REPORT BY THE

Comptroller General

OF THE UNITED STATES

What Has GSA Done To Resolve Previously Reported Problems In Its Construction Program?

This report summarizes design and construction problems experienced by GSA's Public Buildings Service. GAO and GSA have identified and reported these problems over the past 5 years or so. GSA's actions to implement recommendations made in the prior reports are also summarized.

The problems discussed are those which GAO believes have potential for recurrence. These can be summarized into eight categories: breakdowns in communication, ineffective design reviews, costly foundation problems, inadequate testing and inspections, management control weaknesses, after-occupancy problems, delays in project approval and funding, and miscellaneous problems.

The Public Buildings Service has taken, or is taking, actions to make improvements as recommended in the prior reports.

This report was requested by the former Chairman, Subcommittee on Public Buildings and Grounds, House Committee on Public Works and Transportation.

PLRD-81-7
MARCH 27, 1981

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON D.C. 20548

B-202084

The Honorable John G. Fary
Chairman, Subcommittee on Public
Buildings and Grounds
Committee on Public Works and
Transportation
House of Representatives

Dear Mr. Chairman:

This report is in response to your Subcommittee's request that we look into problems experienced by the General Services Administration in managing its public buildings construction program, including the renovation of existing buildings. We were also asked to identify, to the extent possible, the specific projects or buildings on which these problems occurred.

The report summarizes identified and reported problems which General Services' Public Buildings Service has experienced in acquiring Federal buildings. We believe that the problems discussed are those which have potential for recurrence. The report also highlights those recommendations, made by us and General Services' Office of Audits, which have not been fully implemented.

As arranged with your Office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 10 days from the date of the report. Then, we will send copies to other appropriate congressional committees; the Director, Office of Management and Budget; and the Administrator of General Services. We will also make copies available to others upon request.

Sincerely yours,

Milton J. Socolar

Acting Comptroller General
of the United States

REPORT BY THE
COMPTROLLER GENERAL

WHAT HAS GSA DONE TO RESOLVE PREVIOUSLY REPORTED PROBLEMS IN ITS CONSTRUCTION PROGRAM?

D I G E S T

GAO and the General Services Administration's (GSA's) Office of Audits have reported on design and construction problems that GSA's Public Buildings Service has experienced in acquiring Federal buildings. In this report, GAO summarizes problems identified over the past 5 years or so which have potential for recurrence and discusses actions taken to implement recommendations made in the prior reports.

The Public Buildings Service has taken, or is taking, actions to incorporate improvements previously recommended. It has also taken corrective steps on its own initiative. Those recommendations which the Public Buildings Service has not yet implemented are listed on page iii and are discussed where applicable in this report.

BREAKDOWNS IN COMMUNICATION

Breakdowns in communication between the Public Buildings Service and design firms, tenant agencies, and construction contractors have been a serious problem. Failure to communicate effectively in the design phase of a project often shows up in the construction phase as project delays, change orders, and cost increases. (See p. 5.)

INEFFECTIVE DESIGN REVIEWS

Construction contract design deficiency change orders have been a significant problem area. GAO believes that inadequate or ineffective design reviews by the Public Buildings Service were at the root of the problem. (See p. 13.)

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MISCELLANEOUS PROBLEMS

In addition to the above seven problem areas, several miscellaneous problems were also identified in the major repairs and alterations program, the present-value cost analyses methods used by GSA, and the reuse of vacant or underused Government-owned facilities. (See p. 47.)

RECOMMENDATIONS FROM PAST REPORTS NOT IMPLEMENTED

GSA has done a reasonably good job in acting on previous recommendations discussed in this report. However, there are some recommendations on which the agency either has not taken corrective actions or has only partially implemented.

Previous recommendations which GAO considers still open are listed below:

--Assuring handicapped access to building areas (see p. 11).

--Encouraging greater use of available computer-aided building design methods (see p. 11).

--Developing uniform procedures and guidance on the use of construction managers (see p. 32.)

--Improving the major repairs and alterations program (see p. 51.)

--Achieving better use of Government-owned property (see p. 51.)

One recommendation previously made by GSA's Office of Audits which remains open concerns improving lease construction procedures (see p. 37.)

AGENCY COMMENTS

GSA commented orally on a draft of this report. Officials agreed with the discussion of actions taken to implement the prior recommendations and provided some supplemental information to update the actions taken.

Contents

CHAPTER 1

INTRODUCTION

The General Services Administration's (GSA's) construction and acquisition program for fiscal year 1981 is very small--only about $16 million. Six excess buildings are to be acquired from the U.S. Postal Service to satisfy the continuing space needs of the U.S. Courts and other Federal agencies. No new construction was approved for the 1981 program. As of December 31, 1979, 22 new construction projects from prior year programs were still in progress. GSA fiscal year 1981 budget also calls for $180 million for repairs and alterations of both Government-owned and leased facilities under GSA control. These funds have been allocated as follows:

	FY 1981 budget (millions)
Basic work to correct deterioration, malfunction, and obsolescence	$ 88.7
Improvement of space to promote use and operating efficency	37.0
Special energy conservation measures	35.0
Special fire prevention, lifesafety, and property protection	17.0
Special aids for the handicapped	1.8
Special environmental protection measures	0.5
Total	$180.0

As of December 31, 1979, 113 individual projects, each with estimated repair or alteration costs over $500,000, were in GSA's major repairs and alterations program. In fiscal year 1981 17 projects were added to the program.

While GSA's construction program is now very small, legislation (S. 2080) which passed the Senate in 1980, but was not enacted into law, would substantially increase GSA's construction program if enacted in the future.

internal audit staff, which have not been implemented by GSA. In accomplishing these objectives, we reviewed 47 audit reports issued over the last 5 years or so. (See app. I for a complete listing.)

The problems identified in prior reports fall into various categories. Some problems were peculiar to a particular project or GSA regional office, others resulted from procedural deficiencies existing throughout the agency, while still others resulted from conditions over which GSA has limited control. Problems resulted from actions and practices, omissions, unforeseen situations, and misinterpretations of policies and procedures. Some problems identified, such as breakdowns in communication, foundation problems, and management control weaknesses, are the type that have the potential to appear at any time on any project and have a high potential for recurrence. Management must be constantly alert for the appearance of these problems and react to correct or counteract them when they appear.

The primary objectives of our review were to identify and summarize problems which had been previously experienced by PBS, citing specific projects as examples where possible. Due to the magnitude and diversity of subjects discussed in prior reports and to time constraints and reporting requirements, we were not able to determine the extent to which past problems continue to exist. Our followup efforts were limited to determining whether PBS had taken actions recommended in prior reports. We did not attempt to determine whether PBS's actions have actually corrected the problems in question.

Many of our prior reports were done as a result of congressional requests and sometimes dealt with specific problems known, or strongly suspected, to exist on specific projects. In such cases, the report objectives were to document what went wrong on the projects. As a result, some of the specific projects cited in this report may not be truly representative of PBS's management of GSA's overall program and may be worst-case examples of problems experienced in the past. We believe that both the Honolulu project, cited throughout the report, and the Helena project, discussed in chapter 7, may fall into this category.

We discussed the implementation of recommendations with GSA Central Office and National Capital Region officials in PBS and officials in the Office of the Inspector General and the Audit Reports Control Office. We also obtained documentation or other evidence supporting actions taken by GSA to implement the prior recommendations.

CHAPTER 2

COMMUNICATION BREAKDOWNS HAVE HINDERED GSA'S CONSTRUCTION PROGRAM

Past audit reports identified a wide variety of problems experienced by GSA in constructing Federal buildings. We believe one of the underlying causes for many of these problems has been poor or ineffective communications, primarily during the design phase of projects. Breakdowns in communication between PBS and design firms, tenant agencies, and construction contractors have been a major recurring problem affecting GSA's construction program. Failure to communicate effectively in the design phase of a project often shows up in the construction phase as project delays, change orders, and cost increases. Many of the problems identified in prior reports can be attributed to breakdowns in oral and written communications. However, communication problems of the type discussed in this chapter undoubtedly are not peculiar to GSA. We believe all of the Federal construction agencies experience these types of problems.

In most cases, the actions taken by GSA have fulfilled the intent of prior recommendations addressing this problem area. One recommendation relating to access for the handicapped, which GSA considers closed, has not, in our opinion, been fully implemented (see p. 11). Also, GSA has not had sufficient time to take the necessary steps to implement the recommendations on one report issued on October 15, 1981.

COMMUNICATIONS WITH DESIGN FIRMS

Effective communication with design firms is essential. PBS must communicate project scope and design requirements in clear, concise terms. Its success determines to a great extent how smoothly and expeditiously the project progresses. PBS must also clearly communicate to the designers its design criteria, standards, guide specifications, and other guidance; suggested design changes; and changes in project scope occurring as the project progresses. Ineffective communication delays the project and can cause work to be done or redone unnecessarily.

Since communication is a two-way street, design firms must also communicate effectively. Oral presentations given to PBS officials must clearly describe proposed design concepts and alternatives. Plans, drawings, and specifications which firms produce must be clear, concise, and complete when submitted for review. Failure to do so can delay review

Design standards

GSA's design standards, criteria, and guide specifications, as well as those of other Federal agencies, do not always clearly communicate GSA's desires. These items have been criticized as containing conflicting guidance and outdated requirements and criteria and as being (1) too voluminous and repetitive, (2) too inflexible to be applied economically in all areas where Federal buildings are constructed, and (3) too difficult to read and interpret, primarily due to the many references to other standards, Federal and military specifications, and other Federal agency documents. This is a Government-wide problem, and not one peculiar to GSA. Clarity in design standards, criteria, and guide specifications is extremely important because the quality of design decision is directly proportional to the quality of design information given to the design firm.

We are aware that the volume, repetitiveness, inflexibility, and readibility of Federal design standards, criteria, and guide specifications are an irritant to many design firms. The firms we contacted during our prior review (LCD-81-7) made this problem clear to us, although we did not discuss it in our report. In LCD-78-334 we attribute GSA's recurring excavation and foundation problems, in part, to the agency's foundation-related criteria and guide specifications. We also have issued two reports identifying GSA's use of outdated standards. In one case, the result was construction problems; in the other, the result was noncompliance with the Public Law or its intent.

In LCD-78-308 we reported that in December 1971 GSA gave outdated courtroom design standards to the design firm which was awarded the contract for the Williamsport Federal Building in Pennsylvania. The handbook given to the firm--United States Courts, dated November 1959, as revised--had been superseded by the Judicial Conference standards adopted in October 1971. The end result was that the courtroom had to be redesigned to raise the ceiling to the appropriate height, at a cost of at least $114,000. At the time of our report (LCD-78-308) in March 1978, GSA still had not revised the outdated handbook. A new handbook--United States Court Design Guide--was issued in May 1979.

In 1975 we issued FPCD-75-166 discussing GSA's compliance with (1) Public Law 90-480, known as the Architectural Barriers Act of 1968, and (2) the American National Standards Specifications for Making Buildings and Facilities Accessible to, and Usable by, the Physically Handicapped. We concluded that GSA's efforts to carry out the congressional

$247,000. However, the construction contractor disagreed and submitted claims for additional compensation for this work.

PBS officials told us that in an effort to minimize the problems created by agencies changing their planned use of space, PBS has modified its construction contracting practices. About 2 years ago, PBS started postponing the contracting of the interior partition construction until late in the project. Under phased construction, this has always been one of the last contracts awarded. This practice reduces the elapsed time between when floor plans are submitted and when the agency occupies the space, hopefully minimizing the need to change the planned arrangements. They also told us that other practices, such as sign-off procedures, have been instituted to ensure agency participation in the design process.

The communication problem is not confined to new construction projects. In LCD-80-26 we discussed agencies' resistance to GSA's relocating them into leased space in downtown Fort Smith, Arkansas. We reported that the primary objections related to the impact of the move on each agency's mission. During our review, one of the agencies, the Social Security Administration, told us that it was not involved in the initial planning or review of the potential site locations. PBS officials told us that the agency was involved and that the problem was that the agency did not want the planned space. We concluded that when implementing existing criteria on where Federal agencies should be located, GSA personnel need to more carefully consider the impact a location has on an agency's ability to carry out its mission.

COMMUNICATIONS WITH CONSTRUCTION CONTRACTORS

Key communication mechanisms between GSA and its construction contractors are the contract and the construction documents--drawings and construction specifications--for the project. Errors, omissions, and ambiguities in construction documents cause a high percentage of construction change orders on a project.

In a 1976 GSA report (21-6028-PC5), GSA auditors reported that the lack of clearly worded construction specifications for the parking facility in Columbus, Ohio, resulted in alleged omissions, confusion among bidders, and two change orders totaling $149,148. Some of the change orders on the Prince Kalanianaola Federal Office Building and Courthouse complex in Honolulu, Hawaii (LCD-77-311), and the Richard B. Russell Federal Building in Atlanta, Georgia (LCD-79-313), were the direct result of construction document deficiencies.

On the basis of recommendations made in FPCD-75-166, PBS has taken actions to clarify and improve the GSA handicapped access standards and to reaffirm that the standards must be followed in all buildings constructed, altered, or leased after construction or alteration in accordance with GSA plans and specifications. On October 14, 1980, PBS issued the new accessibility standards. These standards supersede all prior accessibility standards in handbooks, drawings, specifications, directives, and other guidance issued by PBS on handicapped access.

Also, on the basis of our recommendations in LCD-80-26, GSA amended the Federal Property Management Regulations to permit several categories of exceptions to the basic urban policy. These exceptions will allow agencies to be located in areas that are beneficial to carrying out their missions.

To implement recommendations made to region 5 by GSA internal auditors, PBS issued new procedures specifying the type and depth of a bid package review required before putting a project out for bids. The new procedures require a bid package review checklist to document review steps taken and by whom.

RECOMMENDATIONS STILL OPEN

Recommendations made in two of our reports discussed in this chapter have not been fully implemented. These recommendations are discussed below.

FPCD-75-166, July 15, 1975

We recommended that GSA clarify its alteration policy regarding handicapped access. GSA told congressional committees that it would revise its Repair and Improvement Program Management handbook to implement this recommendation. GSA stated, "This revision to the handbook will stress the need to accomplish handicapped work in a sequence that will preclude the accessibility of an altered area being negated by barriers left in other building areas." In June 1980 handicapped guidelines were issued by the Repair and Alteration Division, PBS, and are currently scheduled to be incorporated into the handbook. We found, however, that the new guidelines do not stress sequential work to prevent altered areas from being inaccessible due to barriers left in other building areas.

LCD-81-7, October 15, 1980

We recommended, among other things, that Federal agencies, including GSA, require architect-engineer contract

CHAPTER 3

INEFFECTIVE DESIGN REVIEWS HAVE RESULTED IN MANY DESIGN DEFICIENCY CHANGE ORDERS

Another significant trouble area for GSA in the past has been change orders, especially design deficiency change orders. Both we and GSA's internal auditors have reported that a high percentage of GSA's construction change orders has been required because of design deficiencies. We have also reported that GSA was not taking steps to recover increased costs from design firms when appropriate to do so. Both we and GSA's internal auditors believed that GSA's design review procedures and methods were inadequate or ineffective and contributed to the high percentage of design deficiency change orders on a project. GSA has taken action to implement all recommendations made in past reports relating to this problem area.

CHANGE ORDERS RESULTING FROM DESIGN DEFICIENCIES

Construction contract modifications--change orders--are issued to change or to correct design plans, drawings, and specifications. Design deficiencies are (1) errors, omissions, conflicts, and/or ambiguities in the design documents prepared by the architect-engineer and (2) defects in the character, strength, appearance, safety, or function of the structure or elements of the construction, as designed by the architect-engineer. Prior reports by us and GSA's Office of Audits show a high incidence of design deficiency change orders on GSA projects.

In 1976 GSA auditors reported (20-6013-PC3) that nearly one-third of the change orders they reviewed (16 of 54) in region 3 were the result of design deficiencies. They concluded that the existing design review system would not improve the situation. The following year our report (LCD-76-333) showed that an even greater percentage of change orders in region 3 were for design deficiencies. We reported that over 55 percent (899 of 1,631) of the change orders on six contracts were classified as design deficiencies. A more recent GSA report issued in 1979 (74-6062-033) showed that 50 percent of the region 3 change orders reviewed (33 of 66) were classified as design deficiencies.

In LCD-76-333 we reported that region 3 was not adequately documenting facts and circumstances supporting change orders, even though it was required to do so. This prevented the Government from establishing responsibility and recovering

GSA ACTIONS ON RECOMMENDATIONS

On the basis of our and GSA auditors' recommendations, GSA has taken steps to (1) identify the causes of change orders and determine individual responsibility, (2) document design deficiencies, and (3) determine any potential architect-engineers firm liability for identified design deficiencies. Our review of deficiency committee quarterly reports showed that causes for change orders are being identified, design deficiencies are being documented, conclusions are being reached on the negligence of the design firm in relation to the change order, and efforts are being made to recover added costs resulting from the design firm in those cases where the committee concluded that the firm was professionally negligent.

A new handbook, "Procurement and Administration of Design and Construction," is currently in draft form. PBS officials told us that volume I, "Design," has been signed and sent to printing. Volume II, "Construction," is in the final clearance stage. Meanwhile, according to PBS officials, the regions have already implemented most of the new procedures.

PBS officials told us that quality control and other control aspects have been addressed in reorganizations within PBS. All contracting and contract administration are now handled by the Office of Contracts. Before July 1979 the Office of Construction Management handled these functions. In August 1980 Contract Modification Review Boards were set up in each region to control the issuance of change orders and supplemental agreements. Also, PBS has begun a quality assurance program to oversee all aspects of its activities from predesign programming through construction inspections. A design review checklist has been developed, as well as manuals and checklists for construction inspections.

Because of the significance and potential seriousness of the change order problem, we have begun, at the request of the Chairman, House Subcommittee on Public Buildings and Grounds, a broad-based review of GSA's change order procedures.

AGENCY COMMENTS

In commenting for GSA, PBS officials provided information to supplement and update information they had previously provided. This information has been incorporated in the above discussion.

Federal Building, Roanoke, Virginia

Federal Building, Beckley, West Virginia

Federal Building, Elkins, West Virginia

Hirshhorn Museum, Washington, D.C.

Region 4

Federal Building and Courthouse, Fort Lauderdale, Florida

Federal Building and Post Office, Augusta, Georgia

Federal Building, Hattiesburg, Mississippi

Region 5

Federal Building, Ann Arbor, Michigan

Great Lakes Social Security Administration Program Center, Chicago, Illinois

Region 6

Social Security Administration District Office, Kansas City, Kansas

U.S. Animal Meat Research Center, Clay City, Nebraska

Region 7

Federal Building, Post Office and Courthouse, Batesville, Arkansas

Federal Building and Courthouse, Fayetteville, Arkansas

Region 8

Denver Federal Center Building, Denver, Colorado

Region 9

Federal Building and Courthouse, Honolulu, Hawaii

Region 10

Federal Building, Portland, Oregon

PBS officials told us that foundation problems have also occurred in the Federal Buildings in Topeka and Abilene, Kansas, and in the Federal Bureau of Investigation Building

manager's passive rather than active role in overseeing construction, and (3) GSA's failure to provide for specialized engineering personnel for this work on the construction team.

LCD-77-311

The primary purpose of this report was to review the settlement of the construction contractor's claims against GSA on the Prince Kalanianaola Federal Office Building and Courthouse complex in Honolulu, Hawaii. Several of the claims related directly to the foundation problems which occurred on this project. A number of different troubles contributed to the foundation problems. For example, insufficient soil testing was done before excavation, geotechnical test data was not used in the redesign of the building, additional tests were not made after redesigning the foundations, and GSA failed to implement our 1967 recommendations aimed at preventing the occurrence of these problems on future projects. The Hawaii project is not representative of GSA's operations. It is a worst-case example of what can and did happen when established procedures were not followed.

GSA'S PAST RELUCTANCE TO TAKE RECOMMENDED ACTIONS

In past reports several recommendations were made aimed at preventing and minimizing foundation problems, however, GSA was reluctant to implement them. The actions taken by GSA were slow and did not always fulfill the intent of the recommendations.

In May 1967 we recommended that GSA develop in-house expertise capable of (1) reviewing proposed foundation designs and specifications, (2) providing interpretations of soil tests, (3) recommending solutions to problems arising during foundation construction, and (4) reviewing contractor claims of changed subsurface conditions. In LCD-77-311, issued in January 1977, we reported that GSA promptly hired an expert who was on board in July 1967. However, 15 months later GSA abolished this position. We stated in LCD-78-334 that while on board, this individual demonstrated the value of having in-house geotechnical expertise. We cited the example of an analysis of the soil report at the Seattle Federal Office Building construction site which prompted GSA's geotechnical engineer to suggest that the foundation be redesigned to avert a possible foundation problem. The engineer felt that the soil conditions at the site made the architect's suggested foundation design too risky and costly.

In LCD-77-311 we concluded that GSA's failure to fully implement our 1967 recommendation contributed to its inability

GSA ACTIONS ON RECOMMENDATIONS

GSA has acquired geotechnical expertise by hiring a registered professional civil engineer with 14 years' experience in foundation design with a consulting engineer firm. This engineer works out of the PBS headquarters and is responsible for reviewing all the soil testing work and all foundation and subsurface structural design drawings submitted by design firms. Also, some of the civil and structural engineers assigned to some regions are working in the geotechnical engineering area. We were told that a few of these engineers have also had some previous training or experience in soil testing and subsurface structures design/construction.

PBS officials told us that they also now require architect-engineer firms designing buildings for GSA to have geotechnical capability. This capability is evaluated during the architect-engineer selection process. In LCD-78-334, we recommended that staff geotechnical experts participate in foundation construction inspections. PBS officials told us that during 1980, construction began on only one new project. This was in Springfield, Massachusetts, in region 1. Instead of using the staff geotechnical engineer, PBS decided to contract with the architect-engineer for these services. We were told that this arrangement proved to be very satisfactory. The architect-engineer made several suggestions which may have possibly averted potential problems. On future projects, PBS officials plan to either contract with an architect-engineer to provide the onsite inspections or use their staff geotechnical engineer.

AGENCY COMMENTS

In commenting for GSA, PBS officials felt that this problem should be more clearly recognized as a universal problems; one that is not peculiar to GSA. We modified the wording to address this concern. PBS officials also provided additional information that had not previously been provided on actions they had taken on this problem. This information has been incorporated into the above discussion.

Performance testing

In LCD-77-322 we reported that, although GSA had established adequate testing procedures to monitor contract compliance, it did not use them to ensure that the building systems met performance specifications. Construction of some building systems began before prototype tests were approved. Also, compliance of certain items with the specifications could not be determined because testing requirements were not always enforced.

INADEQUATE CONSTRUCTION INSPECTIONS

We have not specifically reviewed GSA's construction inspection procedures during the last 5 years, but we did touch on this area in our 1977 review of the Chicago Social Security Administration Program Center. Before the period covered by the 1977 report, we had reported on construction problems which were traced back to weaknesses in inspections. In 1980 GSA auditors issued a report criticizing GSA's roof inspections.

In LCD-78-334 we concluded that the excavation problems experienced on the Chicago Social Security Administration Program Center were partly the result of not having a qualified geotechnical engineer inspect the construction while in progress. We also commented that a consultant hired by GSA to look into its recurring foundation problems had recommended that GSA prescribe more exact roles and responsibilities for those involved in the design and construction of foundations and provide guidance on monitoring foundation design and construction. GSA has implemented both of these recommendations.

GSA's auditors reported in 21-6028-PC5, issued in 1976, that across-the-board travel cutbacks had reduced the on-site supervision of construction projects by GSA personnel. In addition, some Government inspections were not being made because of travel restrictions. GSA auditors did not measure the impact of the reduced supervision and missed inspections. However, the auditors concluded that flat across-the-board reductions of essential travel may be a false economy. They felt that significant reductions in Government supervision and inspection caused by the travel restrictions were an inversion of the cost-benefit principles since the quality and successful completion of multimillion dollar projects hang in the balance.

GSA auditors also have reviewed PBS's roof inspection program in region 4. In 4F-00083-04-04, issued in 1980, they concluded that the roofing inspection program, as required by

CHAPTER 6

A VARIETY OF MANAGEMENT CONTROL WEAKNESSES HAS PLAGUED GSA'S CONSTRUCTION PROGRAM

In the past, GSA has experienced problems which can be attributed to management control weaknesses. Under this relatively large umbrella, we have placed design and construction problems caused by (1) the actions, or lack of action, by GSA officials and (2) internal management weaknesses. Although we have reported on some of the problems in this area, most of the problems discussed in this chapter are included in GSA's internal audit reports. Most of the GSA audit reports pertain to only one GSA region, and the problems identified are therefore not necessarily indicative of what would be found in other regions. GSA's Office of Audit Reports Control records show that actions have been taken to implement most of the management control recommendations made in reports we reviewed. However, actions are still pending ing on a recommendation in one report (see p. 32).

PROBLEMS CAUSED BY ACTIONS OR LACK OF ACTION BY GSA OFFICIALS

Actions, or lack of action, by GSA officials have increased GSA's exposure to contractor claims and have caused some of GSA's construction, maintenance, and operation problems. For example, on the Prince Kalanianaola Federal Office Building and Courthouse complex in Honolulu (LCD-77-311), in which the contractor filed 29 claims for $16.6 million in added costs (and settled for $5.3 million), we reported that GSA officials

--failed to follow the soil engineer's recommendation to conduct additional subsurface testing when further testing could have reduced GSA's vulnerability to claims;

--changed the foundation design without making additional tests;

--eliminated, as a cost reduction step, the contract requirement for an onsite dewatering expert ($1.8 million claim was filed for removing water from the construction site--amount this claim was settled for was not available);

--failed to fully implement our 1967 recommendation to maintain in-house experts to review foundation designs, interpret soil tests, and correct foundation problems occurring during construction;

in the list of reports reviewed in appendix I. However, we did not discuss the report or the findings in this report, nor did we followup on the recommendations, because the matter is the subject of further investigation on which GSA has not completed its response. Disclosure at this time might hinder the Inspector General's efforts.

Construction management

Between May 1976 and November 1978, GSA auditors issued 10 reports on construction management activities. Each report pointed out several deficiencies which needed attention. During this period, we issued LCD-77-348 which concluded, among other things, that adequate program controls had not been developed to ensure the selection of quality construction managers and to document the benefits achieved by using this method.

In 1978 GSA auditors issued report 74-6063-033 on the implementation of construction management techniques in GSA with emphasis on the selection of projects, the award and administration of construction manager contracts, and the construction management control system. The auditors concluded that PBS, in implementing the construction manager concept, had not fully realized the benefits that could be derived from this method. They felt that some of the actions needed included improving (1) the content of the pro forma contract to provide contract administrators with an enforceable contract incorporating definitive cost elements and limitations, (2) communications and training on the use of the control system, and (3) the selection of projects to be included in the Construction Management Program.

In responding to the above report, the PBS Commissioner advised the Director of Audits that it was PBS's intention to convene an advisory group to completely review and evaluate GSA's construction management program and to develop recommendations to correct deficiencies. During our followup, we were told that PBS discontinued using the construction manager method of operation in the spring of 1979. We therefore did not follow up on the implementation of any of the recommendations made by GSA's Office of Audits aimed at correcting construction manager concept deficiencies.

Change orders

In GSA report 74-6062-033, issued in 1979, auditors discussed region 3 controls over new construction change orders.

Some of GSA's construction management project audit reports also contained findings regarding change order deficiencies. For example, in 74-8265-044, issued in 1978, on the Fort Lauderdale Federal Building and Courthouse, GSA auditors found that, in most instances (44 of 51), change order estimates prepared by the construction manager were completed after the construction contractor had submitted his proposal. They indicated that while Federal Procurement Regulations do not prohibit the Goverment estimate from being prepared after the contractor's proposal is received, good procurement practices dictate that it be prepared independently at the same time or before the contractor's estimate is prepared. They felt that preparing the Government estimate after the contractor's estimate was received opened the door for possible compromising of the estimate. Also, on the Glynco Federal Law Enforcement Training Center in Georgia (74-8120-044, issued in 1978), GSA auditors reported that change order documentation did not always include a finding and determination explaining why the contractor was performing the change or what work was included in the change. In fact, GSA auditors concluded that, generally, change order documentation was nonexistent. The identical finding was reported in 74-8179-044, also issued in 1978 on the Talladega Federal Correction Institution in Alabama.

Project management

GSA auditors reported in 20-6013-PC3, issued in 1976, that although project packages in region 3 made from 17 to 28 stops before the award of a construction contract, no single individual had a continuing responsibility for managing a project until the construction contract was assigned to a construction engineer for administration. They also found that each supervisor tended to interpret his/her authority and responsibilities in his/her own way due to the absence of adequate guidance. They stated that design and construction handbooks did not provide sufficient guidance to define the duties associated with each position. GSA auditors concluded that internal communications could be improved by more clearly defining the functional responsibilities of each position within the Construction Management Division and by limiting the reassignment of key personnel.

Guide specifications

A 1976 review of the region 4 technical library by GSA auditors (21-6049-PC4) showed that canceled design criteria reference material was intermingled with current handbooks and guide specifications. Since guide specifications were mailed to requesting architect-engineers, GSA auditors concluded that obsolete documents could very well have been

Corrective actions were taken to implement recommendations made in 20-6013-PC3 to improve the project control system in region 3. Due to the continuing potential for problems in project oversight, the Subcommittee Chairman asked us to review GSA's construction program management information system. We estimate that we will complete this work by the end of fiscal year 1981.

In 21-6049-PC4 GSA auditors recommended steps to improve the management guide specifications. In response to the recommendation, PBS is implementing an automated word processing service for the storage, editing, preparation, indexing, and printing of PBS guide and project specifications. Each region and the central office will have word processing terminals and telecommunications capability. The system has been planned to accommodate future growth and changes in technology. Features planned include access to specification text prepared by others, feedback on the use of guide specifications, and the capability to accommodate changes and improvements in technology as the state of the art improves. Technological improvements anticipated include graphics, direct access by specifiers without the need for a hard copy of guide specifications, and coordination of drawings with specifications. PBS expects the system to be installed and ready for operation early in 1981 in the central office and all regions except the National Capital Region.

In addition to the above actions aimed at implementing audit recommendations, PBS has made other changes to strengthen its management controls. For example, the Office of Contracts has developed a checklist to be used to monitor and control the award and administration of contracts and contract modifications. Also, as mentioned on page 15, Contract Modification Review Boards have been established. Their purpose is to ensure that contract modifications, including change orders and supplemental agreements, are used only when they are fully justified and are in the best interest of the Government.

In 4F-00083-04-04, GSA auditors made several recommendations to region 4 aimed at improving its administration of roofing consultants' contracts. The Office of Audit Reports Control told us that region 4 had implemented all of the recommendations. Further, PBS has issued a new GSA order on file maintenance and new instructions emphasizing the requirements of the Federal Procurement Regulations regarding the full documentation of contract awards. Also, new guidance is being developed on the use of firm fixed price contracts for roofing works and appropriate special contract provisions.

CHAPTER 7

DESIGN AND CONSTRUCTION DEFICIENCIES HAVE OFTEN APPEARED AFTER BUILDINGS HAVE BEEN OCCUPIED

Just as design deficiencies frequently become apparent during construction, construction deficiencies often surface after the building has been occupied; as do some design deficiencies. On the basis of a request by the Chairman of the House Subcommittee on Public Buildings and Grounds, we are planning to review GSA's after-occupancy evaluation procedures. GSA auditors issued a report in January 1980 (77-9506-088) which describes the variety of problems experienced in the Helena, Montana, Federal Building. Action is pending on one recommendation made in that report (see p. 37).

SPECIAL REVIEW OF LEASING AND CONSTRUCTION OF THE HELENA, MONTANA, FEDERAL BUILDING, REGION 8

The Helena project is a worst-case example of what can happen when management breaks down and proper procedures are not followed. It is not representative of the normal situation. PBS has successfully used lease construction procurement using performance specifications in other areas, such as Shreveport, Louisiana; Joliet, Illinois; Bowling Green, Ohio; and Rockford, Illinois.

In 77-9506-088 GSA auditors reported that the Helena Federal Building had been plagued with problems from its inception. The end result was that the Government leased a defective, substandard building substantially later than originally planned. The problems experienced on the project included construction defects and omissions, unnecessary fire watch costs, a funds availability problem resulting in a decision to lease rather than purchase (discussed in ch. 8), inadequate sound control, inadequate inspection and quality control procedures, and additional rental expense because of a delay in occupancy.

Construction defects and omissions

GSA auditors reported that the floors throughout the Helena Federal Building were not level and may never be corrected because floor load capacities had already been reached and filling or additions would add too much floor weight. The report indicated differences from the level plane ranging from 3/4-inch to 2-5/8 inches in 8 feet. Filing cabinets were reported to be obviously angled due to the unlevel floors.

this inspection was not timely enough to prevent problems before they happened.

According to the GSA auditors, the Construction Management Division inspection report disclosed numerous defects or omissions, as follows: 124 architectural items, 91 mechanical items, 31 electrical items, and 33 elevator defects. The major items on the list, according to the audit report, were significant unlevel floors, water-saturated roof insulation, nonoperational fire alarm system, and a dysfunctioning energy conservation system.

Construction Management Division personnel conducted the post-final inspection in August 1979. The audit report indicated that several significant items had not been corrected. The inspection report listed as uncorrected: 40 architectural items, 72 mechanical items, 13 electrical items, and 18 elevator defects. In addition, 26 more items were added relating to work completed since the previous inspection.

Delay costs and effects

GSA auditors reported that lease extensions resulting from the Helena Federal Building construction delays cost the Government over $40,000 in excess rental funds. Occupancy of the building was delayed about 2 years, from July 1976 through May 1978.

In addition to added GSA costs, the auditors reported that the delayed sale of the old Federal building caused an 80-percent increase in renovation costs (from $500,000 to $900,000), for the new owners, the City of Helena, and Lewis and Clark County.

GSA auditors concluded that the above conditions and circumstances demonstrate the need for improvement in administering lease construction projects. Additionally, they stated that the problems and corrections encountered showed the importance of preparing the technical specifications and performing timely periodic progress inspections by qualified technical personnel.

OTHER AFTER-OCCUPANCY PROBLEMS

The above project illustrates the problems which can be experienced on any project if good management control is not exercised. As indicated by the GSA audit report, some problems are going to occur regardless of the controls employed, but good management oversight and control can minimize the effect of these problems and get them corrected before they become or cause major problems. Since each project has its

--Air and Space Museum, Washington, D.C. - leaks and temperature loss.

--Social Security Administration Program Center, Philadelphia, Pennsylvania - high energy use, airflow problems, and malfunctioning equipment.

--Social Security Administration Program Center, Richmond, California - airflow problems.

At the request of the Subcommittee Chairman, we have planned a review of GSA's after-occupancy evaluation procedures. We believe that the matters discussed in this chapter indicate a potential weakness in this area.

GSA ACTIONS ON RECOMMENDATIONS

In 77-9506-088 GSA auditors recommended that progress and final inspections be done by qualified technical personnel, and the fire watch costs mentioned on page 34 be recovered. Procedures have been revised to require construction inspections by appropriate officials. Further, attempts were made to recover the fire watch labor costs from the lessor. The contracting officer told the lessors that they had 48 hours to correct the defects in the building's standpipe and fire sprinkler system. Further, the contracting officer told the lessors that if they failed to correct the problem, GSA would make the repairs and deduct the costs from the rent.

On October 1, 1980, the Regional Counsel concluded that "there is no basis for a claim by the Government against the lessor for the firewatch in the Helena Federal Building." This conclusion was based on the fact that GSA did not take corrective action when the lessor failed to correct the defects, and the employees standing fire watch duty also performed other duties while on watch. On the basis of this legal opinion, the Regional Administrator told the Assistant Inspector General for Audits that efforts to collect the fire watch labor costs would be discontinued.

RECOMMENDATION STILL OPEN

One recommendation made in GSA's report on after-occupancy problems has not been implemented. This recommendation is discussed below.

77-9506-088, January 30, 1980

GSA auditors recommended that specifications for lease construction projects be precise and be prepared and/or reviewed for technical adequacy by qualified personnel.

CHAPTER 8

PROJECT AUTHORIZATION AND FUNDING PROCEDURES HAVE CAUSED COST INCREASES AND PROJECT DELAYS

GSA cannot completely control some of its construction program problems. For example, delays in obtaining congressional approval and funding have caused some building projects to be delayed, thereby increasing the cost of constructing the buildings and creating a backlog of approved projects which have not been funded. Due to the lack of funds for construction, GSA has used leasing as a means for obtaining some needed space, even though new construction would have been more economical. GSA has attributed some project delays and increases in costs, as well as the use of other than the most economical methods to acquire buildings, to the congressionally mandated authorization procedures and the appropriation process. Currently, the congressional procedures do not require a coordinated long-range plan or the linking of authorization and planning to the budgeting process.

COSTLY PROJECT DELAYS

Delays in approving prospectuses and in funding projects have significantly increased the costs of constructing Federal buildings. For example, in LCD-77-322 and LCD-77-348, we cited the lack of funding as one of the causes for project slippages and increased construction costs on the following seven projects:

--Richmond Social Security Administration Program Center, Richmond, California.

--Philadelphia Social Security Administration Program Center, Philadelphia, Pennsylvania.

--Chicago Social Security Administration Program Center, Chicago, Illinois.

--Federal Office Building, Akron, Ohio.

--Federal Office Building, Lincoln, Nebraska.

--Federal Office Building, Winston-Salem, North Carolina.

--South Portal Building, Washington, D.C.

Project	Original estimate	Current estimate	Cost increase
	----------(000 omitted)----------		
U.S. Courthouse East St. Louis, Illinois	$ 5,365	$ 7,825	$ 2,460
Federal Office Building San Francisco, California	59,554	154,500	94,946
Interstate Commerce Commission - Customs Washington, D.C.	8,370	9,881	1,511
Terminal Annex Dallas, Texas	8,000	9,840	1,840
Federal Building & Courthouse Denver, Colorado	2,910	3,979	1,069
Internal Revenue Service Center Ogden, Utah	4,418	6,006	1,588
U.S. Courthouse Los Angeles, California	2,445	4,900	2,445
John F. Kennedy Federal Building Boston, Massachusetts	2,401	3,830	1,429
Custom House Appraisers Store Philadelphia, Pennsylvania	4,638	5,980	1,342
Federal Depot Middle River, Maryland	4,756	6,660	1,904
Custom House Baltimore, Maryland	3,241	4,700	1,459
Post Office & Court-house South Bend, Indiana	4,900	5,900	1,000

based primarily on the lack of funds for construction, regardless of present-value analyses results. Five of the lease prospectuses in this category were as follows:

--Universal North Building, Washington, D.C.

--Universal Building, Washington, D.C.

--Vanguard Building, Washington, D.C.

--World Trade Center, Los Angeles, California.

--100 Van Ness Avenue, San Francisco, California.

In January 1980 GSA auditors reported in 77-9506-088 that the process of attaining space to meet Helena, Montana's Federal housing needs took a long and arduous course. Funds availability, Office of Management and Budget (OMB) review, and prospectus limitations were all reported as having played an important part in the ultimate decision to lease.

GSA made the initial request to OMB for approval of the Helena project in 1971 and recommended the purchase contract method of procurement, even though it would have been more costly than other alternatives. GSA felt that by using the purchase contract method to procure the new building, it would have been better able to control and design the building and would have had eventual ownership. In 1973 OMB asked GSA to reexamine the justification. In 1974 GSA advised the Chairman of the Senate Public Works Committee that it intended to proceed with the project by lease construction at an estimated rental of less than $500,000 per year.

GSA auditors concluded that the lease construction method was decided upon after attempts to obtain approval for a purchase contract were unsuccessful. Further, they reported that efforts were made to keep the annual rental below $500,000. However, as the GSA report clearly showed, after the project was begun, changes were made which increased the annual costs beyond $500,000.

PROBLEMS IN PLANNING AND BUDGETING FOR PUBLIC BUILDINGS

In PAD-80-95 we discussed whether the capital budgeting procedures in GSA and the authorization procedures in the Congress reflected or encouraged foresighted planning and management for the public buildings program. The conclusions and the matters for consideration by the Congress presented in the report are restated below.

alleviate this by developing a balanced facilities acquisition plan that includes a cost-effective mix of construction, leasing, and purchase alternatives. PBS officials told us that a new management planning system had been implemented for the fiscal year 1983 budget cycle. They indicated that the new system addresses the four major features we have cited in the report (planning; setting program priorities; linking planning, budgeting, and reassessing; and maintenance) and also identifies the personnel resources that will be required for the system. The Administrator stated in his testimony that GSA's submission of a 5-year plan would enable the Public Works Committees to assess GSA's whole public buildings program at one time rather than as a series of unrelated prospectuses.

We concluded that if GSA is to implement an effective public buildings program and if the Congress is to make more informed authorization decisions, the Congress should require that (1) public building needs be identified and assessed, (2) plans be prepared for meeting those needs, (3) priorities be established for meeting them, and (4) planning be firmly linked to the budget. PBS officials believe that their new planning system and program submission format fulfills these requirements.

Matters previously proposed for consideration by the Congress

We stated in testimony on January 29, 1980, before the Senate Committee on Environment and Public Works that the proposed authorization and planning procedure in Senate bill 2080 would be an improvement over the current piecemeal prospectus authorization procedure. The current procedure does not consider the relations among projects, priorities, timing, and funds. In PAD-80-95 we suggested that the Congress require GSA to provide information periodically for the public buildings program which

--identifies long-range public buildings needs from assessments of current conditions,

--identifies the status of projects that have already been approved,

--sets forth GSA's plans for meeting program needs,

--establishes priorities among the individual projects, and

--links planning for projects and priorities directly to the budget process and the anticipated availability of

CHAPTER 9

MISCELLANEOUS PROBLEMS

In addition to the construction program problems discussed in the previous chapters, there were other problems within PBS's purview which relate to acquiring, maintaining, and using public buildings. Our prior reports have identified problems in the major repairs and alterations program, GSA's lease versus construction present-value cost analyses, and the reuse of vacant or underused Government-owned facilities. Recommendations remain open in two of these reports (see p. 51).

MAJOR REPAIRS AND ALTERATIONS PROGRAM COULD BE IMPROVED

During 1979 we issued two reports discussing the GSA major repairs and alterations program for public buildings. These reports contained recommendations to improve the management and congressional oversight and control of the program.

Need to improve management

In LCD-79-310 we reported that numerous improvements were needed in GSA's management control system for the major repairs and alterations program to promote efficiency, economy, and achievement of planned results. Some of the problems identified were as follows:

--The regions deviated from approved work programs without central office's authority. (Since July 1, 1980, regions do not need central office approval.)

--The regional offices were unduly retaining authority for prospectus projects by improperly charging the costs of work to nonprospectus projects.

--The accomplishment of work, which was classified by major types of inventory and budget purposes, was not measured and reported by the same types.

--Regional offices did not have an efficient system of matching obligations with work requirements by building.

--GSA charged tenant agencies on a reimbursable basis for work that apparently should have been included in their rental payments for the space.

repair and alterations funds at the end of each year and to explain any deviations from the budget proposal for that year.

GSA'S LEASE VERSUS CONSTRUCTION PRESENT-VALUE COST ANALYSES HAVE BEEN INACCURATE

In LCD-80-61 we reported to the Chairman and the Ranking Minority Member of the Senate Committee on Environment and Public Works on GSA's present-value procedures and their validity as a tool in comparing leasing and construction costs. We concluded that GSA needed to improve its procedures for preparing present-value cost analyses to provide the Congress with accurate cost comparisons of space acquisition alternatives.

We disclosed that the present-value analyses used to make the lease versus construction decision on five lease prospectuses GSA submitted to the Congress in 1979 were inaccurate. Consequently, the analyses did not provide a reliable basis for evaluating space acquisition alternatives. The buildings involved were the Veterans Administration Building, the Commonwealth Building, the Page Building I, the Webb Building, and the Tishman Building, all in Washington, D.C. We reported that the analyses

--were based on incorrect operating cost estimates (custodial, utilities, and imputed real estate tax costs were inaccurate);

--omitted some relevant costs (site costs, interim housing costs, and moving costs were omitted on the construction analysis and escalation of real estate taxes, alteration costs, and supervision and management costs were omitted on the leasing analysis);

--contained computational errors;

--did not reflect rental payments escalated to renewal periods;

--assumed an unrealistic year of occupancy;

--did not consider the lack of comparability between federally constructed and leased privately constructed buildings; and

--used an inappropriate discount rate.

the Committee's approval. Revisions to prospectus content were incorporated as a result of these discussions.

In LCD-80-61 we made recommendations to improve the present-value analyses GSA used to compare leasing and construction costs. GSA agreed with the recommendations and developed a new computer program for calculating life-cycle costs for its present-value cost analyses. The program was placed into the library on January 9, 1981, making it available for use by all regions. We did not evaluate the new procedures.

RECOMMENDATIONS STILL OPEN

Recommendations made in two of our reports discussed in this chapter have not been fully implemented. These recommendations are discussed below.

LCD-79-310, July 17, 1979

We made nine recommendations to GSA regarding the major repairs and alterations program. GSA has taken steps to implement six of these recommendations. However, GSA officials disagreed with our recommendations on (1) developing cost estimating procedures, (2) improving congressional budget presentations, and (3) developing better criteria on what constitutes direct-funded and reimbursable repair and alteration work. As a result, GSA has taken no actions to implement these three recommendations. We have planned a followup review to reevaluate GSA's repairs and alterations program.

LCD-77-314, September 27, 1977

We made several recommendations to achieve better use of Government-owned property. In our followup, we found that GSA had taken some actions. Responsibility for implementing most of the recommendations has been transferred from PBS to GSA's Federal Property Resources Service. We did not pursue these recommendations because we have an ongoing assignment looking into GSA's management of surplus and excess property.

"Repairs and Alteration of Public Buildings by General Services Administration--Better Congressional Oversight and Control is Possible" (LCD-78-335, Mar. 21, 1979).

Letter report to Chairman, Senate Committee on Environment and Public Works and Chairman, House Committee on Public Works and Transportation, evaluating the General Services Administration's Activities to Implement the Public Buildings Cooperative Use Act of 1976 (LCD-79-302, Jan. 25, 1979).

"General Services Administration Should Do More To Avoid Foundation Construction Problems" (LCD-78-334, Sept. 19, 1978).

"Information Relative to the Design and Construction of the New Federal Building in Williamsport, Pennsylvania" (LCD-78-308, Mar. 13, 1978).

"Use of New Construction Method on Federal Projects at Three Agencies Can Be Improved" (LCD-77-348, Oct. 26, 1977).

"General Services Administration's Use of New Construction Concept for Federal Buildings Not Yet Successful" (LCD-77-322, Oct. 6, 1977).

"Executive Agencies Can Do Much More In Using Government-Owned Space As An Alternative to Leasing or New Construction" (LCD-77-314, Sept. 27, 1977).

"Procedures Used for Holding Architect-Engineers Responsible for the Quality of Their Design Work" (LCD-76-333, July 14, 1977).

"Settlement of Contractor Claims for Construction of a Federal Building in Hawaii" (LCD-77-311, Jan. 12, 1977).

"Greater Emphasis on Competition Is Needed in Selecting Architects and Engineers for Federal Projects" (LCD-75-313, July 21, 1976).

"Present and Potential Use of the Federal Building At Laguna Niguel, California" (LCD-76-336, June 22, 1976).

"Further Action Needed to Make All Public Buildings Accessible to the Physically Handicapped" (FPCD-75-166, July 15, 1975).

"Audit of Procedures for Monitoring and Controlling A/E Performance, Region 5" (21-6065-PC5, Dec. 14, 1976).

"Audit on Construction Management" (21-6028-PC5, Nov. 17, 1976).

"Audit of Building Site Acquisitions, Region 10" (21-4001-PBO, Sept. 28, 1976).

"Audit of Building Site Acquisitions, Region 5" (21-4001-PBO, Sept. 7, 1976).

"Audit of Construction Guide Specifications, Region 4" (21-6049-PC4, Aug. 6, 1976).

"Report on Audit of Project Management and Construction Management in the Project Management Office" (21-4026-PC3, June 17, 1976).

"Interim Report on Audit of Construction Management" (21-6028-PC, May 28, 1976).

"Report on Second Follow-up of Recommendations Contained in Audit of PBS (Design & Construction) Contract Negotiation Practices, Region 4" (22-3021-PC4-F(2), May 25, 1976).

"Report on Audit of Adequacy and/or Completeness of Specifications, Drawings and Bid Solicitations" (20-6013-PC3, May 14, 1976).

"Report on the Audit of Building Site Acquisitions, Region 4" (21-4001-PB4, Oct. 2, 1975).

"Audit of Construction Inspection Procedures, Region 2" (21-5002-PC, Sept. 26, 1975).