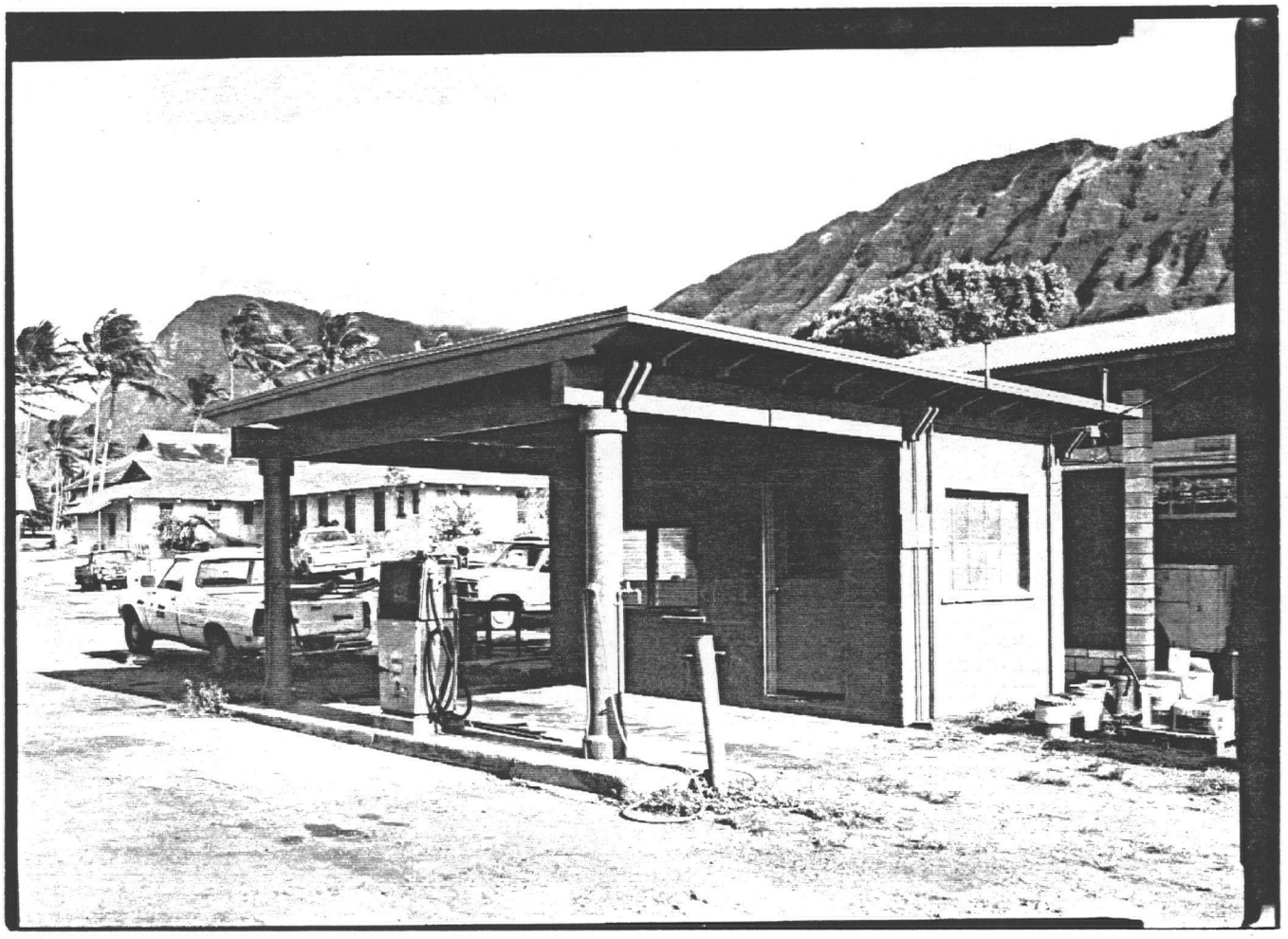
STRUCTURE: Building 260
LOCATION: Kamehameha Street
USE: Storage at present
SIZE: Approx. 25 x 40 OWNERSHIP: Private
DATE OF STRUCTURE: 1932
DESCRIPTION: The structure is a frame building. The front section of the building has an exterior finish of stucco. The rear (storage) section is vertical plank siding, and is probably of single wall construction. The building has a symmetrical facade, with a door flanked by two picture windows. A series of five windows is located above the door and main windows. A small shed roof runs the length of the front of the structure. A parapet which runs along the roofline is broken, and raised several inches to articulate the front entrance. The structure is used for storage at this time, although a resident plans to turn the building into a museum. The structure is overgrown, and seems to be in fair to poor condition.

HABS PHOTO #
HI-86-1

SIGNIFICANCE: None

MAINTENANCE COST: No estimate
FUTURE MAINTENANCE COST: No estimate
DATE OF REPORT: October 14, 1976

G - 82



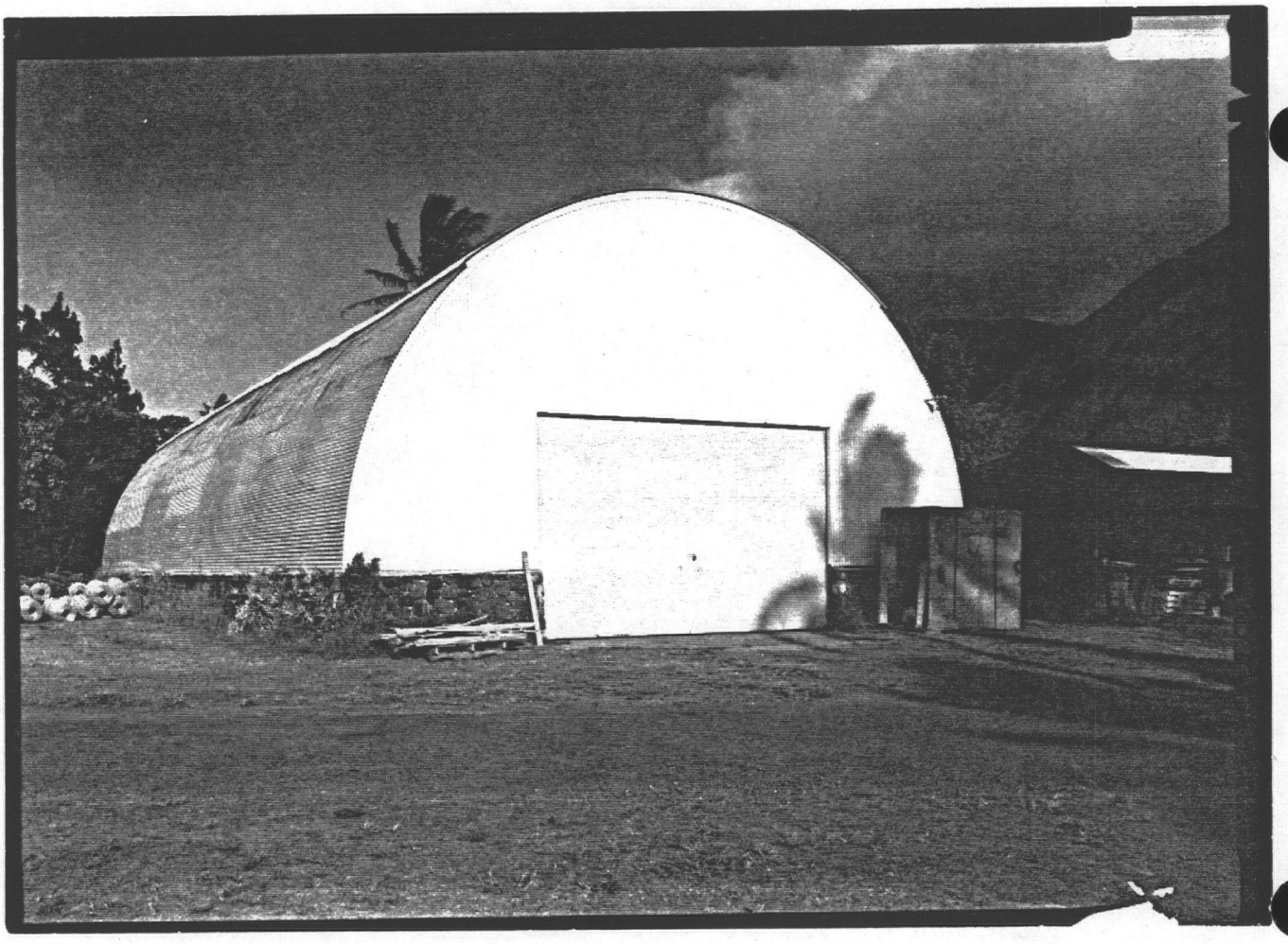
STRUCTURE: Building 258 (258 a)
LOCATION: Maintenance yard, next to construction camp
USE: Gas station (temporarily out of commission)
SIZE: Approx. 20 x 30 OWNERSHIP: State
DATE OF STRUCTURE: Unknown
DESCRIPTION: The building is a hollow tile structure with a flat (wood frame). The building's exterior finisn is cement stucco. A portico at the front (north) of the structure shelters the gas pump and the drive-in section. The columns supporting the portico are simple, round pillars, with circular capitals. The windows are both metal and wood frame. The structure is rapidly deteriorating. The building houses the air compressor and other equipment. The building should be fumigated, re-roofed, cleaned and painted.

SIGNIFICANCE: None, but the building does have a funny classical feeling.

MAINTENANCE COST: $2180
FUTURE MAINTENANCE COST: $200/annum
DATE OF REPORT: January 26, 1977

HABS PHOTO #
HI-110-1

G - 83



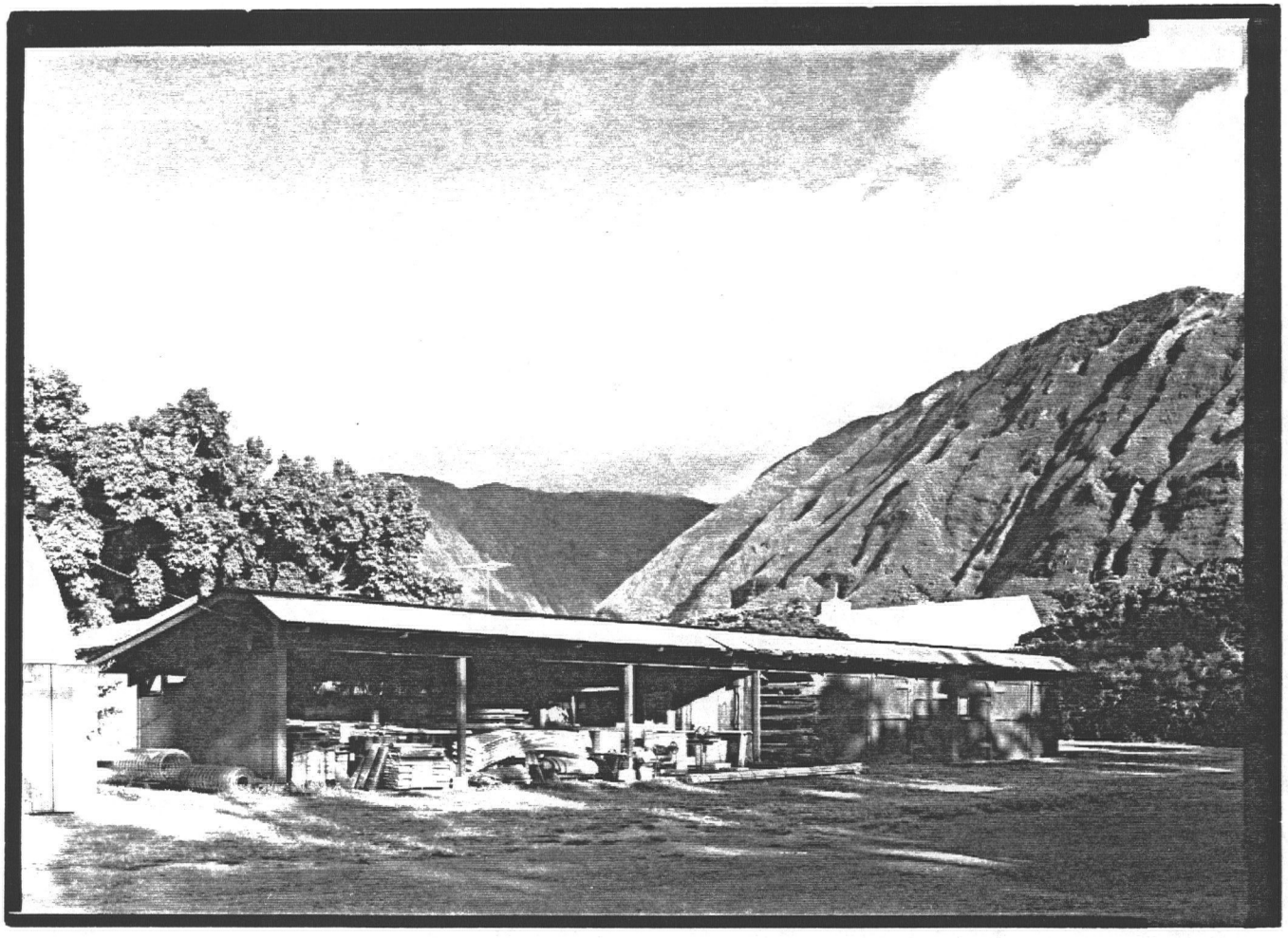
HABS PHOTO #
HI-120-2

STRUCTURE: Building 263-A
LOCATION: Damien Road, Industrial Center
USE: Storage (building materials)
SIZE: Approx. 46 x 100 OWNERSHIP: State
DATE OF STRUCTURE: 1950
DESCRIPTION: The structure is a large quonset hut constructed on a stone and concrete foundation. The stone walls rise approximately four feet above grade. The metal structural members are supported by the stone walls. The semi-cylindrical structure is covered with corrugated metal. Several jalousie windows are located on the long sides of the building. Double metal sliding doors (factory-type) are located at the flat west wall. The building is used for storage, and seems to be in fair condition. Vegetation should be kept clear of the building. The structure should be painted (metal only). Fumigation is recommended, because the building houses lumber. Some of the lumber is new and has been treated; other lumber has been reclaimed from abandoned structures and could have termites.

SIGNIFICANCE: None

MAINTENANCE COST: $6400
FUTURE MAINTENANCE COST: $800/annum
DATE OF REPORT: January 18, 1977

G - 84



STRUCTURE: Building 263
LOCATION: Industrial center
USE: Storage (mainly plumbing supplied)
SIZE: Approx. 20 x 106 OWNERSHIP: State
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a wood frame building with a corrugated metal shed roof. The building is divided into stalls, some of which are enclosed with vertical plank walls and some of which are open. The foundation is concrete. The structure is in fair to poor condition. The building should be fumigated. Termite damage should be repaired. Vegetation should be cleared from the base of the structure. The building should be painted (walls, roof and posts) to further protect it from weathering and termites.

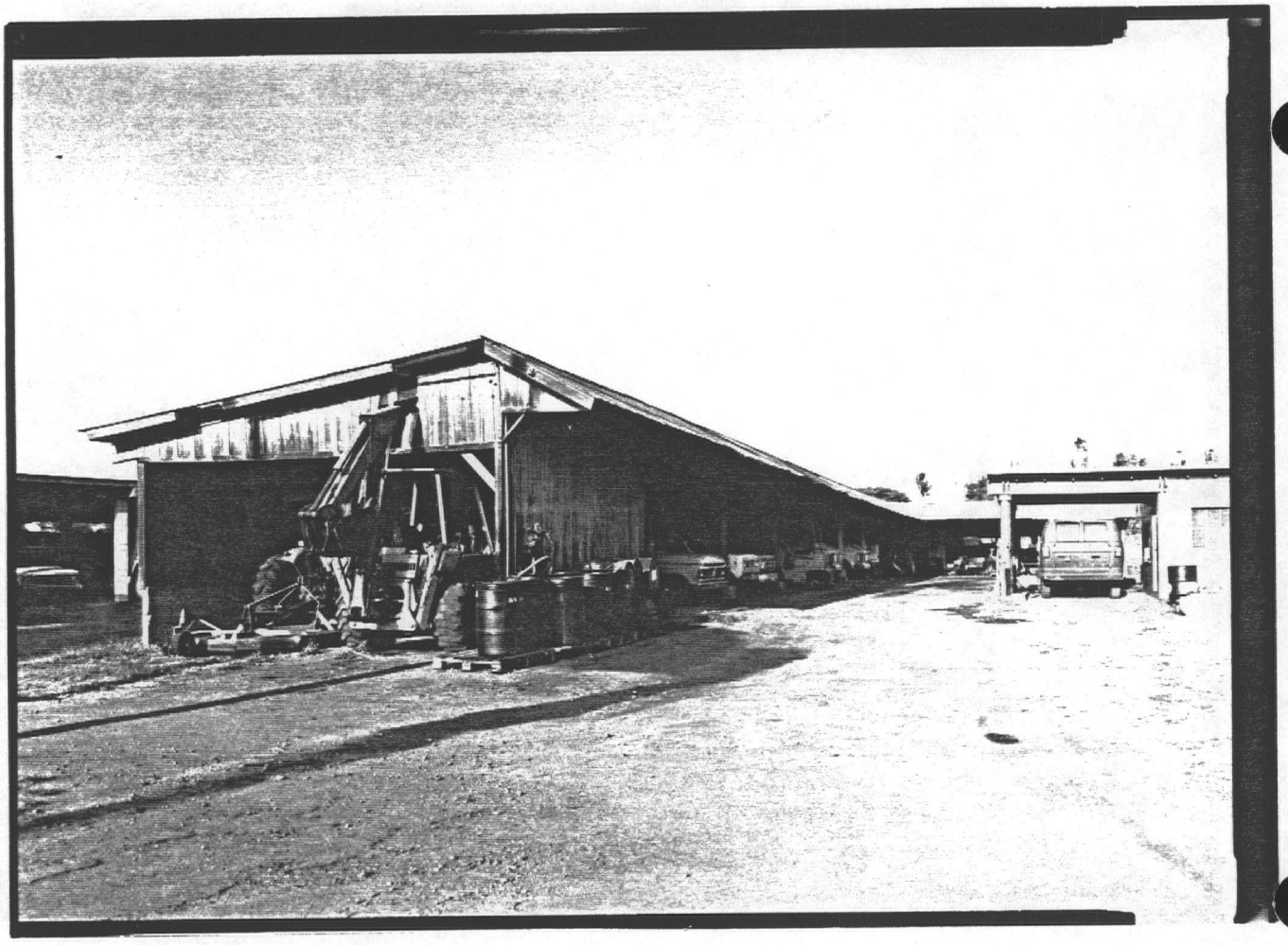
APPEARS TO BE NEW CONSTRUCTION AT NORTH (LEFT) END

SIGNIFICANCE: None

MAINTENANCE COST: $4600
FUTURE MAINTENANCE COST: $300/annum
DATE OF REPORT: January 18. 1977

HABS PHOTO #
HI-119-1

G - 85



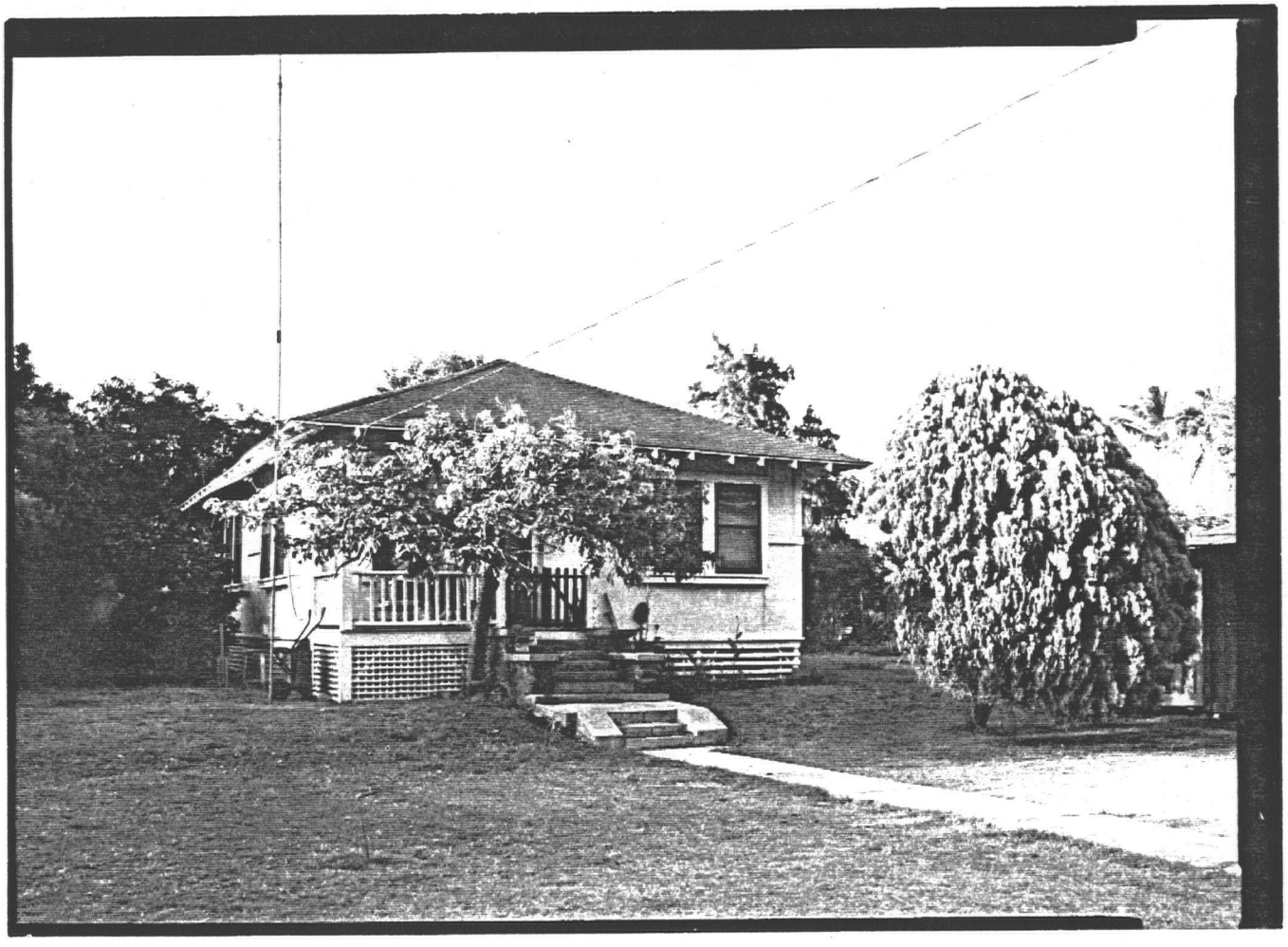
STRUCTURE: Building 259
LOCATION: Construction camp
USE: Storage (vehicles and other)
SIZE: Approx. 3500 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a frame building of single wall construction, with a board and batten exterior finish. The foundation is concrete. The shed roof is covered with corrugated metal. The building is divided into open stalls, most of which are twenty feet wide. The structure is in poor condition. One section of the north wall has been broken through (practically driven through) and should be repaired. Termite damage should be repaired. Vegetation should be cleared from around the structure to prevent further damage from termites and rot. The building should be painted and fumigated.

HABS PHOTO #
HI-111-1

SIGNIFICANCE: None

MAINTENANCE COST: $10,050
FUTURE MAINTENANCE COST: $400/annum
DATE OF REPORT: January 26, 1977

G - 86



HABS PHOTO #
HI-112-1

STRUCTURE: Building 53
LOCATION: Kilohana Street
USE: Residence
SIZE: Approx. 900 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1932
DESCRIPTION: The structure is a one-story frame building of single wall construction, with a stone pad and post foundation. Stone and concrete steps provide access to the recessed corner porch which is incorporated under the hip roof. One chamfered post and two chamfered pilasters articulate the edges of the porch. The corners of the building are finished with cornerboards. A girt encircles the structure, and is broken by the wood frames of the double hung windows which project several inches from the exterior of the vertical plank wall. An enclosed wash room, with a shed roof and a stone pad foundation, is located at the rear of the building. The structure is in poor condition. Termite damage should be repaired and vegetation should be fumigated, re-roofed and painted.

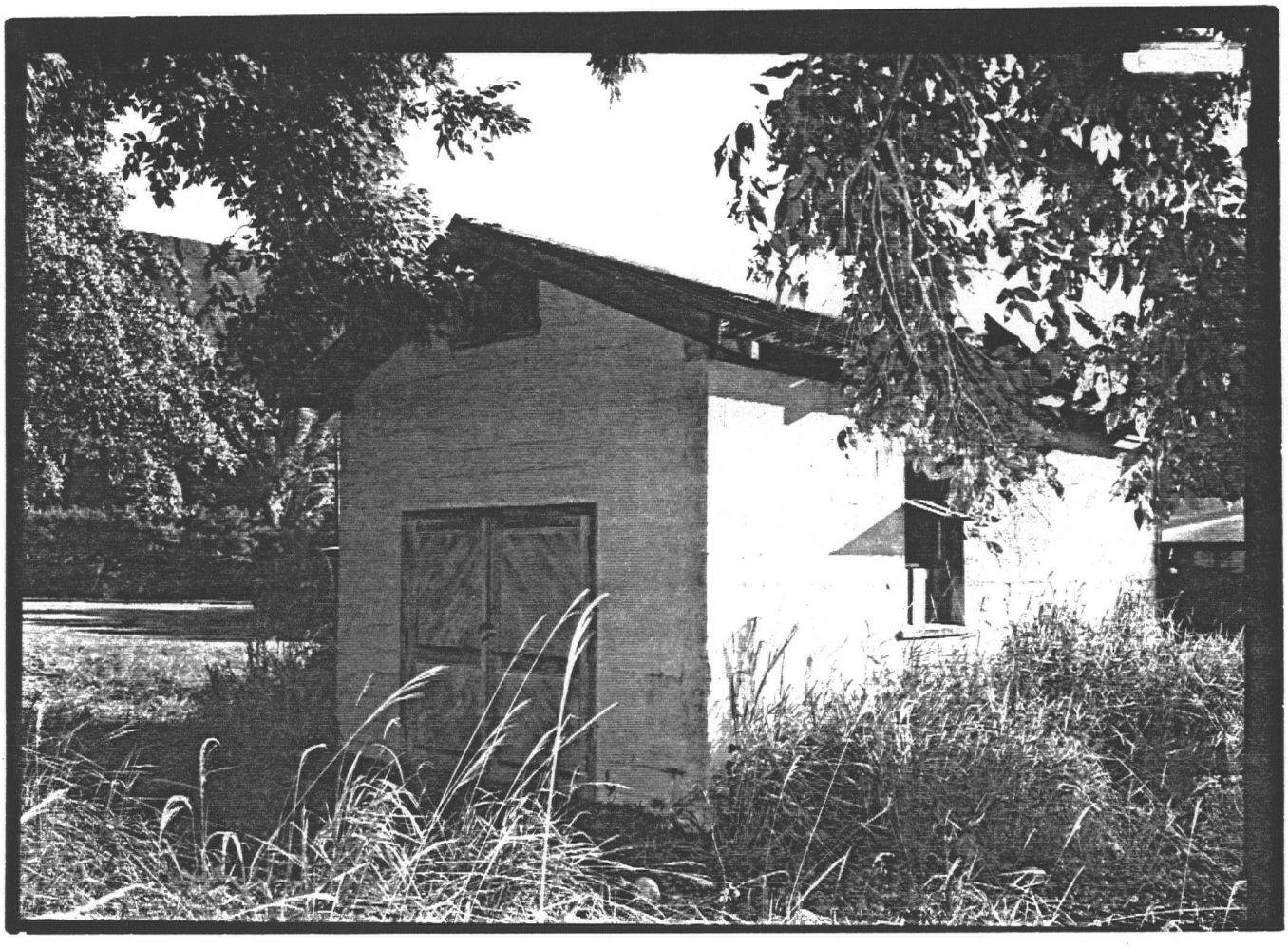
SIGNIFICANCE: One of many, in terms of style. The structure (according to Kalaupapa residents) is built on a heiau. The building and yard are kapu for women. It is considered defiant to live there. Since the building was constructed, six persons have lived there - two men and four women. The men have had no real problems. The women have all dead, fairly young - one only 34. Archeological study is highly recommended, to confirm the heiau site and to take proper action.

MAINTENANCE COST: $6700
FUTURE MAINTENANCE COST: $400/annum
DATE OF REPORT: January 26, 1977

G - 87

NO PHOTO AVAILABLE

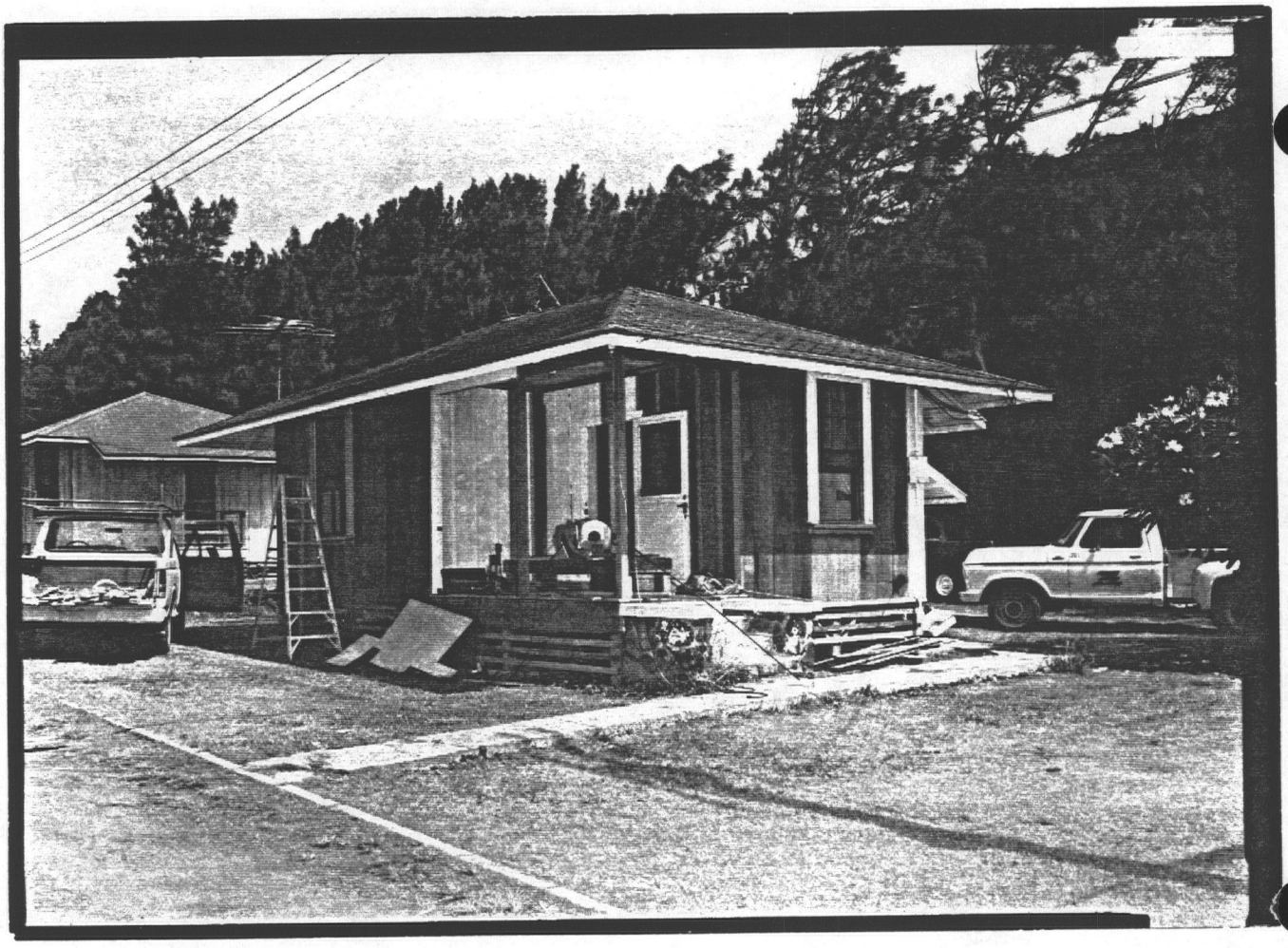
STRUCTURE: BUILDING 266, NOW DEMEOLISHED
LOCATION: INDUSTRIAL AREA, NORTH OF BUILDING 267/8
USE: ELECTRIACL SHOP
SIZE: 20 X 40 OWNERSHIP: STATE
DATE OF STRUCTURE: 1929
DESCRIPTION: The structure was demeolished sometime after 1977



STRUCTURE: Building 262 HABS PHOTO #
LOCATION: Behind plumbing wash house HI-121-1
USE: Abandoned crematory
SIZE: Approx. 15 x 29 OWNERSHIP: State
DATE OF STRUCTURE: 1928
DESCRIPTION: The structure is a hollow tile building with a gable roof covered with corrugated metal. The building has nine-light metal industrial windows (fixed and hinged sash). The structure is in poor condition, and is being overgrown with koa. It is assumed that the building is no longer used. Removal is recommended.

SIGNIFICANCE: None

MAINTENANCE COST: No estimate G - 89
FUTURE MAINTENANCE COST: No estimate
DATE OF REPORT: January 18, 1977



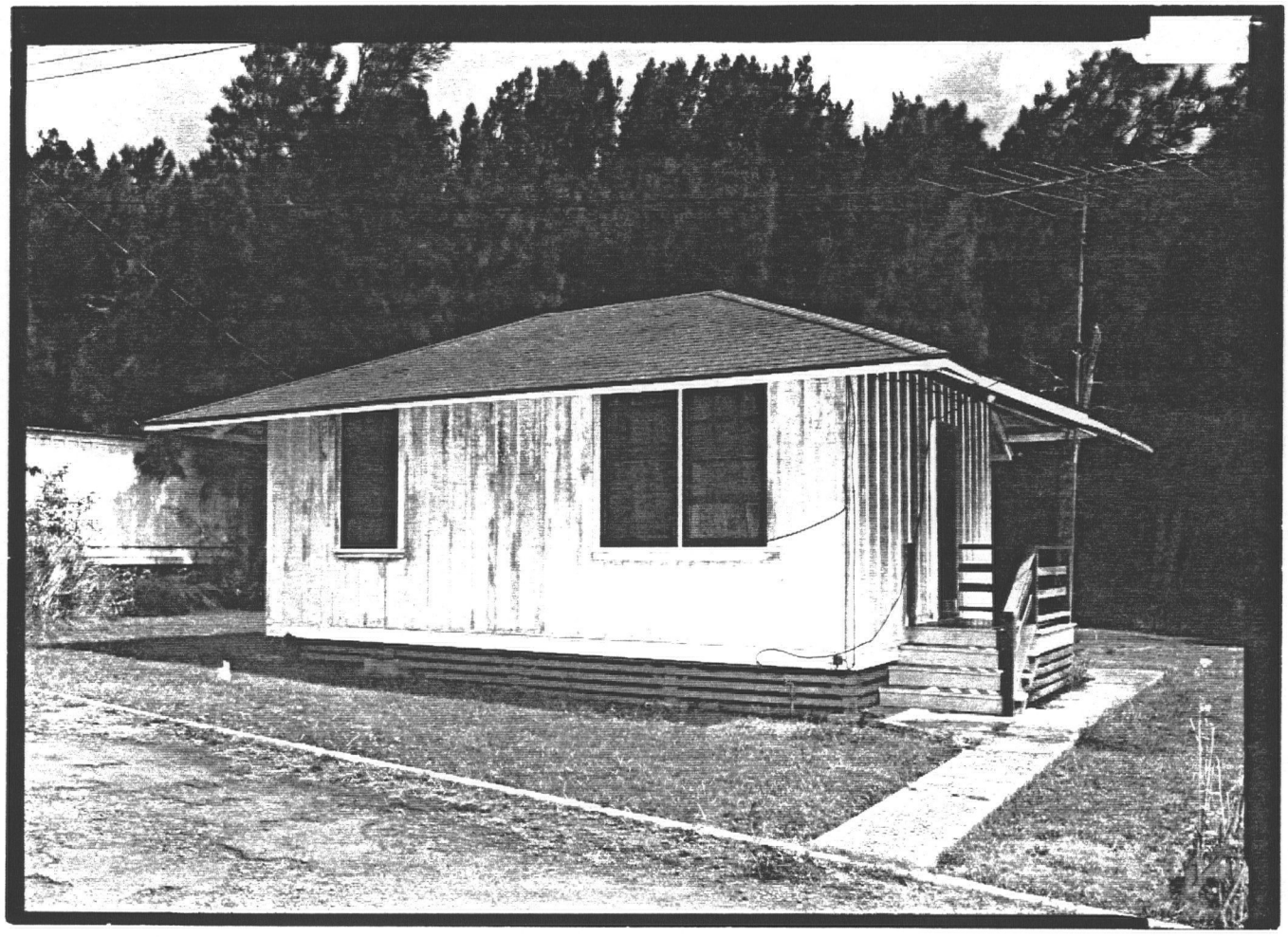
STRUCTURE: Building 1
LOCATION: McVeigh Home
USE: Residence
SIZE: Approx. 500 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1933
DESCRIPTION: The structure is a one-story building of single wall construction (board and batten), with a concrete pad and post foundation. The hip roof is finished with composition shingles. Concrete and stone steps provide access to the recessed corner porch which is incorporated under the hip roof. The wood window frames of the 12-light double hung windows project several inches from the exterior wall. A wash house section, constructed on a concrete slab and with a shed roof, is located at the rear of the T-shaped structure. The building is occupied, and is in good condition, although in need of painting (particularly window sills)

SIGNIFICANCE: Part of McVeigh Home

MAINTENANCE COST: $2000
FUTURE MAINTENANCE COST: $350/annum
DATE OF REPORT: January 11, 1977

HABS PHOTO #
HI-95-B-1

G - 90



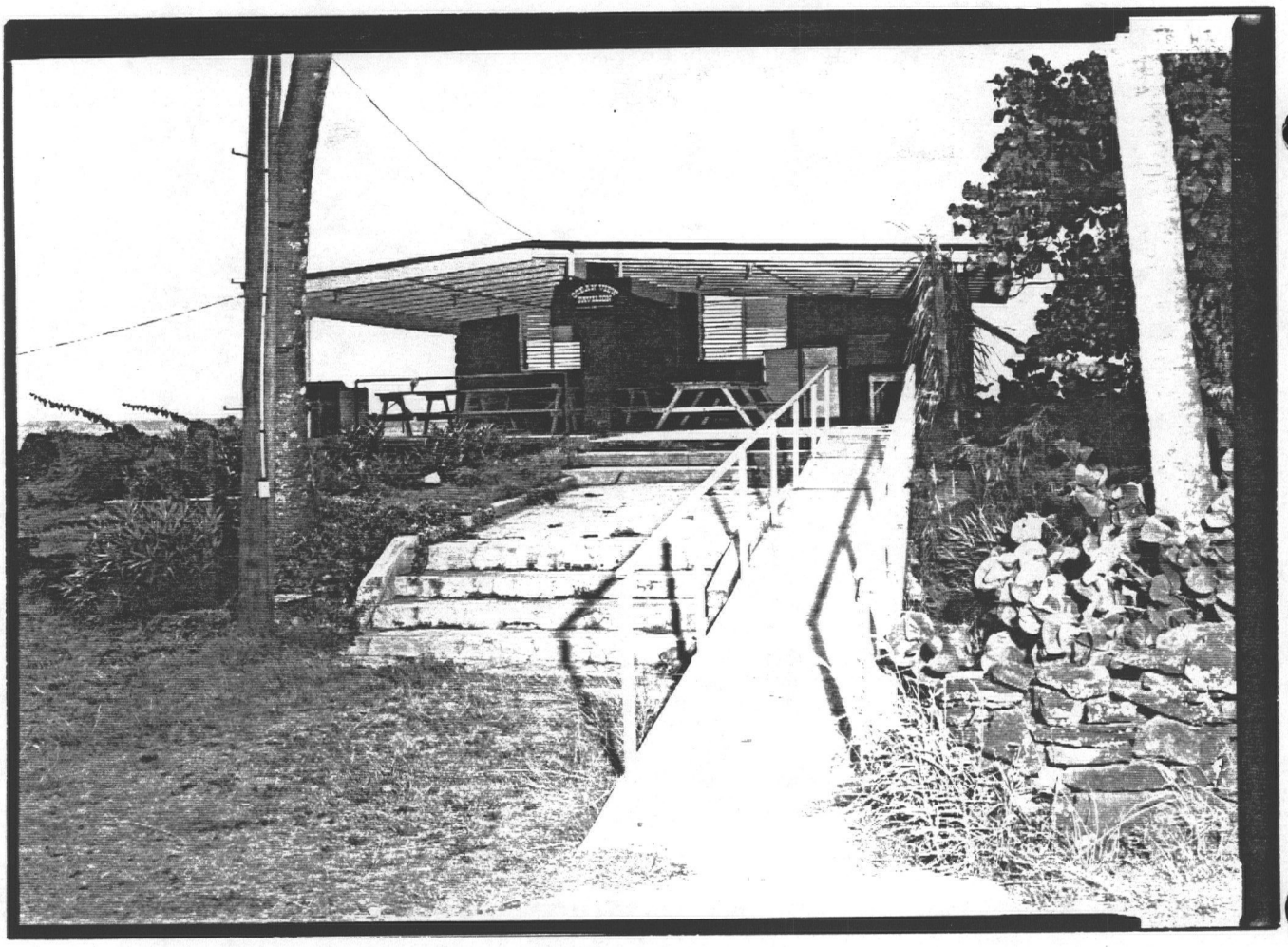
STRUCTURE: Building 2
LOCATION: McVeigh Home
USE: Residence
SIZE: Approx. 500 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1933
DESCRIPTION: The one-bedroom structure is a one-story building of single wall construction (board and batten), with a concrete pad and post foundation. The hip roof is finished with composition shingles. A small wooden porch with a shed roof is located at the west side of the building. The wood window frames of the 12-light double-hung windows project several inches from the exterior wall. A wash house area, constructed on a concrete slab and with a shed roof, is located at the rear of the T-shaped structure. The building is assigned to a patient, but is presently unoccupied. The structure is in poor condition. Vegetation should be cleared from the base of the structure. The building should be fumigated, boards deteriorated by termites should be replaced, and the structure painted.

HABS PHOTO #
HI-95-C-1

SIGNIFICANCE: McVeigh Home

MAINTENANCE COST: $2500
FUTURE MAINTENANCE COST: $400/annum
DATE OF REPORT: January 11, 1977

G - 91

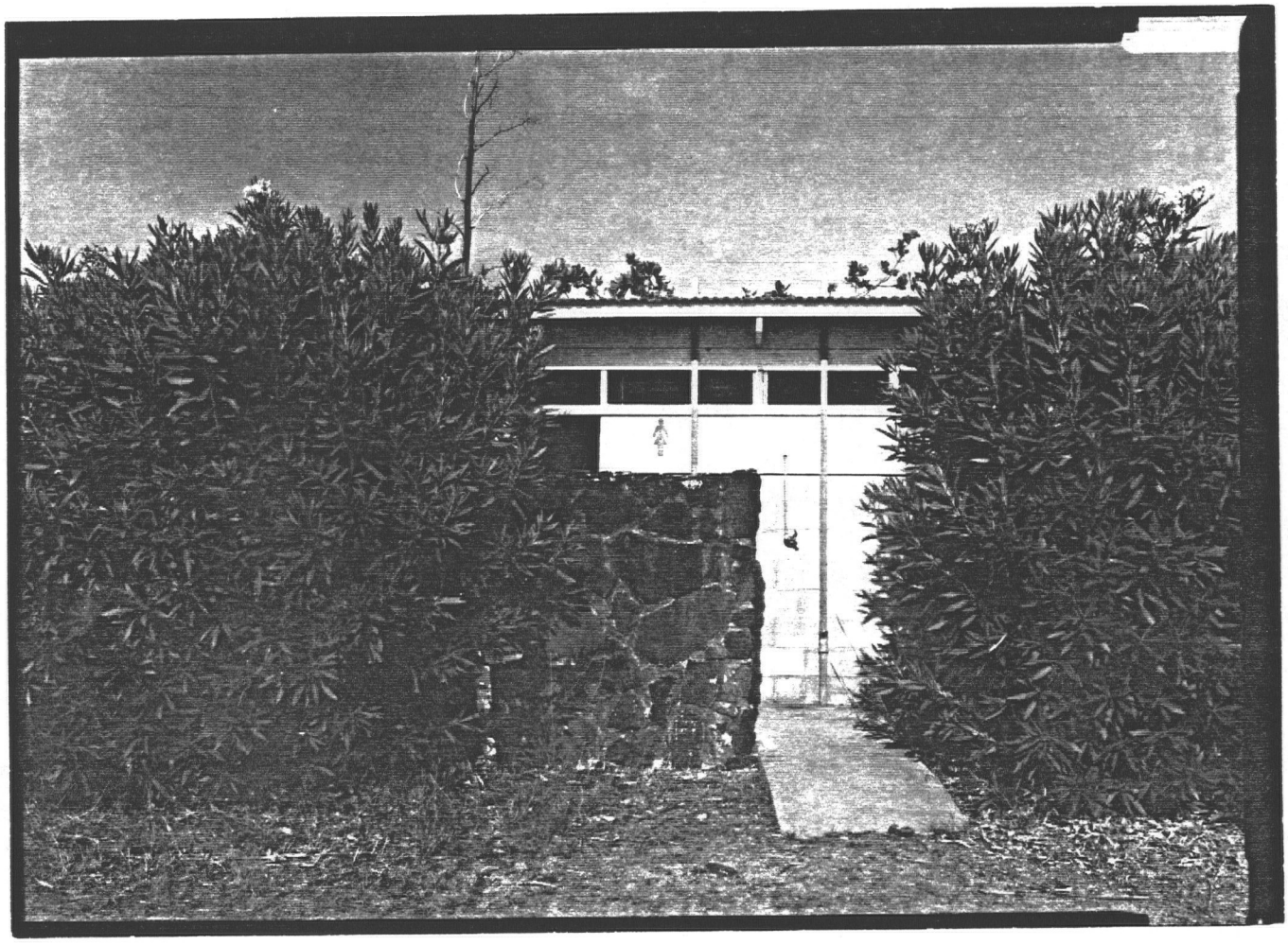


HABS PHOTO #
HI-113-1

STRUCTURE: Building 688
LOCATION: Airport Road
USE: Picnic Pavilion
SIZE: Approx. 25 x 40 OWNERSHIP: Lion's Club
DATE OF STRUCTURE: Unknown (recent)
DESCRIPTION: The masonry and frame structure is built on a concrete slab foundation. The gently sloped gable roof is finished with rolled composition roofing material. The structure is used frequently and seems to be in good condition. (Two small picnic shelters--wood frame and bamboo--are located makai. They were not recorded as buildings.)

SIGNIFICANCE: None

MAINTENANCE COST: No estimate
FUTURE MAINTENANCE COST: No estimate
DATE OF REPORT: October 14, 1976



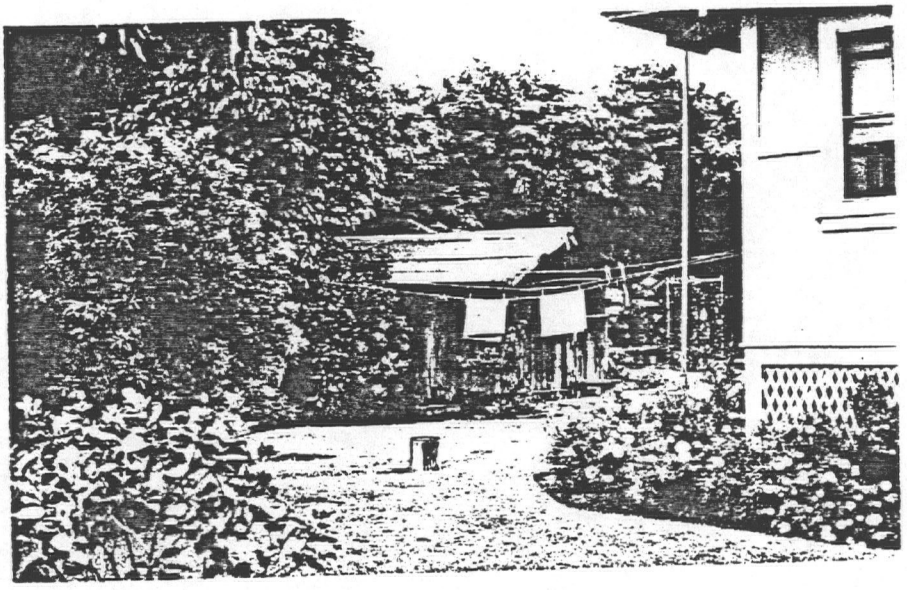
HABS PHOTO #
HI-114-1

STRUCTURE: Building 687
LOCATION: Airport Road, across from picnic pavailion
USE: Restroom
SIZE: Approx. 10 x 20 OWNERSHIP: Kalaupapa Lion's Club
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is built of stone and concrete blocks with a shed roof covered with corrugated metal. The foundation is concrete. Masonry (lava-rock) baffles shelter the three entrances to the restroom areas--men, women, and visitors. The structure is in fair to poor condition.

SIGNIFICANCE: None

MAINTENANCE COST: No estimate
FUTURE MAINTENANCE COST: No estimate
DATE OF REPORT: October 14, 1976

G - 93

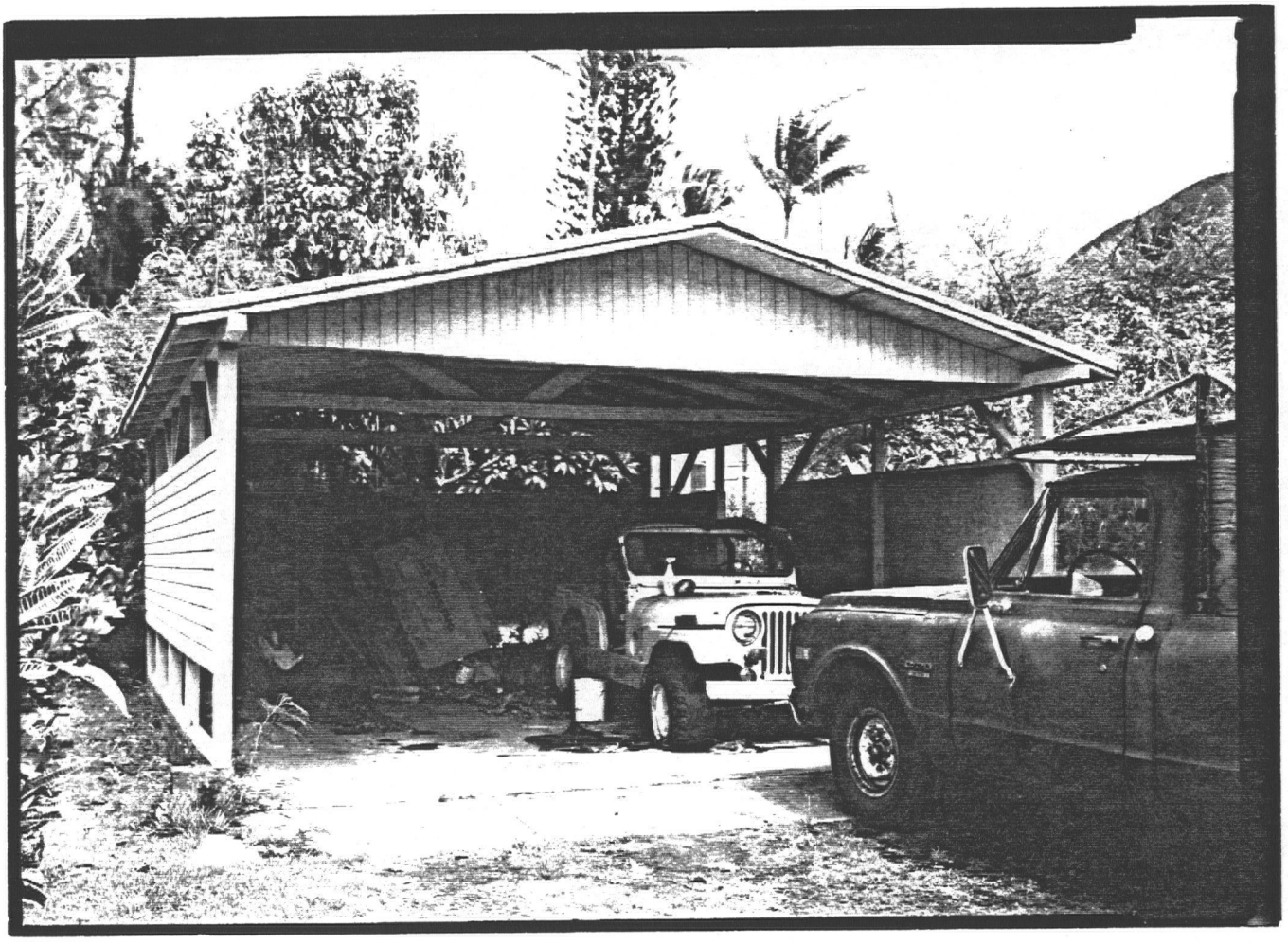


STRUCTURE: Building 664
LOCATION: Kamehameha Street
USE: Storage
SIZE: Approx. 10 x 12 OWNERSHIP: Private
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a frame building of single wall construction, with an exterior finish of board and batten. The gable roof is finished with rolled composition roofing material. The structure is still in use, but in very deteriorated condition.

SIGNIFICANCE: None

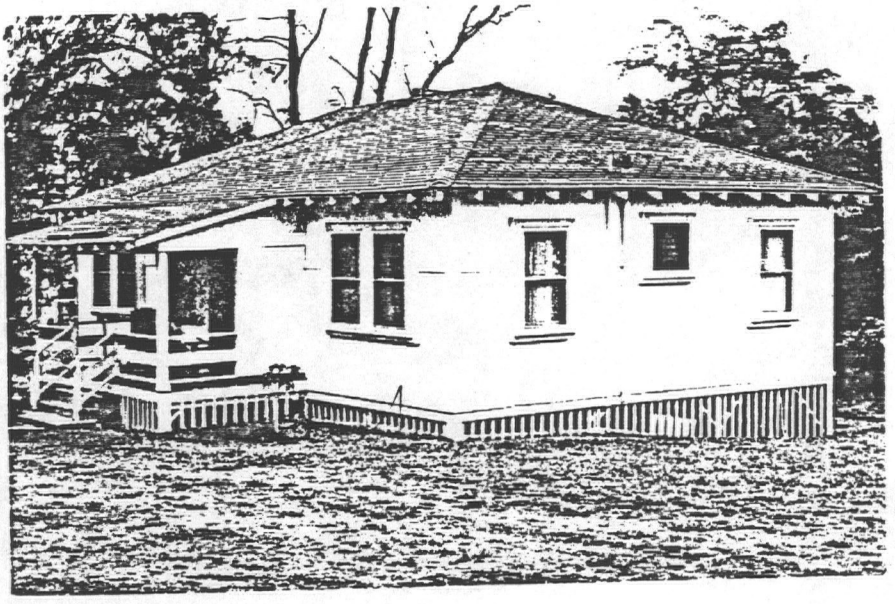
G - 94

MAINTENANCE COST: No estimate
FUTURE MAINTENANCE COST: No estimate
DATE OF REPORT: October 14, 1976



HABS PHOTO #
HI-88-C-1

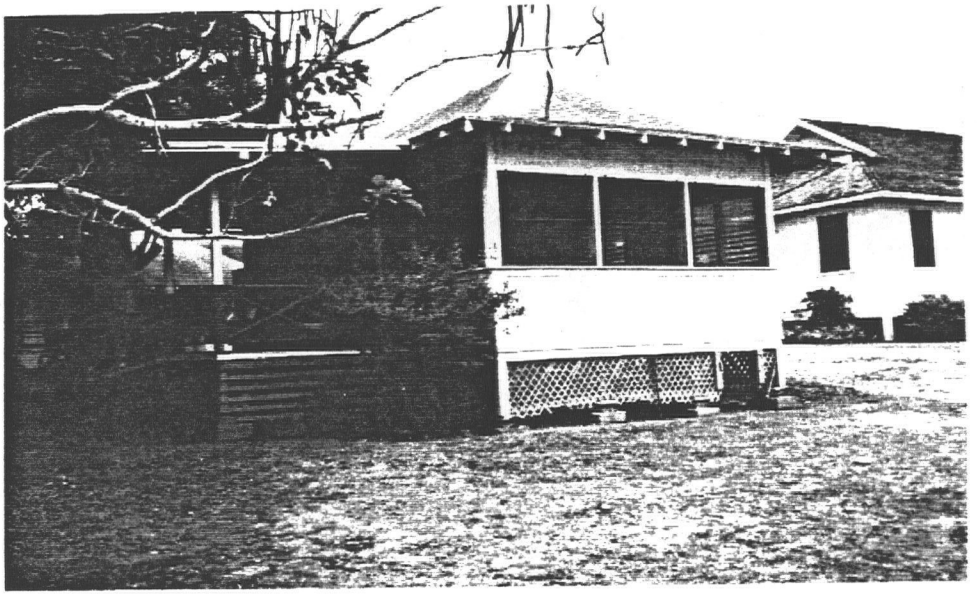
STRUCTURE: BUILDING 11SR
LOCATION: STAFF ROW
USE: GARAGE
SIZE: 20 X 20 OWNERSHIP: STATE
DATE OF STRUCTURE: POST 1977
DESCRIPTION: The structure is a frame building of single wall construction of T-111 plywood siding mounted horizontally. The roof material is roll roofing placed on plywood decking supported by wood rafters with trusses at the center and at both gable walls. The floor is concrete. The structure is in good condition. This building appears to have replaced the garage structure pictured in the 1977 Architectural Evaluation and identified as Staff Row Building 11.



STRUCTURE: Building 294
LOCATION: St. Francis Church
USE: Rectory
SIZE: Approx. 1200 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1930
DESCRIPTION: The structure is a frame building of single wall construction, with a stone pad and post foundation. The hip roof is finished with composition shingles which have been applied over the original wood shingles. A wood porch with a shed roof is located at the front of the building. The corners of the structure are finished with cornerboards. A water table encircles the structure around the sole plate. A girt surrounds the building, and is broken by the wood frames of the double-hung windows which project several inches from the exterior of the vertical plank wall. A porch with a storage area underneath is located at the rear of the rectangular structure. The building is in fair condition. Any termite and rot damage should be repaired. The building should be fumigated and re-roofed.

SIGNIFICANCE:

MAINTENANCE COST: $7,700
FUTURE MAINTENANCE COST: $500/annum
DATE OF REPORT: January 26, 1977

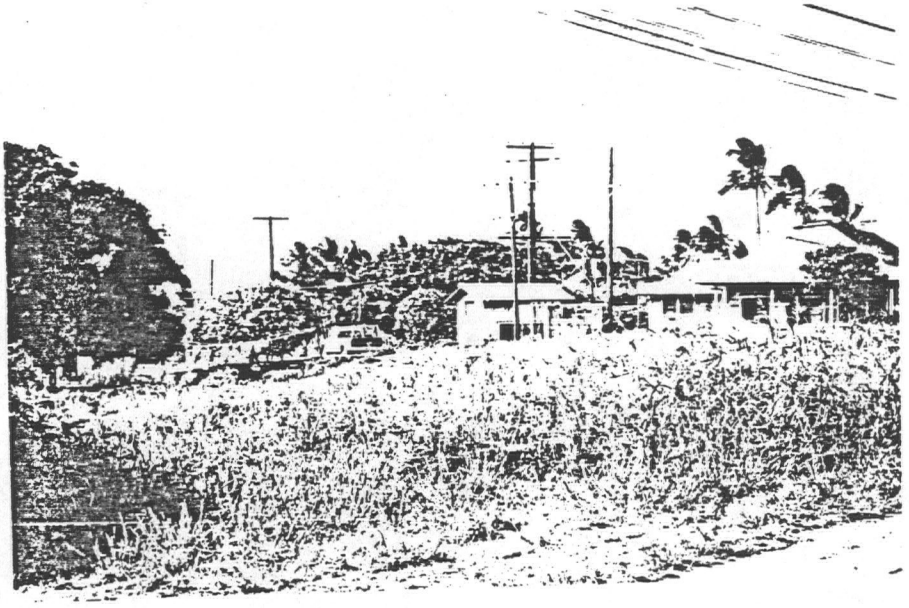


STRUCTURE: Building 275
LOCATION: Visitors' Quarters
USE: Kitchen
SIZE: Approx. 468 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1933
DESCRIPTION: The structure is a frame building of single wall construction. Foundations consist of concrete pads and wood posts, separated by termite shields and camouflaged by a latticework skirting. The hip roof of the rectangular building is finished with composition shingles. The walls are vertical plank siding. The building is divided into two areas - an enclosed kitchen area, and a screened eating area. Two girts, broken by the wood frames of the double hung windows, encircle the exterior of the enclosed (kitchen) area. The corners of the building are finished with cornerboards. The sole plate is surrounded by a water table. The structure is used frequently, and is in good condition. Any termite damage should be repaired, and the building should be fumigated.

SIGNIFICANCE: No real architectural significance. Historically, the building is part of the visitor's compound. The structure is now used by visitors for meal preparation and consumption, since no other facilities are available.

MAINTENANCE COST: $1300
FUTURE MAINTENANCE COST: $400/annum
DATE OF REPORT: January 16, 1977

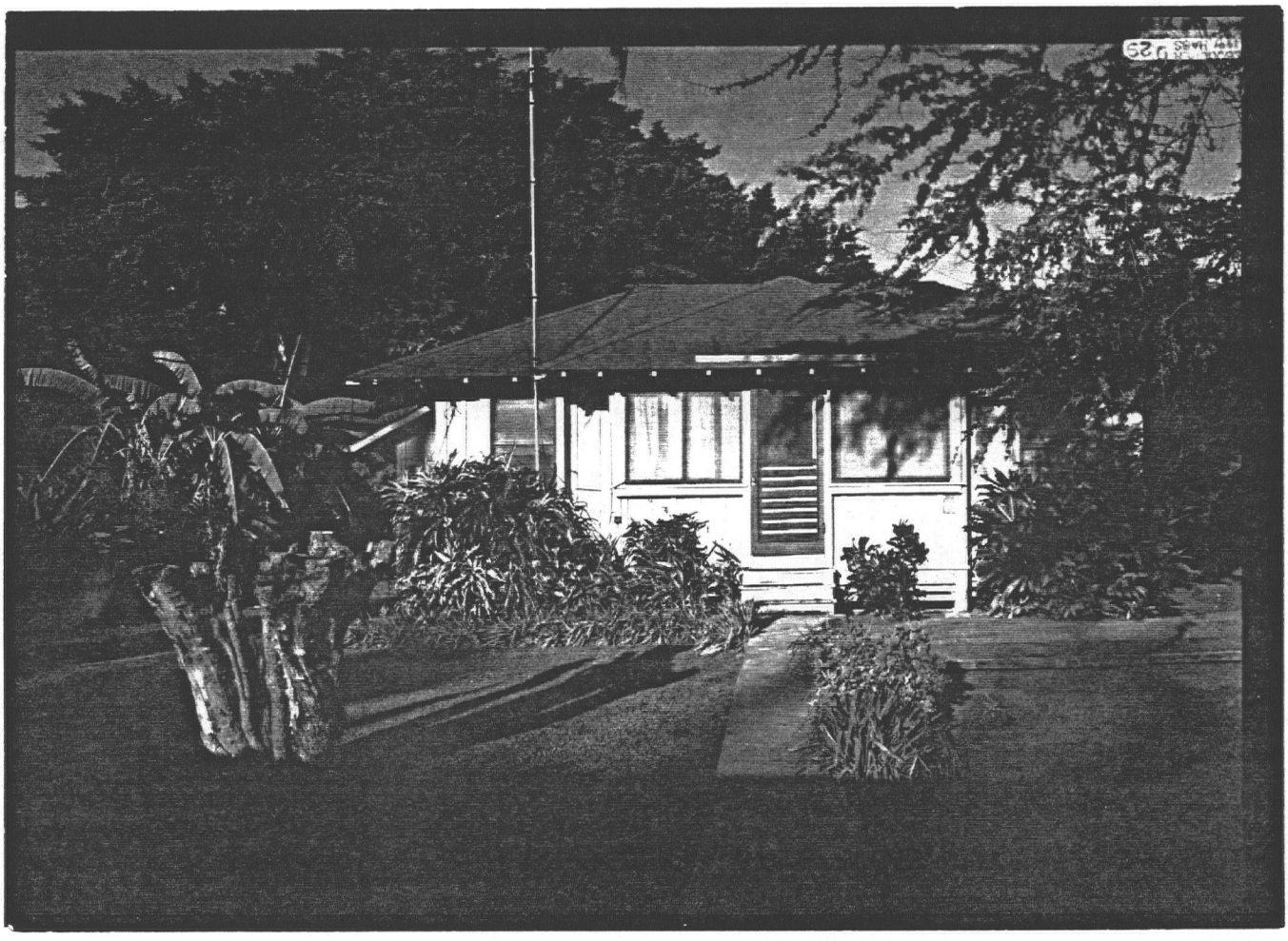
G - 97



STRUCTURE: Building 519
LOCATION: Bay View Area
USE: Transformer Station
SIZE: Approx. 8 x 10 OWNERSHIP: State
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a frame building with a gable roof. The walls and the roof are covered with corrugated metal. The structure is in use and seems to be in good condition.

SIGNIFICANCE: None

MAINTENANCE COST: No estimate
FUTURE MAINTENANCE COST: No estimate
DATE OF REPORT: October 11, 1976



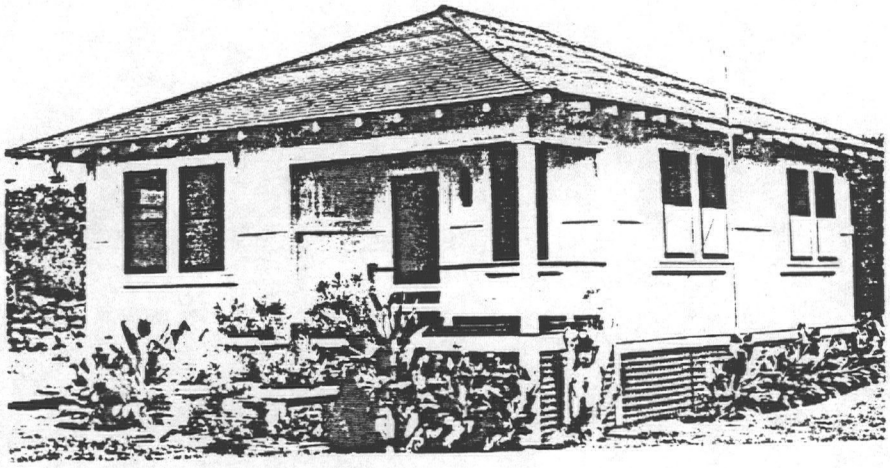
STRUCTURE: Building 256
LOCATION: Kamehameha Street
USE: Residence (intermittent)
SIZE: Approx. 600 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1935
DESCRIPTION: The structure is a frame building of single wall construction, with a board and batten exterior finish. The foundation consists of concrete footings and posts. The hip roof is finished with red composition shingles. The wood frames of the double hung twelve-light windows projects several inches from the exterior of the structure. An enclosed porch is incorporated into the west side of the building under the hip roof. The corners of the structure are finished with cornerboards. The structure is unoccupied most of the time, and is in fair to poor condition. Termite damage should be repaired; the building should be fumigated and painted.

SIGNIFICANCE: None

MAINTENANCE COST: $9340
FUTURE MAINTENANCE COST: $400
DATE OF REPORT: January 27, 1977

HABS PHOTO #
HI-130-1

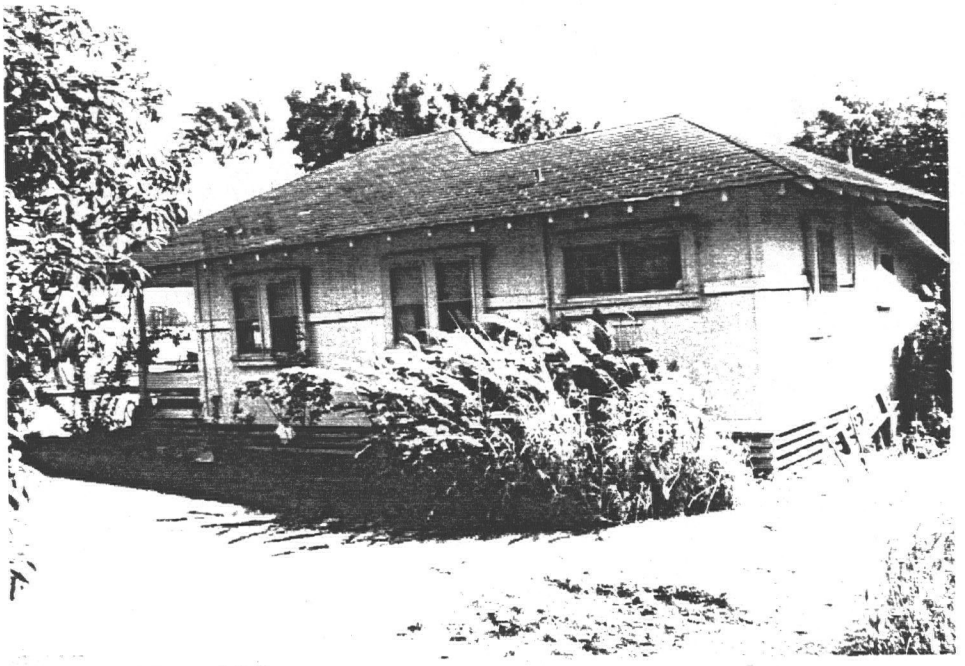
G - 99



STRUCTURE: Building 15
LOCATION: Kamehameha Street
USE: Residence
SIZE: Approx. 1100 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1936
DESCRIPTION: The structure is a one-story frame building of single wall construction, with foundations consisting of stone footings and posts. Stone and concrete steps provide access to the recessed corner porch which is incorporated under the hip roof. One post with a simple capital, and two chamfered pilasters articulate the edges of the porch. The corners of the building are finished with cornerboards. A girt encircles the structure, and is broken by the wood frames of the double hung windows which project several inches from the exterior of the vertical plank wall. The hip roof is finished with composition shingles. A partially enclosed wood porch with a shed roof is located at the rear of the structure. The building is occupied and in good condition. Termite damage should be repaired, as well as the settling footings. The building should be fumigated.

SIGNIFICANCE: One of many . . .

MAINTENANCE COST: $3800
FUTURE MAINTENANCE COST: $400/annum
DATE OF REPORT: January 27, 1977



STRUCTURE: Building 9
LOCATION: Kamehameha Street
USE: Residence
SIZE: Approx. 900 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1931
DESCRIPTION: The structure is a one-story frame building of single wall construction, with foundations consisting of stone footings and posts. Wood steps with railings provide access to the recessed corner porch which is incorporated under the hip roof. One chamfered post and two chamfered pilasters articulate the edges of the porch. The corners of the building are finished with corner boards. A girt encircles the structure, and is broken by the wood frames of the double hung plank wall. The hip roof is finished with composition shingles. A partially enclosed wash house with a shed roof, and constructed on a concrete slab is located at the rear of the structure. The building is occupied and in fair condition. Termite damage should be repaired, and the settling footings should be stabilized. Vegetation should be cleared out from the base to discourage further termite activity and rot. The building should be fumigated and painted.

SIGNIFICANCE: One of many . . .

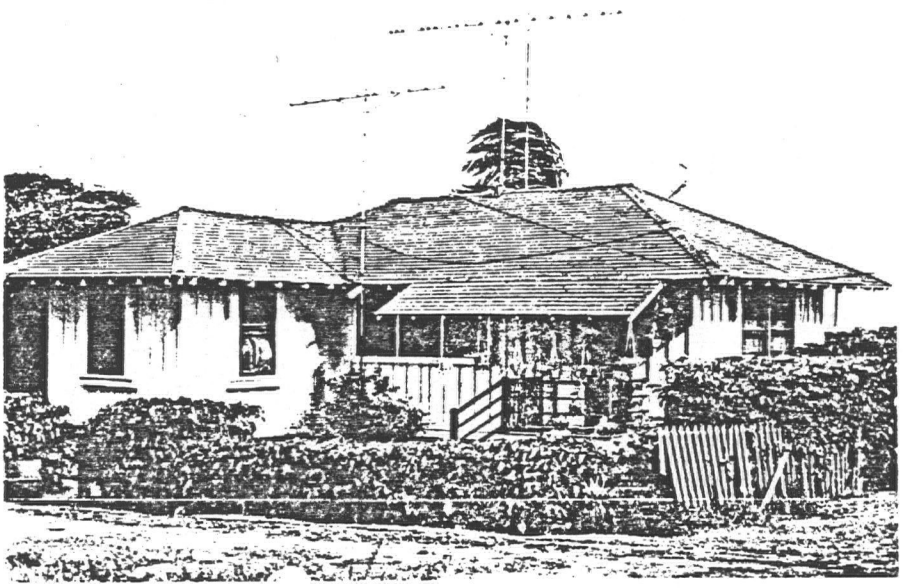
MAINTENANCE COST: $6500
FUTURE MAINTENANCE COST: $400/annum
DATE OF REPORT: January 27, 1977

G - 101

STRUCTURE: Building 7
LOCATION: Kamehameha Street
USE: Residence
SIZE: Approx. 800 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1931
DESCRIPTION: The structure is a frame building of single wall construction, with foundations consisting of stone footings and posts. Wood steps provide access to the recessed corner porch which is incorporated under the hip roof. A chamfered post and two chamfered pilasters articulate the edges of the porch. The corners of the building are finished with corner boards. A girt encircles the structure, and is broken by the wood frames of the double plank wall. The hip roof is finished with composition shingles. A partially enclosed wash house with a shed roof and a concrete slab foundation is located at the rear of the structure. The building is occupied and in fair condition. Termite damage should be repaired. The building should be fumigated. Touch up painting is needed.

SIGNIFICANCE: One of many

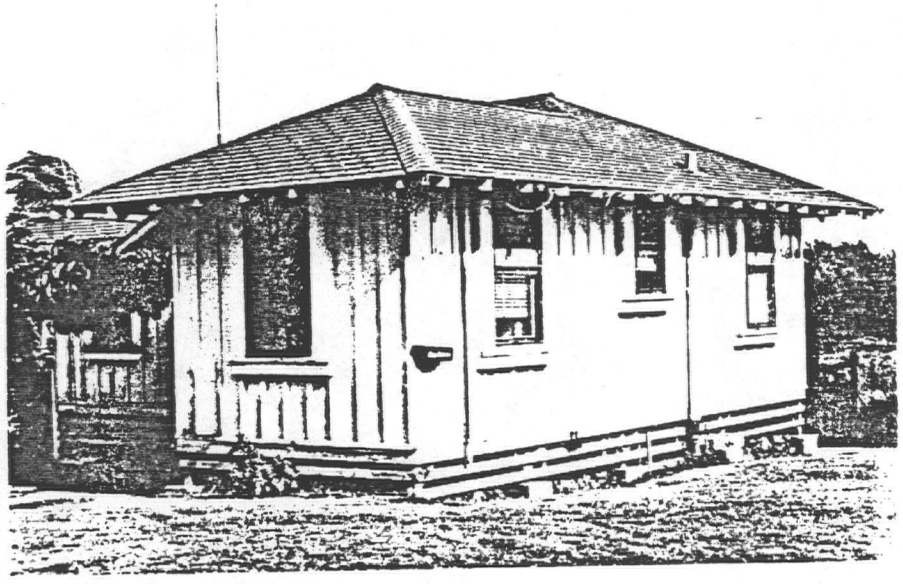
MAINTENANCE COST: $3050
FUTURE MAINTENANCE COST: $400/annum
DATE OF REPORT: January 27, 1977



STRUCTURE: Building 33
LOCATION: McVeigh Home
USE: Residence
SIZE: Approx. 750 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1934
DESCRIPTION: The structure is a one-story building of single wall construction, with a concrete pad and post foundation. The hip roof of the L-shaped building is finished with red composition shingles. The wood frames of the 12-light double hung windows project several inches from the exterior wall. The exterior finish is board and batten. A wooden porch, covered with a shed roof, provides access to the main entrance on the south side of the structure. The building is occupied. The structure has been recently painted, and seems to be in very good condition. Fumigation is recommended.

SIGNIFICANCE: McVeigh Home

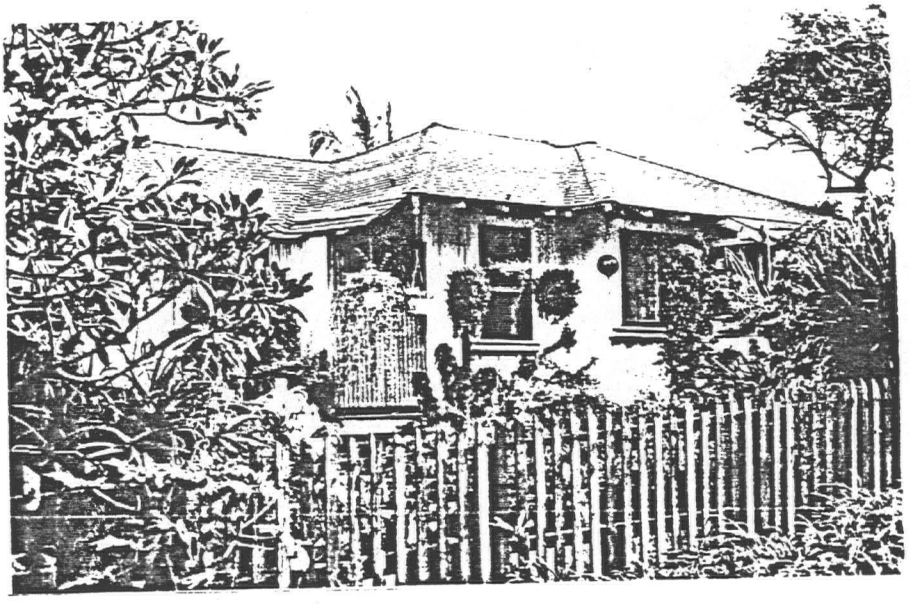
MAINTENANCE COST: $800
FUTURE MAINTENANCE COST: $415 annum
DATE OF REPORT: January 11, 1977



STRUCTURE: Building 32
LOCATION: McVeigh Home
USE: Residence
SIZE: Approx. 750 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1934
DESCRIPTION: The structure is a one story building of single wall construction, with a concrete pad and post foundation. The hip roof of the L-shaped building is finished with red composition shingles. The wood frames of the six-light double-hung windows project several inches from the exterior wall. The exterior finish is board and batten. A partially enclosed washroom, constructed on a concrete foundation and with a shed roof, is located at the rear of the structure. The building should be scraped, painted, and fumigated. Some lumber, particularly the rafter ends, needs replacement. The deteriorated drainage plumbing, which is exposed to the elements, should be checked and replaced if necessary. The structure is occupied and in fair condition.

SIGNIFICANCE: McVeigh Home

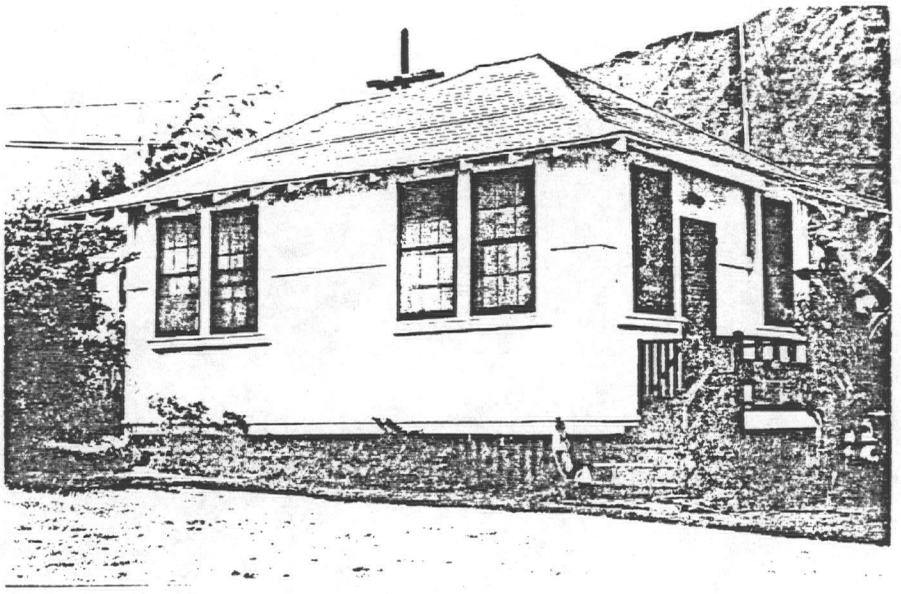
MAINTENANCE COST: $3080.
FUTURE MAINTENANCE COST: $415/annum
DATE OF REPORT: January 11, 1977



STRUCTURE: Building 34
LOCATION: McVeigh Home
USE: Residence (Supervisor's Cottage)
SIZE: Approx. 1,050 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1934?
DESCRIPTION: The structure is a one story building of single wall construction, with a concrete pad and post foundation. The generally hip roof of the irregularly shaped structure is finished with generally green composition shingles. The wood frames of the 12-light double-hung windows project several inches from the exterior wall. The exterior finish is board and batten. At the rear of the structure is an addition with a shed roof finished with rolled composition roofing. The structure is occupied and in good condition. The roof eaves should be scraped and painted. A tree at the southeast corner of the structure should be trimmed or removed to prevent damage to the roof. The structure should be fumigated. Grade on all sides of the building should be clear of earth and vegetation, to help prevent rot and termite damage.

SIGNIFICANCE: McVeigh Home

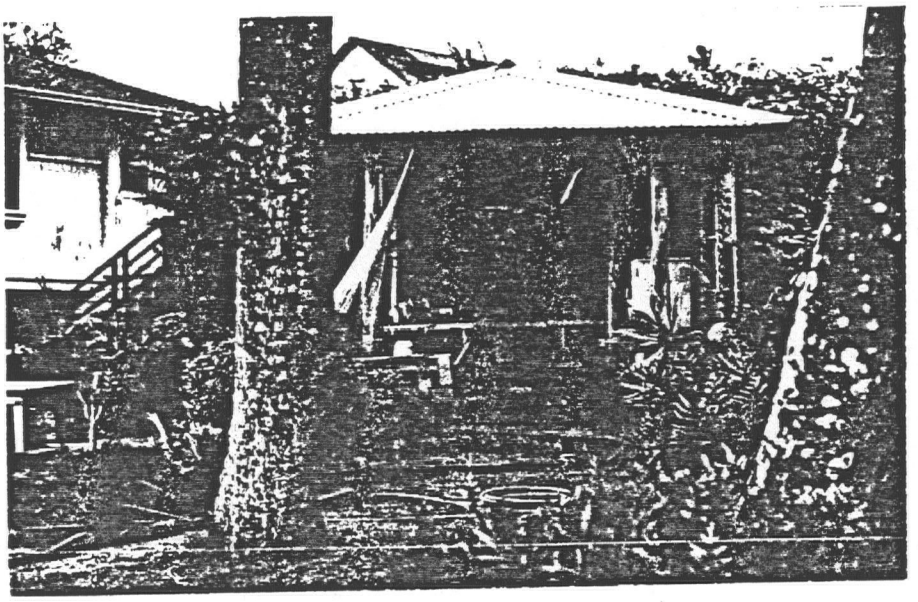
MAINTENANCE COST: $1050
FUTURE MAINTENANCE COST: $510/annum
DATE OF REPORT: January 11, 1977



STRUCTURE: Building 30
LOCATION: McVeigh Home
USE: Residence
SIZE: Approx. 420 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1912
DESCRIPTION: The structure is a one-story building of single wall construction. with a concrete pad and post foundation. The irregularly shaped hip roof has a broken pitch, and is finished with red composition shingles. A wooden porch with a shed roof is located at the west side (main entrance) of the structure. The wood frames of the 12-light double-hung windows project several inches from the exterior wall. A broken girt encircles the exterior. The corners of the structure are finished with corner boards. The rectangular structure is occupied, and in good condition. The building is in need of minor wood replacement, eave scraping and repainting, and fumigation.

SIGNIFICANCE: McVeigh Home

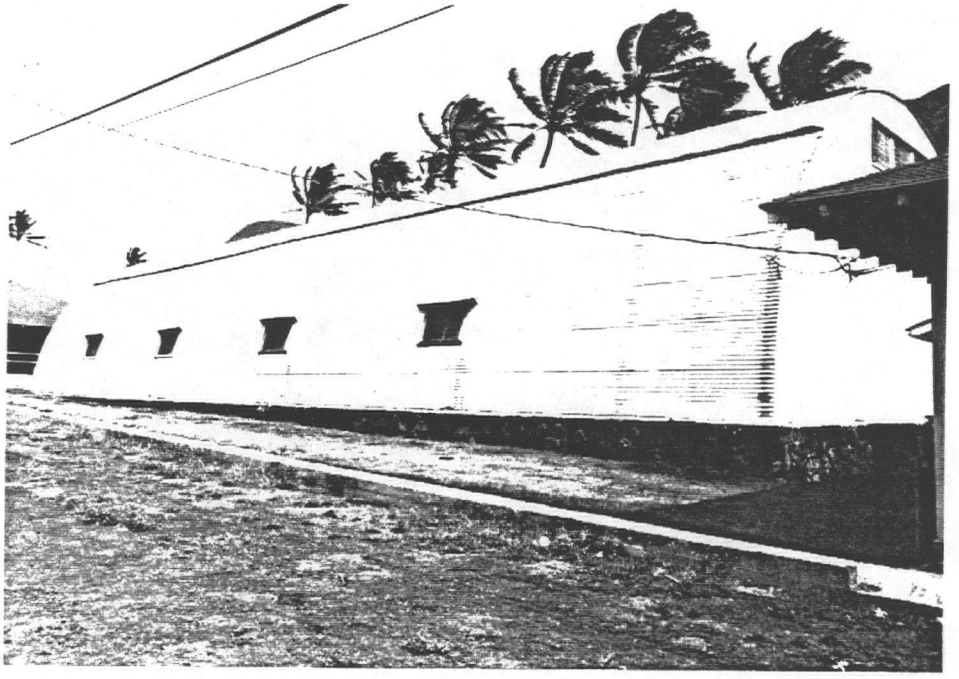
MAINTENANCE COST: $1455
FUTURE MAINTENANCE COST: $140/annum
DATE OF REPORT: January 11, 1977



STRUCTURE: Building 528
LOCATION: Bay View
USE: Lanai
SIZE: Approx. 12 x 15 OWNERSHIP: Private
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a wood frame building on a masonry foundation. The hip roof is covered with corrugated metal. The posts are peeled logs (Haole koa?). The structure receives much use and is in good condition.

SIGNIFICANCE: None

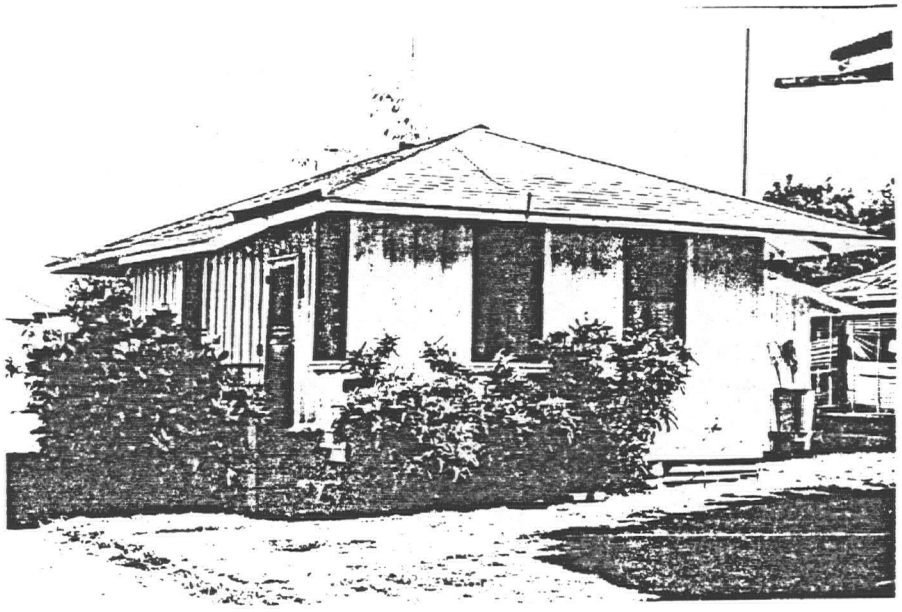
MAINTENANCE COST: No estimate
FUTURE MAINTENANCE COST: No estimate
DATE OF REPORT: October 12, 1976



STRUCTURE: Building 272-A
LOCATION: Industrial area, behind store
USE: Storage (food and supplies)
SIZE: Approx. 40 x 100 OWNERSHIP: State
DATE OF STRUCTURE: 1934
DESCRIPTION: The structure is a large quonset hut constructed on a stone and concrete foundation. The stone walls rise approximately three feet above grade. The metal structure members are supported by the stone walls. The semi-cylindrical structure is covered with corrugated metal. Two jalousie windows are located on each of the long sides of the building. Metal ventilation louvers are located near the roofline at the east and west sides of the building. Sliding metal and wood doors are located on the west and south sides of the building. A corrugated metal shed roof supported by wood posts extends from the south side of the structure and shelters the south door. The structure is used for storage, and seems to be in fair to poor condition. Termite damage should be repaired, and vegetation should be cleared. Holes in the masonry should be patched. The exterior should be painted.

SIGNIFICANCE:

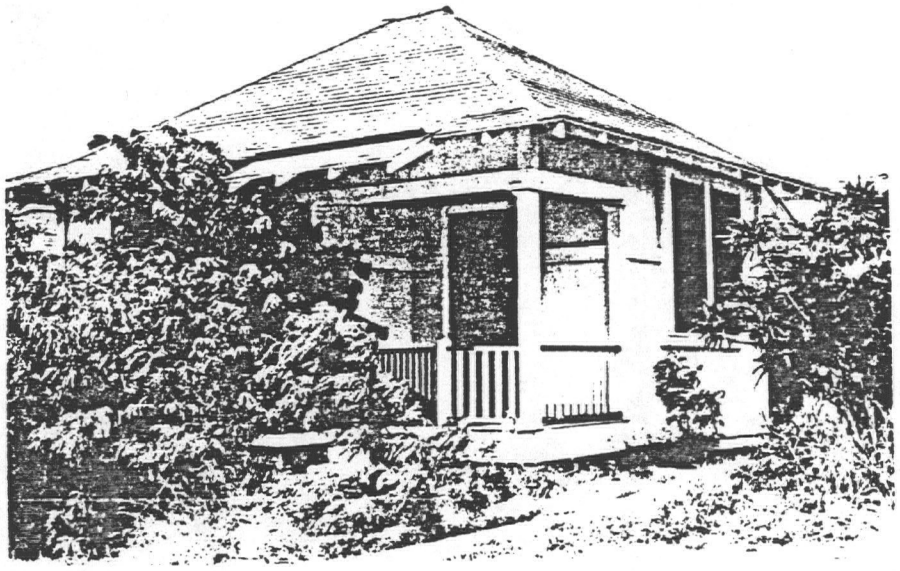
MAINTENANCE COST: $6300
FUTURE MAINTENANCE COST: $800/annum
DATE OF REPORT: January 17, 1977



STRUCTURE: Building 20
LOCATION: McVeigh Home
USE: Residence
SIZE: Approx. 520 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1933
DESCRIPTION: The structure is a one-story building of single wall construction (board and batten), with a concrete pad and post foundation. The hip roof is finished with red composition shingles. The wood frames of the 12-light double-hung windows project several inches from the exterior wall. A partially enclosed washroom, on a concrete slab and with a shed roof, is located at the rear of the structure. The building is occupied, and in good condition. The structure should be fumigated.

SIGNIFICANCE: McVeigh Home

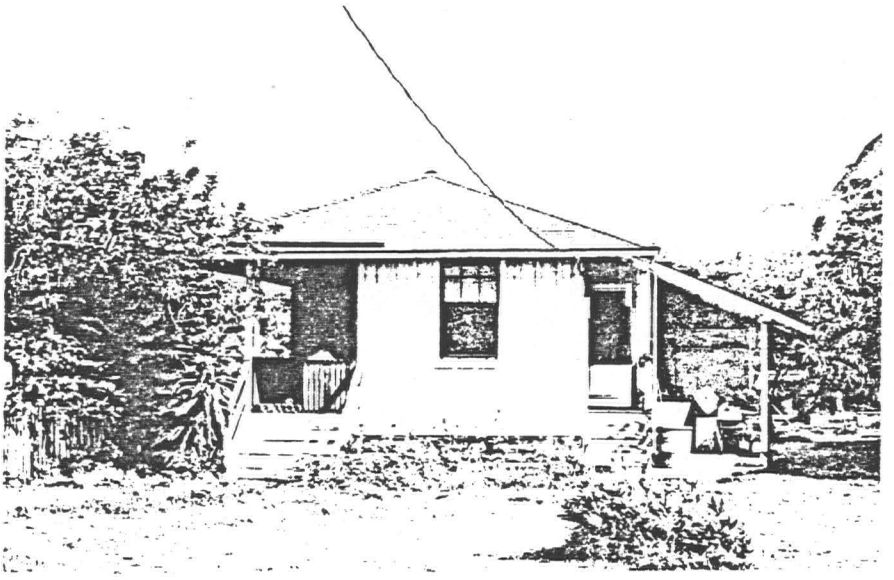
MAINTENANCE COST: $1000
FUTURE MAINTENANCE COST: $415/annum
DATE OF REPORT: January 11, 1977



STRUCTURE: Building 11
LOCATION: McVeigh Home
USE: Residence
SIZE: Approx. 450 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1929
DESCRIPTION: The structure is a one-story building of single wall construction, with a pad and post foundation. The hip roof is finished with red composition shingles. Concrete and stone steps provide access to the recessed corner porch which is incorporated under the hip roof. The post and pilasters articulating the porch corners are chamfered. Other corners of the structure are finished with cornerboards. The wood frames of the 12-light double-hung windows project several inches from the exterior wall. A broken girt encircles the exterior. A partially enclosed exterior washroom, constructed on a concrete slab and with a shed roof, is located at the rear of the rectangular structure. The structure is assigned to a patient, but presently is vacant. The building is in good condition, although in need of some foundation work, minor board replacement, fumigation and touch-up painting.

SIGNIFICANCE: McVeigh Home

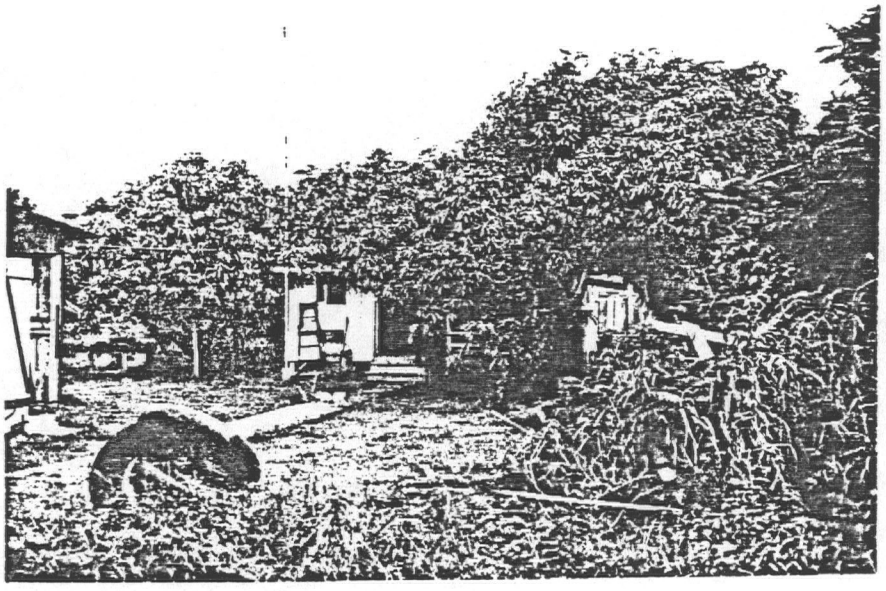
MAINTENANCE COST: $1650
FUTURE MAINTENANCE COST: $340/annum
DATE OF REPORT: January 11, 1977



STRUCTURE: Building 3 (3 2)
LOCATION: Kamehameha Street
USE: Residence
SIZE: Approx. 500 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: Probably 1933, moved from Mc Veigh in 1965
DESCRIPTION: The structure is a one-story building of single wall construction with a board and batten exterior. The foundation consists of concrete footings and wood posts. The hip roof is finished with composition shingles. A small wood porch and a wash house, constructed on a concrete slab and with a shed roof, are located on the south side of the structure. The wood frames of the 12-light double hung windows project several inches from the exterior wall. The structure is occupied and in fair condition. Any termite damage should be repaired. The building should be fumigated and painted.

SIGNIFICANCE:

MAINTENANCE COST: $1940
FUTURE MAINTENANCE COST: $400
DATE OF REPORT: January 27, 1977



STRUCTURE: Building 4
LOCATION: Kamehameha Street
USE: Residence
SIZE: Approx. 700 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1931
DESCRIPTION: The structure is a frame building of single wall construction, with a foundation consisting of stone pads and wood posts. The exterior finish is board and batten. The combination of gable and shed roofs is finished with rolled composition roofing material. The wood frame windows are double hung (twelve light). A recessed front porch is incorporated under the shed roof in the south west corner of the structure. The building is occupied and in fair condition. Termite damage should be repaired, and vegetation should be cleared from the base of the building to prevent further rot and deterioration. The building should be fumigated, painted, and re-roofed.

SIGNIFICANCE:

MAINTENANCE COST: $5800
FUTURE MAINTENANCE COST: $400/annum
DATE OF REPORT: January 27, 1977

STRUCTURE: Building 192
LOCATION: Kaiulani Street
USE: Residence
SIZE: 34 x 24 + 8 x 8 wash house OWNERSHIP: State
DATE OF STRUCTURE: 1931
DESCRIPTION: The structure is a one-story building of single wall construction, with a stone pad and post foundation. The foundation is skirted with latticework. Stone and concrete steps provide access to the recessed corner porch which is incorporated under the hip roof. A chamfered post and two chamfered pilasters articulate the edges of the porch. The corners of the building are finished with cornerboards. A girt encircles the structure and is broken by the wood frames of the double hung windows which project several inches from the exterior of the vertical plank wall. A partially enclosed wash house, with a concrete foundation and a shed roof is located at the rear of the rectangular structure. The building is occupied and in good condition. The structure should be fumigated for termites.

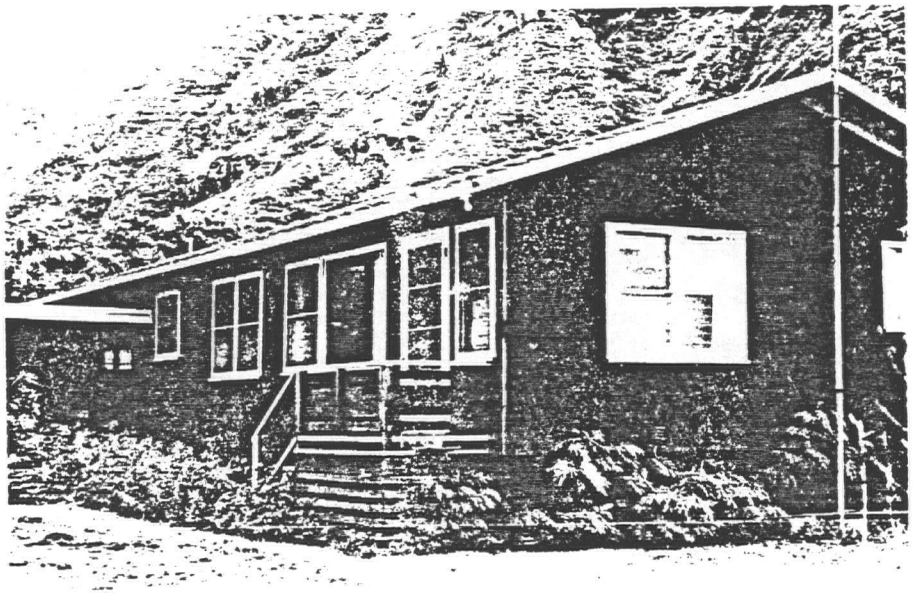
SIGNIFICANCE: One of many.

MAINTENANCE COST: $800
FUTURE MAINTENANCE COST: $400/annum
DATE OF REPORT: January 14, 1977

STRUCTURE: Building 181
LOCATION: Baldwin Street
USE: Residence
SIZE: Approx. 1000 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1932
DESCRIPTION: The structure is a one-story building of single wall construction with a stone pad and post foundation. Stone and concrete steps provide access to the recessed corner porch which is incorporated under the hip roof. One simple post (replaced?) and two chamfered pilasters articulate the edges of the porch. The corners of the building are finished with cornerboards. A girt encircles the structure and is broken by the wood frames of the double hung windows which project several inches from the exterior of the vertical plank wall. A partially enclosed wash house, with a concrete foundation and a shed roof is located at the rear of the rectangular structure. The building is occupied and in fair condition. Termite damage should be repaired. The structure should be re-roofed, painted, and fumigated.

SIGNIFICANCE: One of many.

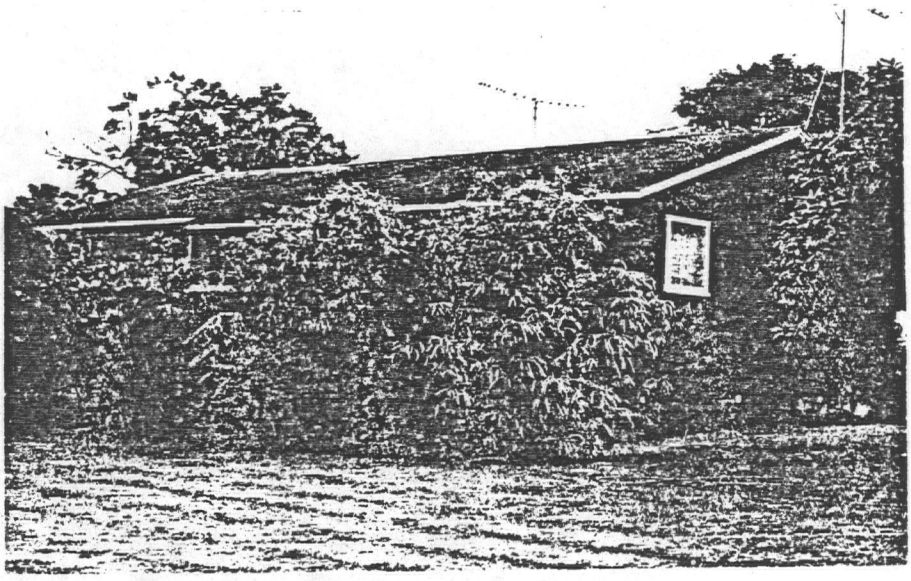
MAINTENANCE COST: $8,220
FUTURE MAINTENANCE COST: $500
DATE OF REPORT: January 14, 1977



STRUCTURE: Building 64-311
LOCATION: Damien Road, South side
USE: Residence
SIZE: Approx. 1200 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1964
DESCRIPTION: The structure is a one-story building of single wall construction, with a concrete pad and post foundation. Termite shields are located between the concrete pads and wood posts. The gable roof is finished with composition shingles. A small wooden front porch, provides access to the front door. The wood frames of the jalousie windows project several inches from the exterior wall. A fixed sash picture window is also located at the front of the structure. A broken girt encircles the exterior of the structure. A carport, with a flat roof and concrete slab foundation protrudes from the east side of the structure. The building is occupied and in good condition. Some vegetation should be cleared from the base of the structure, to discourage rot and termites. The eaves of the L-shaped structure should be touched up with paint. The building should be fumigated.

SIGNIFICANCE: Hicks Home - none

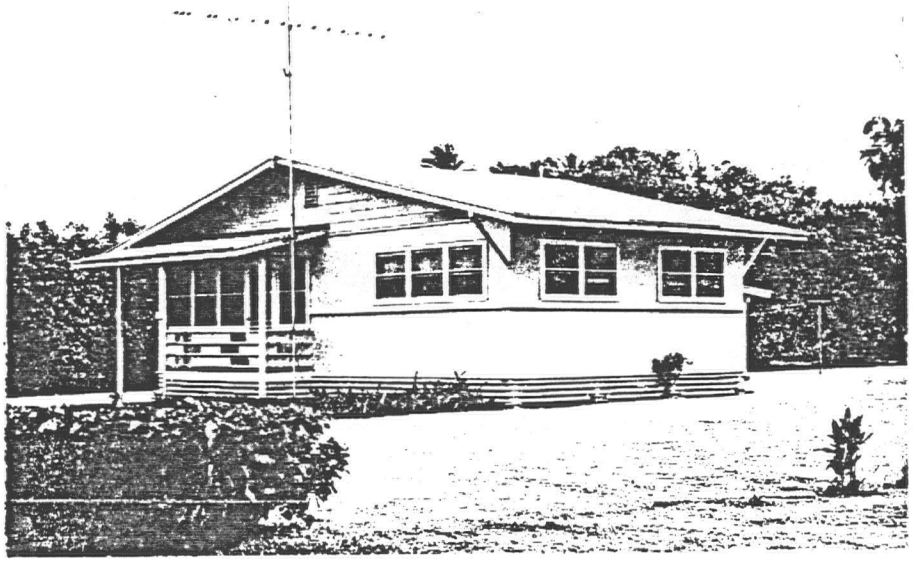
MAINTENANCE COST: $1600
FUTURE MAINTENANCE COST: $500/annum
DATE OF REPORT: January 12, 1977



STRUCTURE: Building 62-179
LOCATION: Baldwin Street
USE: Residence
SIZE: Approx. 1100 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1962
DESCRIPTION: The structure is a one-story building of single wall construction, with a concrete pad and post foundation. Termite shields are located between the pads and wood posts. A small wood porch, sheltered by an extension of the gable roof, provides access to the front door. The gable roof is finished with composition shingles. The wood frames of the jalousie windows project from the exterior walls. A continuous girt encircles most of the exterior of the structure. The girt is broken at the northwest corner by 2 two-sash jalousie and fixed windows, divided vertically. A carport with a shed roof and a concrete slab foundation is located at the northeast corner of the structure. The building is occupied and is in good condition. Termite damage (steps) should be repaired and the building should be painted and fumigated.

SIGNIFICANCE: Hicks Home - none

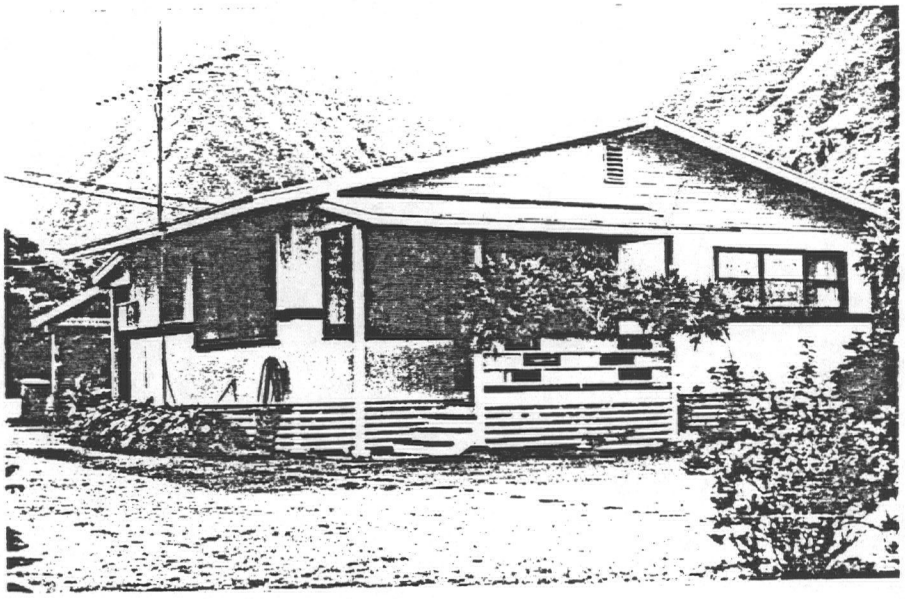
MAINTENANCE COST: $1,900
FUTURE MAINTENANCE COST: $500/annum
DATE OF REPORT: January 14, 1977



STRUCTURE: Building 56-172
LOCATION: Baldwin Street
USE: Residence
SIZE: 22 x 36 + carport OWNERSHIP: State
DATE OF STRUCTURE: 1956
DESCRIPTION: The structure is a one-story building of single wall construction with a concrete pad and post foundation. The gable roof is finished with metal roofing. A small wood porch with a shed roof provides access to the front entrance to the dwelling. The wood frames of the two-sash double hung windows project several inches from the exterior walls. A continuous girt surrounds most of the structure, except at the northwest corner, where it is broken by the front door and a series of windows. A carport with a concrete slab foundation and a flat roof is located at the rear (east) of the structure. The building is occupied and in good condition. Fumigation is recommended.

SIGNIFICANCE: Hicks Home - none

MAINTENANCE COST: $800
FUTURE MAINTENANCE COST: $400/annu)
DATE OF REPORT: January 14, 1977



STRUCTURE: Building 56-173
LOCATION: Baldwin Street
USE: Residence
SIZE: 22 x 36 + carport OWNERSHIP: State
DATE OF STRUCTURE: 1956
DESCRIPTION: The structure is a one-story building of single wall construction, with a concrete pad and post foundation. The gable roof is finished with metal roofing. A small wood porch with a shed roof provides access to the front entrance to the dwelling. The wood frames of the two-sash, double hung window project several inches from the exterior walls. A continuous girt surrounds most of the structure, except at the northwest corner where it is broken by the front door and a series of windows. A carport with a concrete slab foundation and a shed roof is located at the rear (east) of the structure. The building is occupied and in good condition. Fumigation is recommended.

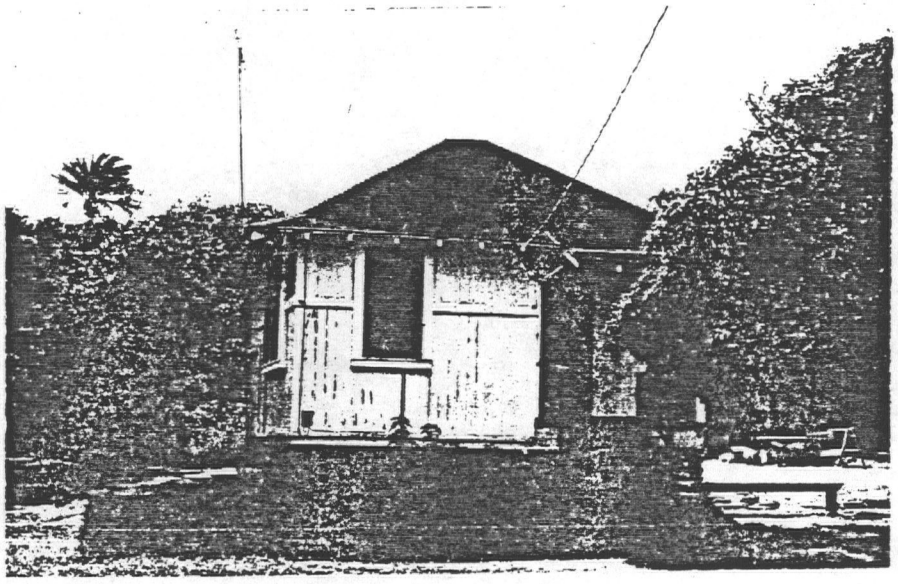
SIGNIFICANCE: Hicks Home - none

MAINTENANCE COST: $800
FUTURE MAINTENANCE COST: $400/annum
DATE OF REPORT: January 14, 1977

STRUCTURE: Building 189
LOCATION: Kaiulani Street
USE: Residence wash-
SIZE: 36 x 26 + 14 x 18 house OWNERSHIP: State
DATE OF STRUCTURE: 1932
DESCRIPTION: The structure is a one-story building of single wall construction with a stone pad and post foundation. The foundation is skirted with latticework. The hip roof is finished with composition shingles. Wood steps provide access to the recessed corner porch which is incorporated under the hip roof. A chamfered post and two chamfered pilasters articulate the edges of the porch. The corners of the building are finished with corner-boards. The wood frames of the double hung windows project several inches from the exterior of the vertical plank wall. A partially enclosed wash house, with a concrete foundation and a shed roof is located at the rear of the rectangular structure. The building is occupied and in fair condition. Termite damage should be repaired. The structure should be fumigated and painted.

SIGNIFICANCE:

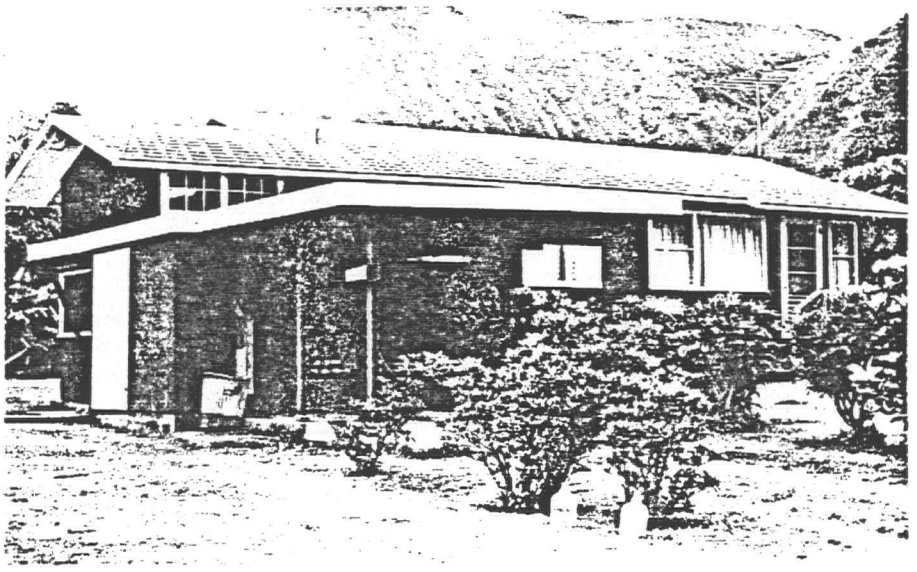
MAINTENANCE COST: $2,110
FUTURE MAINTENANCE COST: $500/annum
DATE OF REPORT: January 14, 1977



STRUCTURE: Building 190 (66R-190)
LOCATION: Kaiulani Street
USE: Residence
SIZE: Approx. 450 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1931
DESCRIPTION: The structure is a one-story building of single wall construction with a concrete pad and post foundation. The broken-pitch hip roof is finished with composition shingles. Wood steps provide access to the recessed corner porch which is incorporated under the hip roof. A post and two pilasters articulate the edges of the porch. Other corners of the structure are finished with cornerboards. A broken girt encircles the exterior. The wood frames of the twelve-light double hung windows project several inches from the exterior wall. A partially enclosed exterior washroom, constructed on a concrete slab and with a shed roof, is located at the rear of the rectangular structure. The building is occupied and in fair condition. The structure has been recently painted, but should be fumigated and re-roofed.

SIGNIFICANCE: Moved from McVeigh Home. Same plan as building 13, Mc Veigh Home.

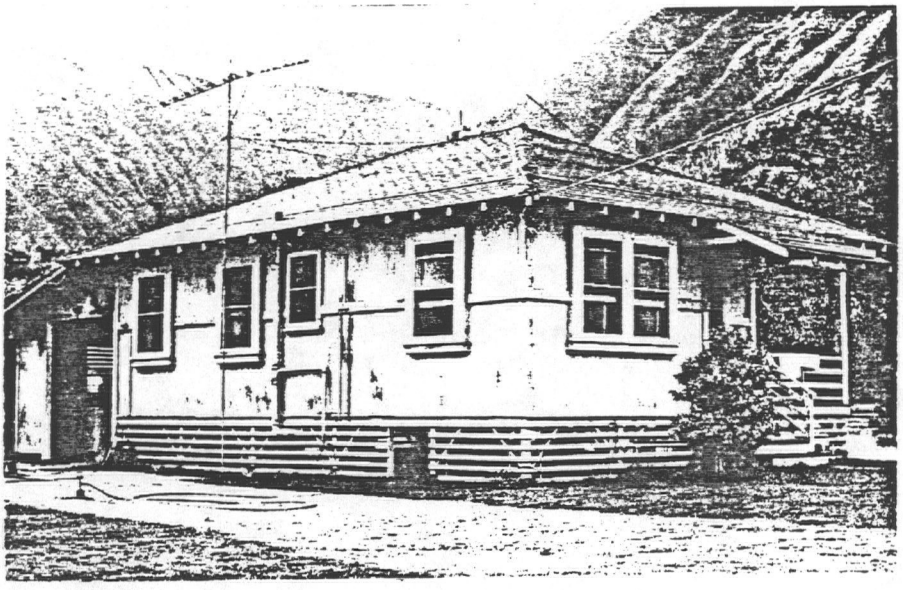
MAINTENANCE COST: $3,300
FUTURE MAINTENANCE COST: $400/annum
DATE OF REPORT: January 14, 1977



STRUCTURE: Building 64-186
LOCATION: Kaiulani Street
USE: Residence
SIZE: Approx. 1200 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1964
DESCRIPTION: The structure is a one-story building of single wall construction, with a concrete pad and post foundation. Termite shields are located between the concrete pads and wood posts. The gable roof is finished with composition shingles. A small wooden front porch provides access to the front door. The wood frames of the jalousie windows project several inches from the exterior wall. A fixed sash picture window is also located at the front of the structure. A broken girt encircles the exterior of the structure. A carport, with a flat roof and concrete slab foundation protrudes from the northwest side of the structure. The building is occupied and in good condition. Fumigation is recommended.

SIGNIFICANCE: Hicks Home - none

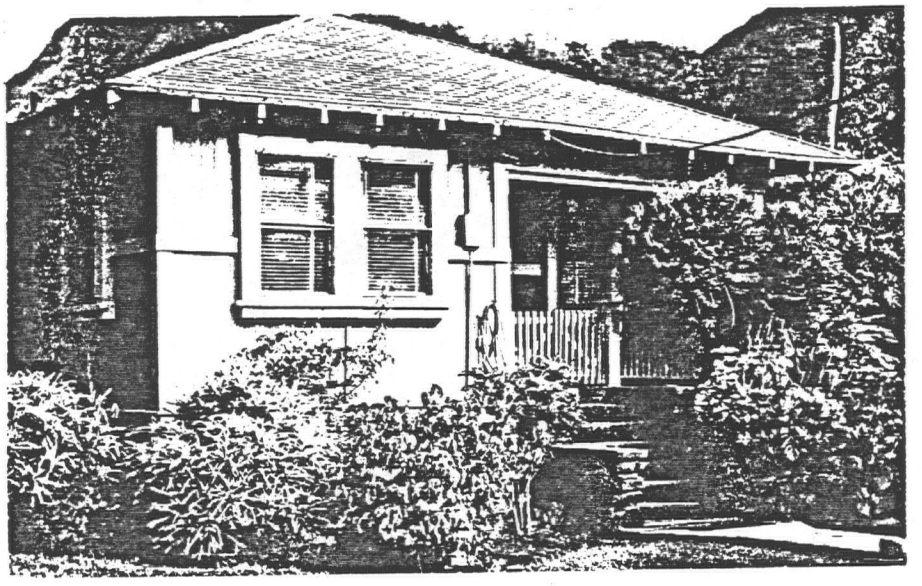
MAINTENANCE COST: $800
FUTURE MAINTENANCE COST: $500/annum
DATE OF REPORT: January 14, 1977



STRUCTURE: Building 210 (or 71R-185)
LOCATION: Kauilani Street
USE: Residence
SIZE: 36 x 26 + 14 x 14 wash house OWNERSHIP: State
DATE OF STRUCTURE: 1931 (?)
DESCRIPTION: The structure is a one-story building of single wall construction with a concrete pad and post foundation. Termite shields are located between the pads and wood posts. The hip roof is finished with composition shingles. Wood steps provide access to the recessed corner porch which is incorporated under the hip roof. A chamfered post and two chamfered pilasters articulate the edges of the porch. The corners of the building are finished with cornerboardsThe wood frames of the double hung windows project several inches from the exterior of the vertical plank wall. A broken girt encircles the exterior. A partially enclosed wash house, with a concrete foundation and a shed roof is located at the rear of the rectangular structure. The building is occupied and in fair condition. Termite damage should be repaired. The structure should be fumigated and painted.

SIGNIFICANCE: One of many of same age and plan.

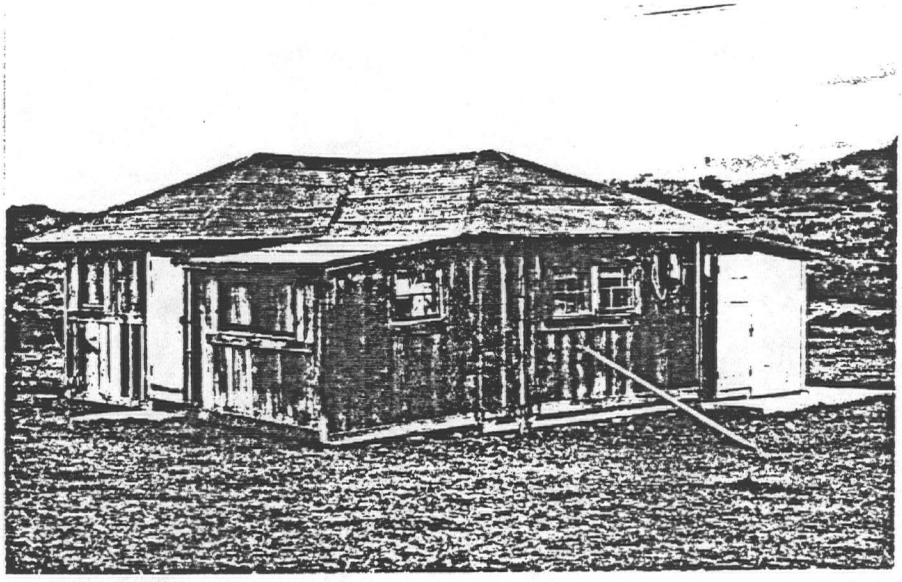
MAINTENANCE COST: $2,100
FUTURE MAINTENANCE COST: $400/annum
DATE OF REPORT: January 14, 1977



STRUCTURE: Building 199
LOCATION: Kapiolani Street
USE: Residence
SIZE: Approx. 1000 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1932
DESCRIPTION: The structure is a one-story building of single wall construction with a pad (concrete and stone) and post foundation. The hip roof is finished with composition shingles. Stone and concrete steps provide access to the recessed corner porch which is incorporated under the hip roof. A chamfered post and two chamfered pilasters articulate the edges of the porch. Other corners of the structure are finished with cornerboards. The wood frames of the double hung windows project several inches from the exterior of the vertical plank wall. A broken girt encircles the exterior. A partially enclosed porch (wash house) with a shed roof, is located at the rear of the rectangular structure. The building is occupied and in fair condition. Vegetation should be cleared from the base of the structure. Rot and termite-damaged boards should be replaced. The structure should be fumigated.

SIGNIFICANCE: one of many of same plan.

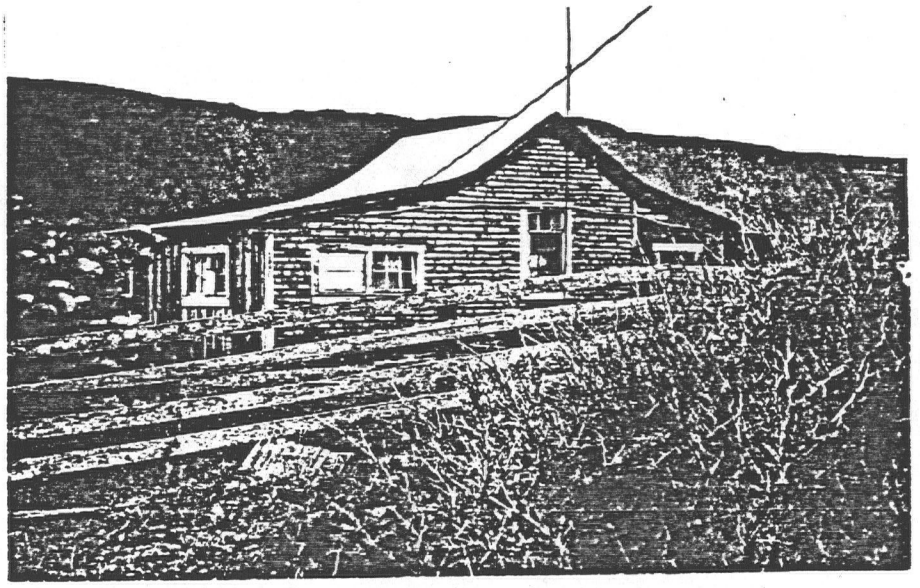
MAINTENANCE COST: $2,000
FUTURE MAINTENANCE COST: $500/annum
DATE OF REPORT: January 15, 1977



STRUCTURE: Building 691
LOCATION: Airport Road
USE: Beach house
SIZE: Approx. 25 x 30 OWNERSHIP: Private
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a frame building of single wall construction, with a board and batten exterior finish, with board and batten and vertical plank siding. A water table at the sole plate encircles the structure. The intersecting hip and shed roofs are finished with rolled composition roofing material. The foundations consists of stone footings, and a small concrete slab under one section of the building. The structure is used intermittently, and in poor condition.

SIGNIFICANCE: None

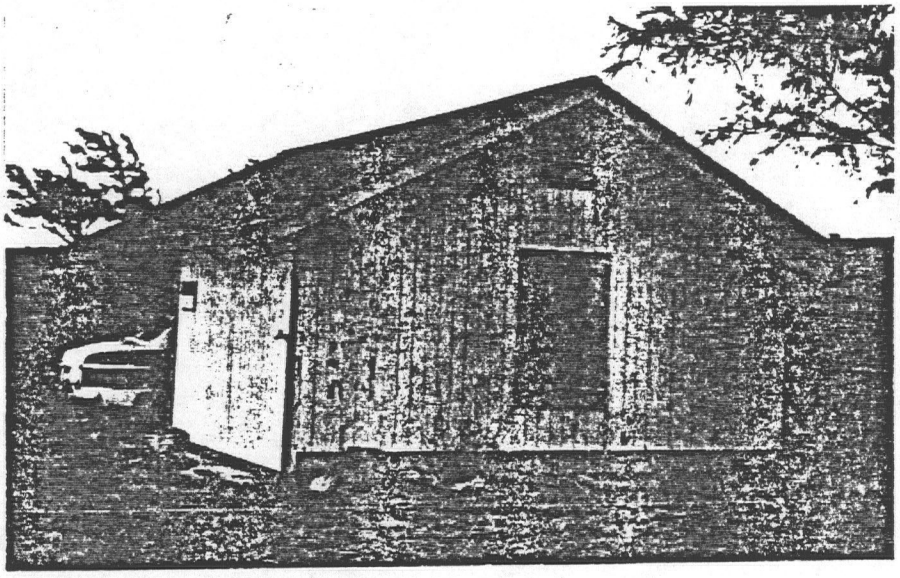
MAINTENANCE COST: No estimate
FUTURE MAINTENANCE COST: No estimate
DATE OF REPORT: October 14, 1976



STRUCTURE: Building 693
LOCATION: Airport Road
USE: Beach house
SIZE: Approx. 20 x 30 OWNERSHIP: Private
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a frame building of single wall construction, with exterior wall sections varying from board and batten to vertical plank siding to wood shingle finishes. The foundation consists of stone footings and wood posts. The gable and shed roofs are finished with composition shingles. The structure receives intermittent use, and in poor condition.

SIGNIFICANCE: None

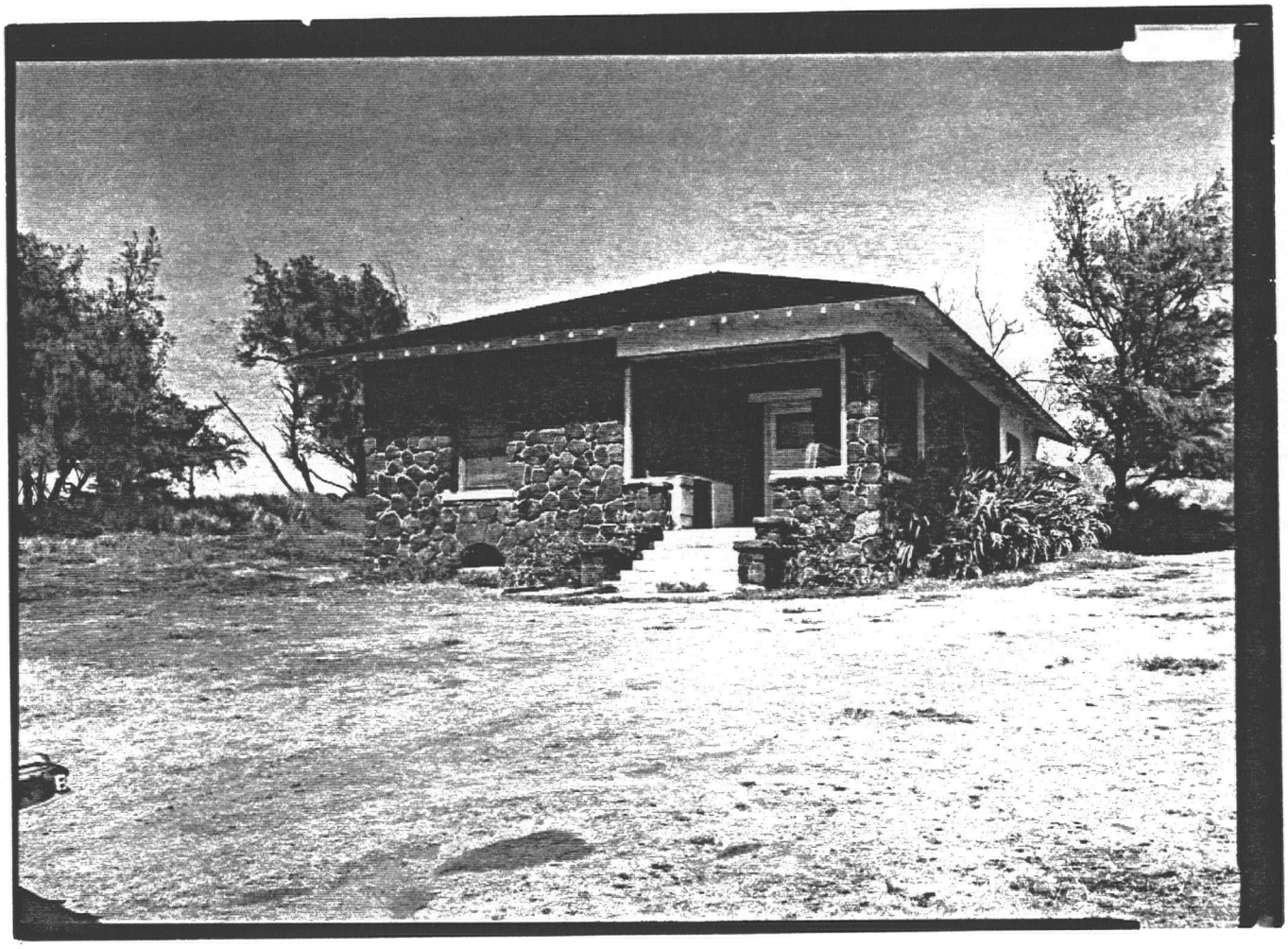
MAINTENANCE COST: No estimate
FUTURE MAINTENANCE COST: No estimate
DATE OF REPORT: October 14, 1976



STRUCTURE: Building 709
LOCATION: Lighthouse area
USE: Garage and storage
SIZE: Approx. 12 x 20 OWNERSHIP: G.S.A.
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a frame building of single wall construction, built on a concrete slab. The gable roof is finished with composition shingles. Louvers are located at the gable ends. The walls are vertical plank siding. The building is used and in poor condition.

SIGNIFICANCE: Unknown, probably none.

MAINTENANCE COST: No estimate
FUTURE MAINTENANCE COST: No estimate
DATE OF REPORT: October 14, 1976



HABS PHOTO #
HI-99-F-2

STRUCTURE: Building 707
LOCATION: Lighthouse area
USE: Residence (intermittent)
SIZE: Approx. 1200 sq. ft. OWNERSHIP: G.S.A.
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a single story rubble masonry building (or possibly wood frame with rubble veneer), with a stone foundation. Stone and concrete steps provide access to the recessed corner porch (main entrance) which is incorporated under the hip roof. The roof is finished with asbestos shingles. Arched openings at the base of the structure make the crawl space accessible. Wall openings (windows and a door) are edged with reinforced concrete lintels and sills. An addition to the rear of the building is constructed of wood frame on a concrete slab. A girt, broken by the wood frame windows, encircles the addition. The building seems to be in fair to poor condition.

SIGNIFICANCE: Without the addition, the structure is remarkably similar to the Kalaupapa residences constructed in the 1930's, but with a stone veneer. Maintenance needs were noted, but no estimate was done (see building work sheets).

MAINTENANCE COST: No estimate
FUTURE MAINTENANCE COST: No estimate
DATE OF REPORT: January 28, 1977

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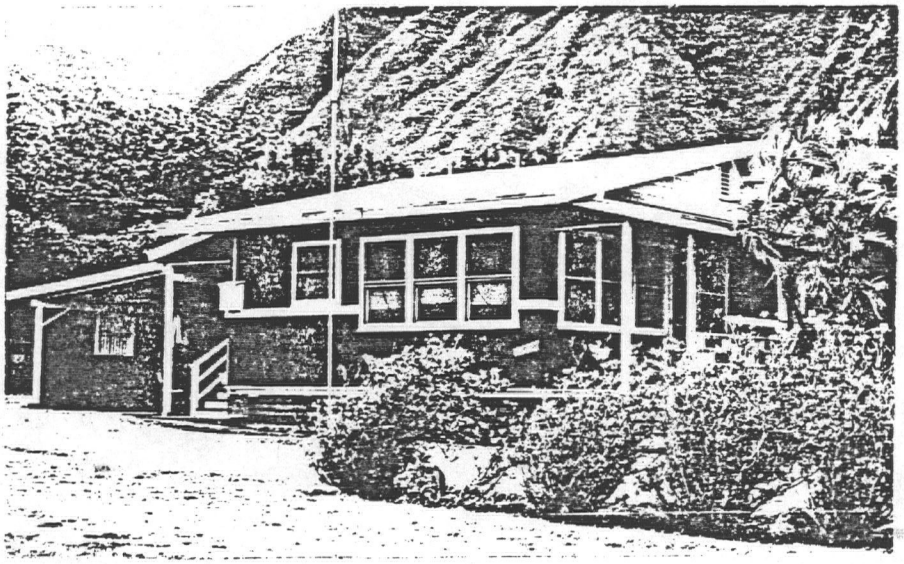
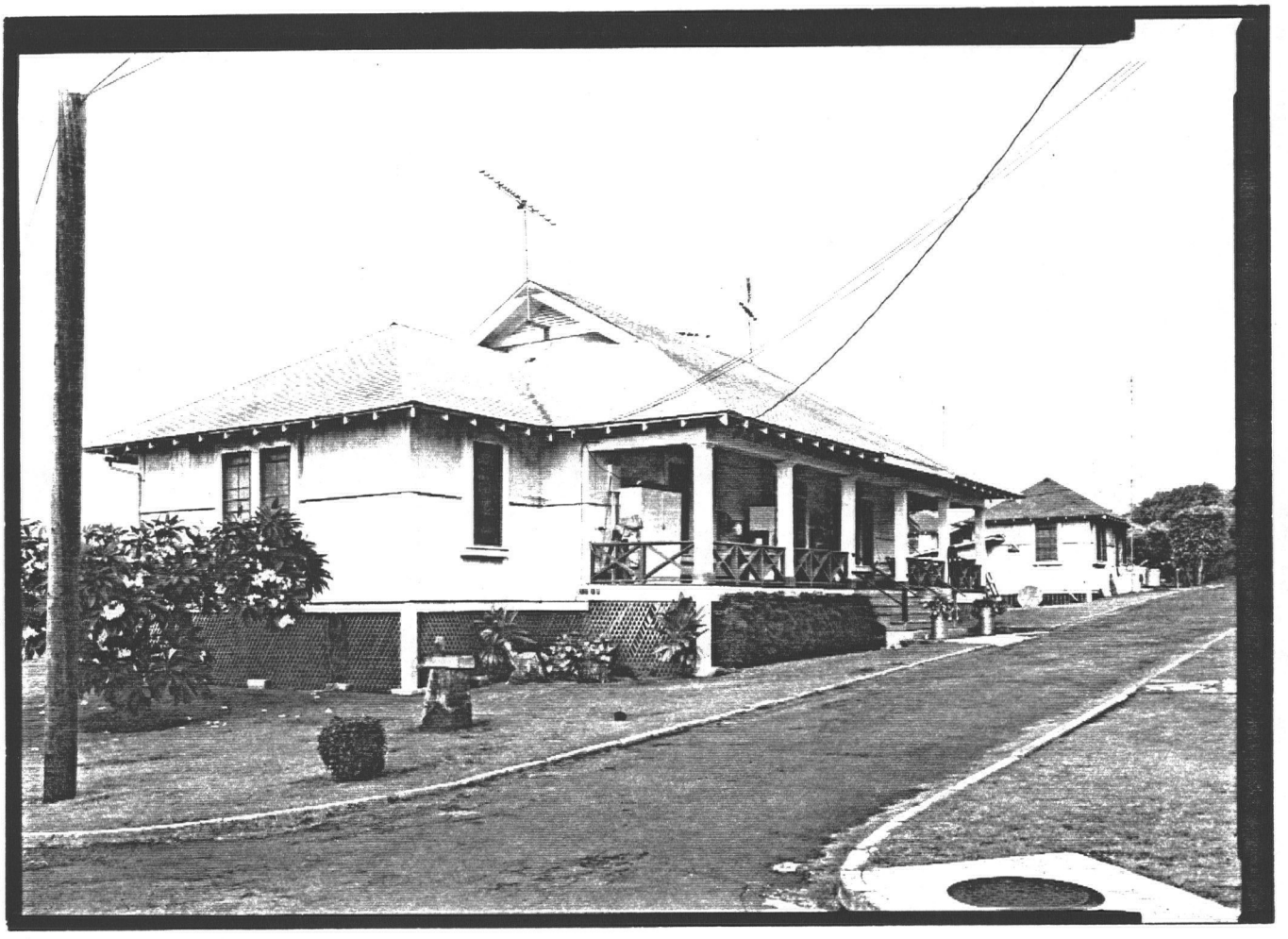


STRUCTURE: Building 56-178
LOCATION: Baldwin Street
USE: Residence
SIZE: 22 x 36 + carport OWNERSHIP: State
DATE OF STRUCTURE: 1956
DESCRIPTION: The structure is a one-story building of single wall construction with a concrete pad and post foundation. Termite shields are located between the pads and wood posts. The gable roof is finished with metal roofing. A small wood porch, with a shed roof, provides access to the front entrance to the dwelling. The wood frames of the two-sash double hung windows project several inches from the exterior walls. A continuous girt surrounds most of the structure, except at the northwest corner, where it is broken by the front door and a series of windows. A carport with a concrete slab foundation and a shed roof is located at the rear (east) of the structure. The building is occupied and in good condition. Painting and fumigation are recommended.

SIGNIFICANCE: Hicks Home - none

MAINTENANCE COST: $1,840
FUTURE MAINTENANCE COST: $450/annum
DATE OF REPORT: January 14, 1977



HABS PHOTO #
HI-95-A-2

STRUCTURE: Building 28
LOCATION: McVeigh Home
USE: Former Dormitory
SIZE: Approx. 3500 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1929
DESCRIPTION: The structure is a one-story building of single wall construction, with a concrete pad and post foundation. The main hip roof (with gablet) is flanked by hip roofs of the wings at the east and west ends of the structure. The roof complex is finished with grey composition shingles. A railing with a traditional vernacular pattern encloses the recessed veranda which runs the length of the main wing. Corners of the structure are finished with cornerboards. The wood frames of the 12-light double hung windows project several inches from the exterior wall. A broken girt encircles the exterior. The structure was originally divided into 12 bedrooms. The building is unoccupied and in poor condition. Vegetation should be cleared from the base of the structure. Much of the lumber needs replacement. The interior and exterior should be cleaned and painted. The structure is infested with termites and should be fumigated.

SIGNIFICANCE: McVeigh Home, one of three original structures.

MAINTENANCE COST: $41,450
FUTURE MAINTENANCE COST: ~~$1000/annum~~
DATE OF REPORT: January ~~1~~, 1977

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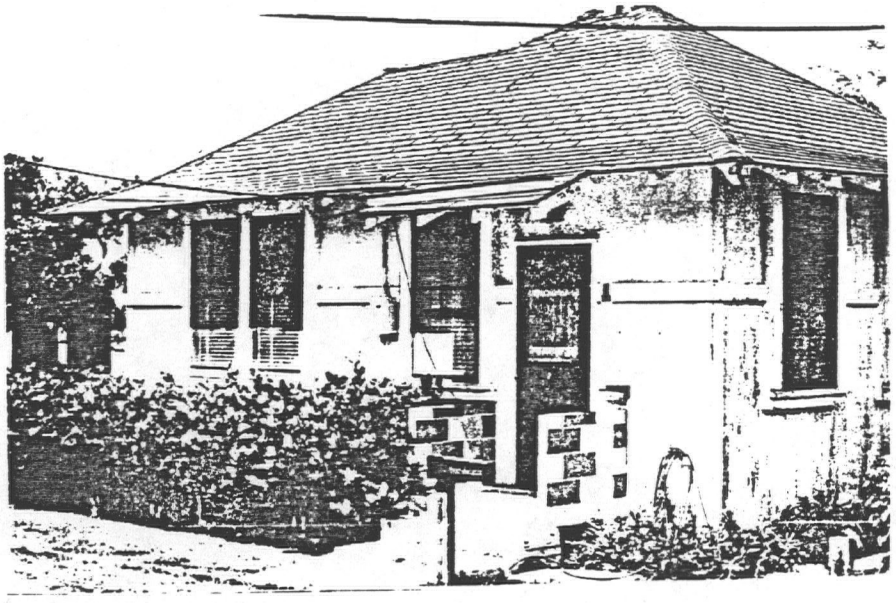


STRUCTURE: Building 9
LOCATION: McVeigh Home
USE: Residence
SIZE: Approx. 500 sq. ft. OWNERSHIP: State
DATE OF STRUCTURE: 1933
DESCRIPTION: The structure is a one-story building of single wall construction, with a concrete pad and post foundation. The irregularly shaped hip roof has broken pitch, and is finished with red composition shingles. A small concrete entrance porch is edged by hollow tile solid railings. The wood frames of the 12-light double-hung windows projects several inches from the exterior wall. A broken girt surrounds the exterior of the building. The corners of the structure are finished with cornerboards. A partially enclosed exterior washroom, constructed on a concrete slab and with a shed roof, is located at the rear of the L-shaped structure. The building is occupied, and is in fair condition. The structure is in need of some board replacement, fumigation, and painting.

SIGNIFICANCE: McVeigh Home

MAINTENANCE COST: $1560
FUTURE MAINTENANCE COST: $350/annum
DATE OF REPORT: January 11, 1977

STRUCTURE: Building 309
LOCATION: McKinley Street
USE: Storage
SIZE: Approx. 18 x 18 OWNERSHIP: Private
DATE OF STRUCTURE: Unknown
DESCRIPTION: The structure is a one-story building of single wall construction, with a stone pad and post foundation. The structure has a gable roof, finished with corrugated metal. An extension (addition?) on the north side of the structure is sheltered by a shed roof. Another shed roof, finished with wood shingles, covers the front entrance way. The corners of the structure are finished with cornerboards. The structure is in poor condition, and preservation is of questionable value.

SIGNIFICANCE: Not of architectural significance, and in more deteriorated condition than the main structure. Historical significance is also doubtful, but should be research before demolition is approved.

MAINTENANCE COST: $9720
FUTURE MAINTENANCE COST: $250/annum
DATE OF REPORT: January 13, 1977

Appendix H Park and Region Approval/Park Recommendation Memos, Park/Region Review Comments, DSC Responses

United States Department of the Interior

NATIONAL PARK SERVICE
Western Region
600 Harrison Street, Suite 600
San Francisco, California 94107-1372

IN REPLY REFER TO

H3015 (WR-OR)
KALA-107E-15

14 DEC 1992

Memorandum

To: Manager, Western Team, Denver Service Center

From: ACTING Regional Director

Subject: Review and Approval of Fire Protection Study, Package 107E, Pt. 15, Kalaupapa National Historic Park

The subject Study has been reviewed and is approved subject to the following comments:

The estimated cost of $2,465,380.00 for structural repairs and the installation of automatic fire protection systems in only 12 relatively small buildings, although well explained and documented, seems very expensive. We urge careful consideration of all possible means of reducing the total expenditures on this project.

As plans and specifications develop further for this project, an examination of **"Impacts of HDOT Construction Workers on the Kalaupapa Community"** (Imamura) should be done. A copy of that document has been sent to the Service Center to Mr. Willis. Similar requirements would be expected of NPS in this project that could affect scope, cost, timing, etc. Early contact with appropriate entities seems critical.

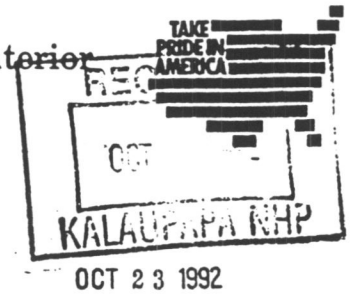
As of this date, we have received no comments on this project from staffs of either the Pacific Area Office or Kalaupapa National Historic Park; however, in a telephone conversation with Kalaupapa Maintenance Supervisor Borgmeyer on December 7, 1992, he indicated that written comments would be sent directly to the Service Center.

Lynn Albert

Alan
Neal

United States Department of the Interior

NATIONAL PARK SERVICE
DENVER SERVICE CENTER
12795 W. ALAMEDA PARKWAY
P.O. BOX 25287
DENVER, COLORADO 80225-0287



IN REPLY REFER TO:

H3015 (DSC-TWE)
KALA-107E-15

To: Regional Director, Western Region

From: Manager, Western Team, Denver Service Center

Reference: Kalaupapa National Historical Park, Pkg. 107E, PT 15, Fire Protection for Historic Buildings

Subject: Review and Approval of Fire Protection Study

Attached are two copies of the Fire Protection Study as recommended by this office. By copy of this memorandum, we are sending the Pacific Area Office two copies and the park three copies for their review and recomendation. We are asking the Pacific Area Office and the park to send their review comments to your office for consolidation.

Please indicate your approval in the appropriate box and return a copy of this memorandum to DSC by November 23, 1992. If you have questions on this document, please contact Paul Cloyd, Project Architect, at 303/969-2285.

(SGD) Robert S. Budz

Robert S. Budz

Attachments (2)

☐ Approved meeting management requirements

☐ Approved subject to attached comments

Recommended:

Regional Director Date

Superintendent Date
ACTING

cc:
Supt., Kalapaupa, (3)
Pacific Area Office, w/att. (2)
Chief, Park Historic Preservation, Western Region, w/att.

United States Department of the Interior

NATIONAL PARK SERVICE
Kalaupapa National Historical Park
Kalaupapa, Hawaii 96742

IN REPLY REFER TO:

December 14, 1992

To: Manager, Western Team, Denver Service Center

From: Facility Manager, Kalaupapa NHP

Reference: Fire Protection Study, Pkg. 107E. PT 15. Fire Protection of Historic Structures, Kalaupapa National Historical Park.

Subject: Park Review of Fire Protection Study

Enclosed are the park comments concerning the above referenced Fire Protection Study.

- Bay View Building 2 and Bay View Building 1 should be switched in the priority list. Bay View 2, even though it has a higher CRMP priority number, is currently unoccupied, whereas Bay View Building 1 is occupied with several elderly and handicapped residents. It is highly unlikely that Bay View 2 will ever be occupied by patients again.

- We concur with the overall criteria and remainder of the priority list.

- There is the distinct possibility that the priority and number of residential structures will change, perhaps significantly, between now and project start-up due to mortality of the patient population. Six to twelve years from now there will be fewer patient residents living in houses.

- We concur that the CRMP priorities originally established for non-Landmark buildings is outdated and needs to be reworked. This should not effect any buildings currently on the LCS, however.

- We concur that the most cost effective way to accomplish the work is through a combination of day-labor and contract. It must be noted that the feasibility of such an arrangement depends completely upon the availability of housing for NPS employees. There is currently no housing available for additional NPS employees: this is not likely to change in the near future. The same housing shortage will probably also effect any contractor's employees.

If you have any questions concerning any of this please feel free to call at 808-567-6862 or Fax 808-567-6135.

Thank you,

Neal Borgmeyer

WESTERN REGIONAL OFFICE
REVIEW COMMENTS

January 4, 1993

PARK AND PKG. NO: KALAUPAPA NHP / PACKAGE KALA 107E, PROJECT TYPE 15
PROJECT: FIRE PROTECTION STUDY FOR HISTORIC BUILDINGS
REVIEWER: WESTERN REGIONAL OFFICE STAFF

NO.	REVIEW COMMENTS	ACTION TAKEN ON COMMENTS
1	The estimated cost of $2,465,380.00 for structural repairs and the installation of automatic fire protection systems in only 12 relatively small buildings, although well explained and documented, seems very expensive. We urge careful consideration of all possible means of reducing the total expenditures on this project.	We have added text to clarify that the estimates are a class C and intended to provide a "ball park" figure. The added text also notes that 75 to 80% of the costs are related to structural repairs. Estimates will be further refined and documented in the design stage. We also note that these 12 buildings constitute nearly 35,000 square feet of building. [PCC]
2	As plans and specifications develop further for this project, an examination of "Impacts of HDOT (Hawaii Department of Transportation) Construction Workers on the Kalaupapa community" (Imamura) should be done. A copy of that document has been sent to the Service Center to Mr. Williss. Similar requirements would be expected of NPS in this project that could affect scope, cost, timing, etc. Early contact with appropriate entities seems critical.	We concur. This is now reflected in the text under Part IV Recommendations and Conclusions. [PCC]

KALAUPAPA NATIONAL HISTORICAL PARK
REVIEW COMMENTS

January 4, 1993

PARK AND PKG. NO: KALAUPAPA NHP / PACKAGE KALA 107E, PROJECT TYPE 15
PROJECT: FIRE PROTECTION STUDY FOR HISTORIC BUILDINGS
REVIEWER: NEAL BORGMEYER, FACILITY MANAGER, KALA

NO.	REVIEW COMMENTS	ACTION TAKEN ON COMMENTS
1	Bay View Building 2 and Bay View Building 1 should be switched in the priority list. Bay View 2, even though it has a higher CRMP priority number, is currently unoccupied, whereas Bay View Building 1 is occupied with several elderly and handicapped residents. It is highly unlikely that Bay View 2 will ever be occupied by patients again.	Bay View Building 2 is now switched with Bay View Building 1 on tables 2 and 3 as per comment. [PCC]
2	We concur with the overall criteria and remainder of the priority list.	No action required. [PCC]
3	There is the distinct possibility that the priority and number of residential structures will change, perhaps significantly, between now and project start-up due to mortality of the patient population. Six to twelve years from now there will be fewer patient residents living in houses.	This is now reflected in the document under part IV recommendations and conclusions. [PCC]
4	We concur that the CRMP priorities originally established for non-Landmark buildings is outdated and needs to be reworked. This should not effect any buildings currently on the LCS, however.	No action required. [PCC]
5	We concur that the most cost effective way to accomplish the work is through a combination of day-labor and contract. It must be noted that the feasibility of such an arrangement depends completely upon the availability of housing for NPS employees. There is currently no housing available for additional NPS employees: this is not likely to change in the near future. The same housing shortage will probably also effect any contractor's employees.	This is now reflected in the text in Part IV recommendations and conclusions - construction. [PCC]

This document was prepared by the United States Department of Interior/National Park Service, Denver Service Center, Western Team, Branch of Design. Document Number NPS-D20