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Philadelphia Naval Regional Medical Center Is Badly Deteriorated and Unsafe. LCD-78-301; B-101646. February 17, 1978. 13 pp.

Report to Secretary, Department of the Navy; by Robert G. Rothwell (for Fred J. Shafer, Director, Logistics and Communications Div.).

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Congressional Relevance: House Committee on Armed Services; Senate Committee on Armed Services.

The Philadelphia Naval Regional Medical Center consists of a 42-year old, 13-story main hospital building, various outlying temporary single-story World War II structures, and 10 clinics at nearby shore activities. Because of age and inadequate maintenance, the main hospital and other structures at the Center have deteriorated. Findings/Conclusions: As early as 1973 unsafe conditions were reported at the Center. Among the conditions reported in many of the buildings were: violations of the National Fire Protection Association's fire safety code; lack of emergency power and lighting in the medical, surgical, and recovery wards; leaking roofs, and deficiencies in wiring systems; lack of proper ventilation and fire deterrent systems; and general obsolescence and deterioration of the buildings. Correction of major deterioration and safety problems would cost about \$14 million. To remedy the fire and other safety deficiencies alone would cost about \$3 million. In view of the poor condition of the Center and its low use, continued operation in its present condition is unsafe and expensive. Until the Navy's need for medical facilities in the Philadelphia area is determined, it cannot plan the most economical and efficient means of providing required services. Recommendations: The Secretary of the Navy should: determine the long-range requirements for Naval medical facilities in the Philadelphia area; compile the budgetary plans for necessary renovation or new construction; and budget, as early as possible, the funds considered necessary for safety improvements to the present facilities pending the availability of alternate facilities. (RRS)

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**UNITED STATES
GENERAL ACCOUNTING OFFICE**

**Philadelphia Naval Regional
Medical Center Is Badly
Deteriorated And Unsafe**

Due to advanced age and inadequate repairs and maintenance, the Philadelphia Naval Regional Medical Center has deteriorated badly. As a result, the main hospital and many other buildings are unsafe. Since 1973 unsafe conditions have been reported by Navy engineers and the Joint Commission on Accreditation of Hospitals. However, the Department of the Navy has not scheduled corrective action until 1983 when a \$73 million replacement hospital is planned for the Philadelphia area.



UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

LOGISTICS AND COMMUNICATIONS
DIVISION

B-101646

The Honorable
The Secretary of the Navy

Dear Mr. Secretary:

This is our report on the condition of facilities at the Naval Regional Medical Center, Philadelphia, Pennsylvania. The points raised in this report were disclosed during our survey of the use and maintenance of naval shore facilities. The matters relating to the Medical Center have been discussed with Navy officials; their comments have been included. The overall results of our survey will be included in a separate report to you.

This report contains recommendations on page 13. As you know, section 236 of the Legislative Reorganization Act of 1970 requires the head of a Federal agency to submit a written statement on actions taken on our recommendations to the Senate Committee on Governmental Affairs and the House Committee on Government Operations not later than 60 days after the date of the report and to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report.

Copies of this report are being sent to the Chairmen of the Senate and House Committees on Appropriations and Armed Services, House Committee on Government Operations, Senate Committee on Governmental Affairs; the Acting Director, Office of Management and Budget; interested Members of Congress; and the Secretary of Defense.

Sincerely yours,

R. S. Rothwell
for F. J. Shafer
Director

D I G E S T

The 13-story main hospital building of the Philadelphia Naval Regional Medical Center was constructed in 1935. Temporary single-story structures and several clinics at nearby shore facilities were added later, primarily in World War II. The main facilities of the Center now consist of 70 structures located on about 49 acres. For fiscal year 1977, a Navy official stated that the annual operating costs of the Center were about \$25.6 million.

The latest major use of the hospital facilities occurred during the Vietnam conflict, when a peak of about 1,100 beds were occupied. At June 1, 1977, the number of inpatients was down to only 170. The number of outpatients treated at the Center also decreased substantially. (See p. 11 and 12.)

Because of age and inadequate maintenance, the main hospital and many other structures at the Center have deteriorated badly. As early as 1973 unsafe conditions were, and have continued to be, reported after inspections by the Navy and the Joint Commission on Accreditation of Hospitals. Among the unsafe conditions reported in many buildings are:

- Violations of the National Fire Protection Association's fire safety code.
- Lack of emergency power and lighting in the medical, surgical, and recovery wards.
- Leaking roofs and deficiencies in wiring systems.

--Lack of proper ventilation and fire deterrent systems.

--General obsolescence and deterioration of buildings. (See pp. 3 to 5.)

GAO observed the following unsafe conditions at the main hospital during a recent inspection:

--A steel structural column inadequately protected against heat of a fire.

--An unsafe electrical panel system.

--Leaking and deteriorated steam pipes.

--A break in a firewall.

--A fire exit leading inside instead of outside. (See pp. 5 through 10.)

The Center estimated that correction of the major deterioration and safety problems will cost about \$14 million. The Navy's Bureau of Medicine and Surgery estimated that to remedy the fire and other safety deficiencies alone will cost about \$3 million. GAO was informed that the Navy cannot make major renovation funds available before 1981. In its long-range construction program, the Navy plans to construct a replacement hospital in 1983. (See pp. 3 and 12.)

In view of the very poor condition of the Center and its low use, continued operation in its present condition is unsafe and expensive. The Navy's need for medical facilities in Philadelphia (the types and capacity of services) has not been clarified. Until the Navy decides what it needs, it cannot plan the most economical and efficient means of providing the required services. In the meantime, at least minimum safety improvements are needed for the welfare of the patients, staff, and visitors at the Center.

GAO recommends to the Secretary of the Navy that he determine the long-range requirements for Naval medical facilities in the Philadelphia area, compile the budgetary plans for necessary renovation or new construction, and budget as early as possible the funds considered necessary for safety improvements to the present facilities pending the availability of alternative facilities.

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ABBREVIATIONS

BUMED	Bureau of Medicine and Surgery
DOD	Department of Defense
GAO	General Accounting Office
JCAH	Joint Commission on Accreditation of Hospitals
JAVFAC	Naval Facilities Engineering Command

CHAPTER 1

INTRODUCTION

The Naval Regional Medical Center, Philadelphia, Pennsylvania, (Center) is the focal point in a health care system which serves military personnel and other eligible individuals in the Northeastern United States. The Center is composed of the main facilities in Philadelphia and 10 branch clinics spread out in three States. This regional health care system serves the medical needs of over 100,000 persons.

The mission of the Center is to (1) provide general/specialized clinical and hospitalization services for active duty Navy and Marine Corps personnel, active duty members of other Armed Services, dependents of active duty personnel, and other personnel as authorized by current directives; (2) provide coordinated dispensary health care services as an integral element of the Naval Regional Health Care System; (3) provide common support services to all assigned activities; and (4) cooperate with military and civilian authorities in matters pertaining to health, sanitation, local disasters, and other emergencies.

As of September 30, 1977, the Center had 720 military and 462 civilian personnel under the Commanding Officer of the Medical Center. The Center's Commanding Officer is responsible to the Navy Surgeon General for health care matters and assists the Commandant, Fourth Naval District, in contingency and area coordination matters. The Navy Surgeon General, who is also Chief, Bureau of Medicine and Surgery, reports to the Chief of Naval Operations.

Department of Defense (DOD) Directive 4165.2 states, in part, that real property will be maintained and repaired in such a manner that the health and safety of those in and around the facility will not be endangered. The Chief of Naval Operations, in OPNAV Instruction 11010.23, stated that one of the reasons he has a particular concern with maintenance and repair of all Navy facilities, regardless of supporting fund source, is that:

"Deferral of maintenance and repair is an attractive alternative in an era of extreme pressure on resources. The effects of deferral are cumulative. The results become apparent in later years in the form of severe deterioration and greatly increased costs to correct the deficiencies."

According to Bureau of Medicine and Surgery (BUMED) officials, the Center must also meet the requirements of the National Fire Protection Association's fire safety code.

SCOPE OF REVIEW

Our review included Medical Center facilities located at 17th Street and Pattison Avenue in Philadelphia. We did not visit the branch clinics.

We evaluated Navy policies, procedures, and practices for maintaining real property at the Center. We observed the physical condition of selected facilities and discussed maintenance and safety requirements with Navy officials. We reviewed records and documents and evaluated reports relating to the condition of the Center.

Our review included work at the headquarters of the Naval Facilities Engineering Command (NAVFAC), the Bureau of Medicine and Surgery, and the Office of Chief of Naval Operations.

CHAPTER 2

NAVAL REGIONAL MEDICAL CENTER POSES

A SEVERE LIFE SAFETY HAZARD

The Center consists of a 42 year old, 13-story main hospital building, various outlying temporary single-story World War II structures, and 10 clinics at nearby shore activities. The single-story structures are approaching the end of their economic life. The main facilities of the Center are situated on about 49 acres of land and consist of 70 buildings and structures. Acquisition cost of the Center was about \$12 million and as of June 30, 1976, replacement costs were estimated at about \$73 million. A Navy official stated that the Medical Center had 170 beds occupied on September 30, 1977, and there were 12,524 out-patient visits during September 1977. Another Navy official said that the Center spent about \$25.6 million for operating expenses during fiscal year 1977.

Due to age and a lack of repairs and maintenance, the Center has deteriorated. According to NAVFAC Fire Protection Engineers, it is a "severe" life safety hazard. The Center's Commanding Officer reported in February 1977 to the Navy Surgeon General that it would cost an estimated \$14 million to correct major facilities deficiencies at the Center, of which \$1.5 million represented projects to correct safety deficiencies. A BUMED official later estimated that about \$3 million would be required to correct fire and safety deficiencies. BUMED officials said they requested funds for urgent repairs needed to correct life safety hazards, but as of September 7, 1977, sufficient funds had not been provided by the Navy.

UNSAFE MEDICAL CENTER FACILITIES DOCUMENTED BY THE NAVY

As early as 1973 unsafe conditions at the Center were, and have continued to be, documented in NAVFAC engineering evaluation and fire protection survey reports, Center deficiency reports, and Joint Commission on Accreditation of Hospitals (JCAH) survey reports. Examples of unsafe conditions shown in these reports are as follows:

- The main building did not conform to fire-resistive construction requirements.
- Most firedoors lacked proper fire-resistive ratings.

- Exit facilities were inadequate.
- There was a lack of documentation showing that all furnishings and ceiling tile were flame retardant.
- There was a lack of automatic sprinklers in key buildings, and existing sprinklers did not meet National Fire Protection Association requirements.
- Emergency power and lighting were not available to the medical, surgical, and recovery wards.
- The main kitchen was not equipped with a fire extinguishing system, and improved maintenance was needed for other fire protection equipment.
- The fire alarm system did not provide coverage to all wards; its wiring is old, deteriorating, and insufficient.
- The entire main building was in need of exterior waterproofing; its roofs were deteriorating and leaking.
- Deficiencies were found in the physical condition of 7 total buildings and structures and in wiring/feeder systems of 11 buildings and structures.
- Environmental control and fire deterrent systems were nonexistent in 13 and 18 buildings and structures, respectively.
- Obsolescence and deterioration were found in 12 total buildings and structures.

NAVFAC's July 1977 Fire Protection Engineering Survey stated that:

"Recorded inspections of the general plant conditions and fire protection equipment show an increased interest in fire protection and life safety. However, the life safety hazard in the main building is high due to the lack of an effective fire alarm notification system at all floor levels, deficient stair tower discharge exits at ground level, less than required fireproofing of the building's structural steel columns, the lack of an adequately pressurized standpipe system

at the upper floors, and the lack of emergency lighting and adequate fire doors throughout."

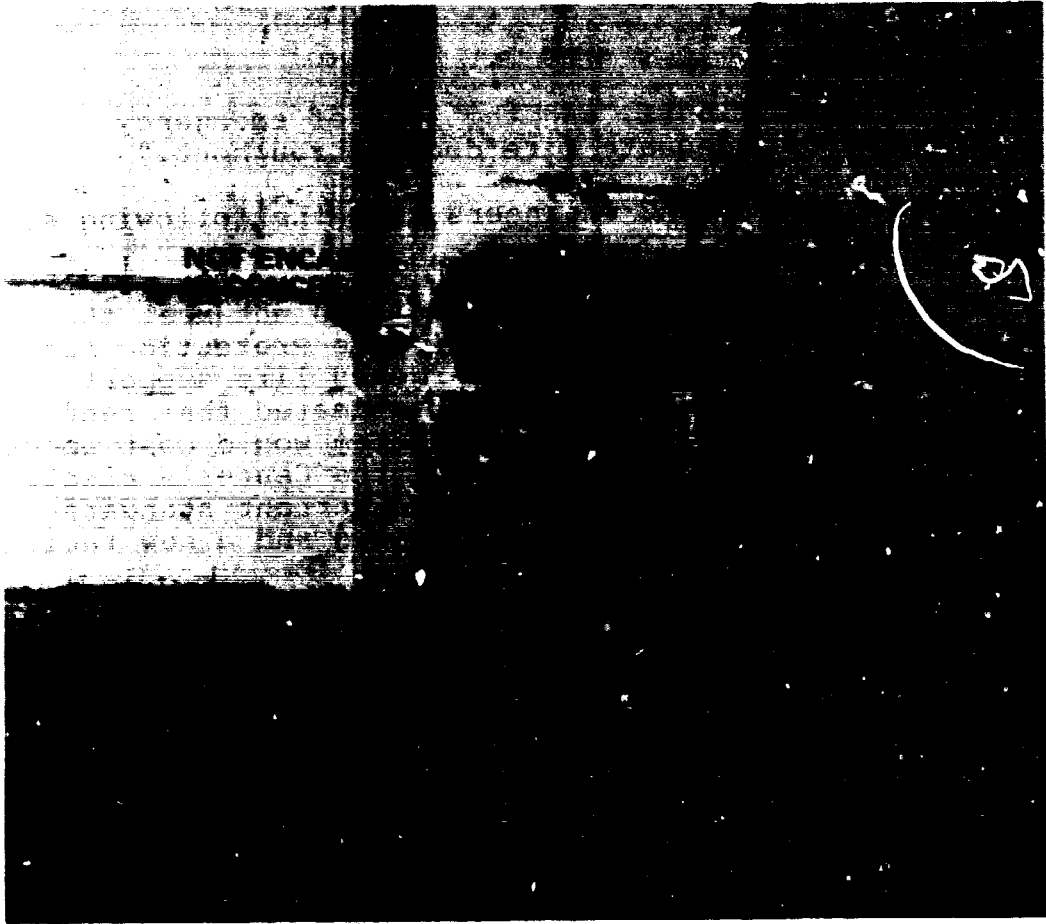
In addition, NAVFAC engineers said the following safety hazards exist:

--The Center's electrical system did not meet the requirements of the National Fire Protection Association's requirements for emergency life support patient systems. A NAVFAC official estimated that renovations to the existing electrical system would cost about \$2 million. He believes that the Center's electrical system should be brought up to current standards or the facility should be demolished and a new facility should be built.

--The standpipe system, which transports water from the basement to gravity tanks on the roofs, does not have enough pressure to force water to the fire hoses on the upper floors. The National Fire Protection Association's fire safety code requires at least 65 pounds of pressure in the system but the current system has only 10 pounds of pressure. Booster pumps are needed to achieve the required 65 pounds of pressure.

**UNSAFE CONDITIONS AT THE MAIN
HOSPITAL BUILDING OBSERVED BY US**

Some unsafe conditions in the Center's main hospital building which we observed in March 1977 are illustrated by the following photographs.



STEEL COLUMN IN BOILER ROOM

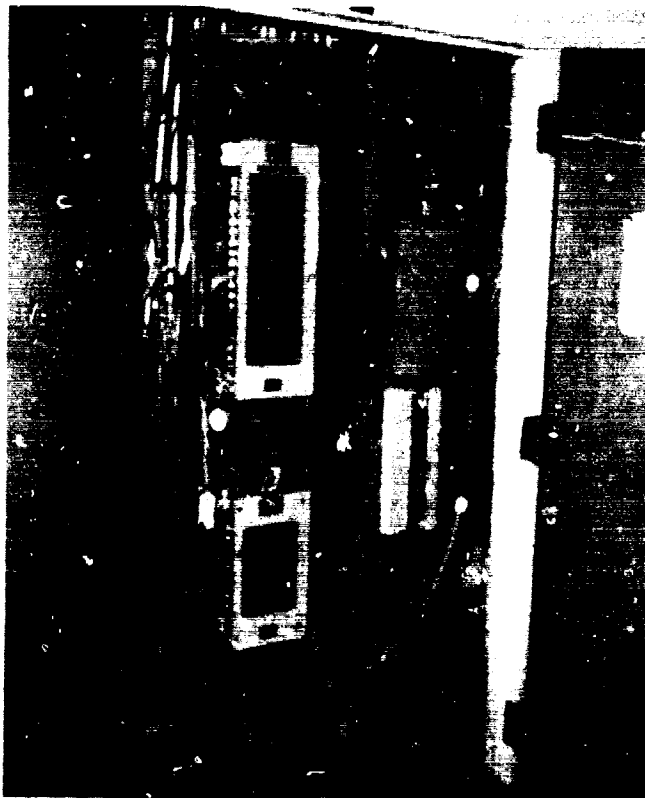
The steel column shown above was not encased in concrete but was partially covered with tile. The National Fire Protection Association's fire safety code requires multistory medical building structures to have a 3-hour fire-resistive rating for steel columns. In discussing a draft of this report with Navy officials, they referred to the steel column pictured above and noted that if only one column was not encased in concrete, the danger may not be too great. However, a July 1977 fire inspection report noted that none of the principal supporting steel columns were covered with 3 inches of concrete which would have made the building a 3-hour resistive structure. Since 4-inch hollow clay tile without wire ties generally enclosed most of the columns, a fire rating of only 1-hour protected noncombustibility can be applied to the structure.

A BUMED metallurgical and structural engineer stated that a fire could cause heat fatigue on steel columns and cause a building to collapse. In a September 1977 memorandum, he stated that:

"In a fire, at greatly elevated temperatures, steel structural members, under load, are susceptible to a metallurgical phenomenon known as, 'accelerated creep.' This means that loaded steel members, when heated to excessive temperatures will deform (bend) rapidly, causing a catastrophic structural failure (collapse) of affected members. Structural failure of unprotected steel members would propagate through an entire structure very rapidly, accelerated by increasing impact loads from adjacent structural failures.

"Said simply: Given that structural steel members were not fireproofed, should a major fire occur in the high-rise portion of NAVREGMEDCEN PHILA [Center], the building (or at least a substantial portion of the building) would likely collapse before all patients and staff could be removed."

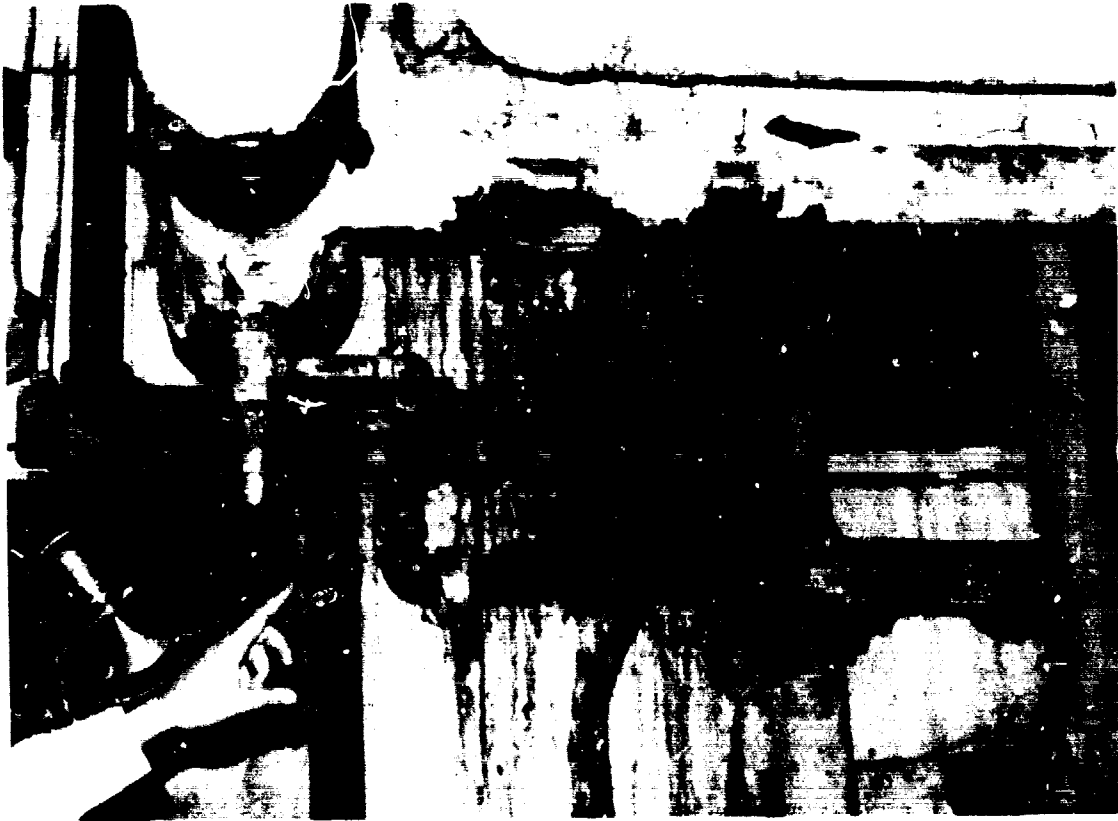
Other safety hazards were noted in the electrical and steam supply systems and the fire walls.



ELECTRICAL PANEL ON GROUND FLOOR

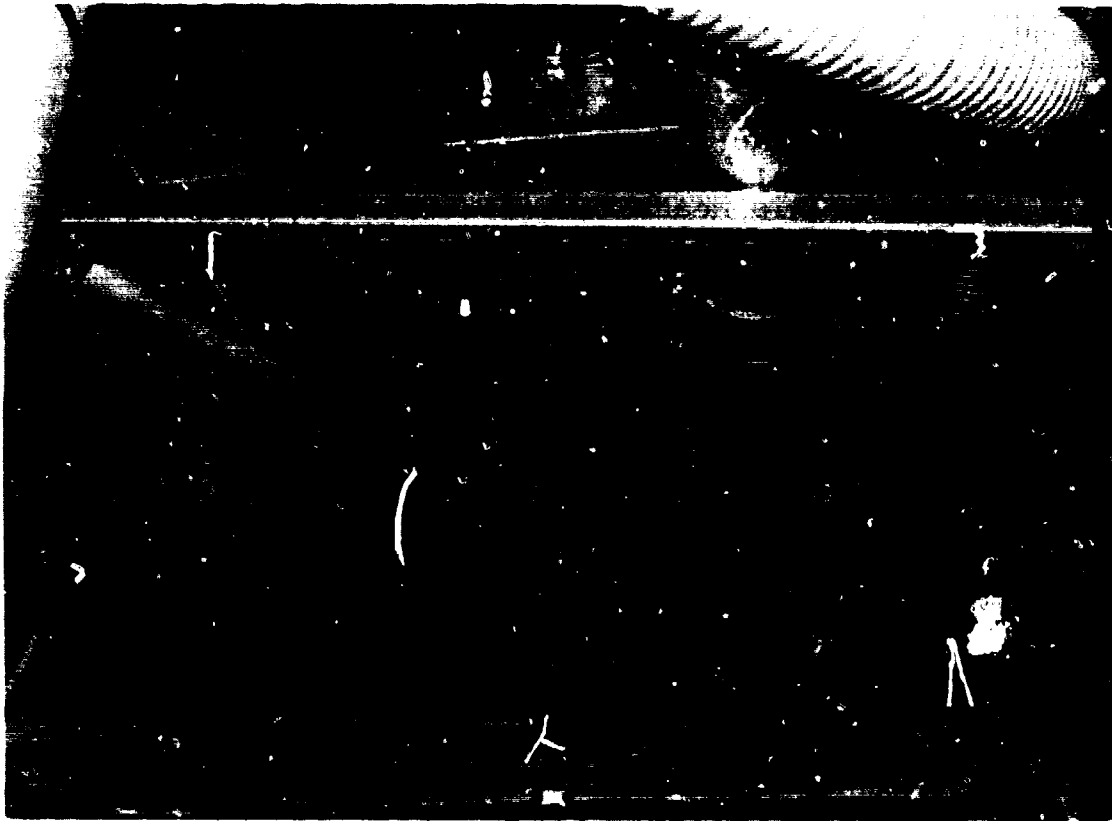
According to a NAVFAC official, the above electrical panel system is between 30 and 40 years old, wired carelessly,

loaded to capacity, and located in a crowded wire closet with poor or little ventilation and heat dissipation. Conditions are especially bad in the lower floor closets. As a result, a fire safety hazard exists which could result in destruction to property, danger to building occupants, and interruptions to hospital operations.



STEAM PIPES IN BOILER ROOM

Leaking and deteriorated steam pipes could cause safety hazards and disruption to steam supply.



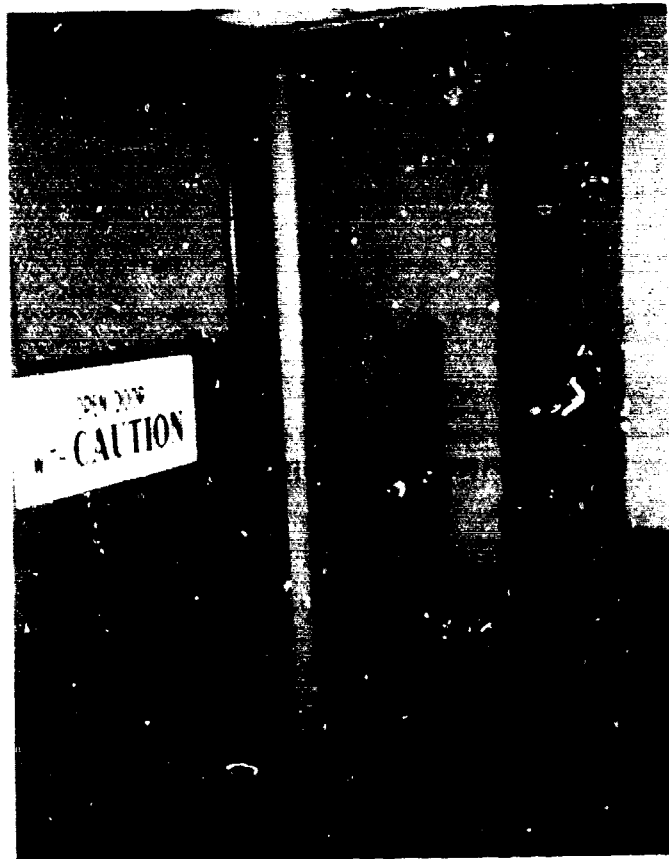
FIREWALL IN BASEMENT

Break in fire wall reduces fire protection, which could result in fire fatalities.

BUMED officials stated in September 1977 that the Center still posed a life safety hazard. The picture on the following page shows a fire exit leading to the ground floor corridor rather than outside as required by the National Fire Protection Association's fire safety code. Presently, both stair towers open into corridors rather than directly to the outside, as required, which considerably increases the time occupants would need to evacuate the building in an emergency.

In his September 1977 memorandum the BUMED engineer, referred to above, also noted that:

"* * * should a major fire occur, the time required to evacuate all patients and staff would be substantial because of the lack of patient mobility and poor facility configuration. This means that the facility must remain structurally sound for an extended period, even though a level or combination of levels were ablaze."



FIRE EXIT ON GROUND FLOOR

WHY THE CENTER HAS DETERIORATED

Navy officials attributed the condition of the Center to (1) the uncertainty of the future role of the hospital, (2) decreased activities at the hospital, and (3) insufficient maintenance funds.

Uncertain role of the hospital

Hospital officials stated that uncertainty on the continued role of the hospital in recent years has affected facilities planning and maintenance. In 1973 the hospital was designated a Regional Medical Center but operational goals or levels were not clearly defined. Military base realignments and closures also contributed to the uncertainty.

During congressional hearings held in April 1976, on military construction appropriations for 1977, Navy officials testified on plans to reduce activities at the hospital. Training programs were phased out during 1976 and the psychiatric program was transferred to the Regional Medical Center at Portsmouth, Virginia. The officials cited several factors contributing to the planned reduction of hospital activities:

- Need to reduce the number of training programs throughout the Navy Medical Department--there were too many medical officers in training and insufficiently trained physicians to do the teaching.
- The aging and deteriorated hospital facilities posed a tremendous replacement cost and problems in attracting medical trainees and teachers to such facilities.
- The patient population showed a constantly decreasing active duty component and Navy officials believed they could not continue to support the hospital on that basis.

In February 1977, the Secretary of the Navy issued a "Fact and Justification Sheet" stating that the operation of the hospital will be reduced to approximately 400 beds. However, the Commanding Officer, Northern Division, NAVFAC, stated in an April 1977 memo that based on the population of eligible individuals served by the Center, only a 147-bed requirement can be justified.

Decreased hospital activity

The Center provides medical services to active duty and retired military personnel and their dependents. Hospital officials stated that during the Vietnam conflict, the average daily inpatient load was as high as 1,100. Since the end of the conflict, the daily inpatient load has decreased significantly. The number of inpatient visits for January 1974 was 3,825 compared to 2,920 for December 1976. Also,

the Center had 327 inpatients on December 12, 1976, compared to 170 inpatients on June 1, 1977.

The number of outpatient visits has also declined--from 33,600 in January 1974 to 15,353 in December 1976.

Insufficient maintenance funds

In discussing a draft of this report with Navy officials, they stated that insufficient maintenance funds had prevented adequate corrections of safety hazards. Navy officials stated that, for the most part, available funds were used for emergency maintenance and repairs of temporary World War II buildings instead of the main hospital building.

These officials estimated that funds to correct existing hazards, if provided by the Navy, could not be available until fiscal year 1981. Further, they said that work to correct the Center's life safety hazards could take 5 years after funds are provided; therefore, safe occupancy would not occur until fiscal year 1986.

Navy officials also stated that current life safety standards developed in the past 5 years cannot be met by the Center because of the advanced age of its buildings. The Five-Year Medical Construction Program (Navy's medical construction priorities for fiscal years 1979 through 1983) indicates that an estimated \$73 million replacement hospital in the Philadelphia area is planned for fiscal year 1983.

CONCLUSIONS

The Navy has not adequately maintained and repaired buildings and structures that have badly deteriorated and have become unsafe at the Center. As a result, the Center poses a severe life safety hazard.

In view of the very poor condition of the Center and its low use, continued operation in its present condition is unsafe and expensive. The Navy's need for medical facilities in Philadelphia (the types and capacity of services) has not been clarified. Until the Navy decides what it needs, it cannot plan the most economical and efficient means of providing the required services. In the meantime, at least minimum safety improvements are needed for the welfare of the patients, staff, and visitors at the Center.

RECOMMENDATIONS

We recommend that the Secretary of the Navy:

- Determine the long-range requirements for Naval medical facilities in the Philadelphia area.
- Compile the budgetary plans for necessary renovation or new construction.
- Budget as early as possible the funds considered necessary for safety improvements to the present facilities pending the availability of alternative facilities.

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