

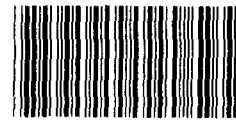
GAO

Report to the Chairman, Legislation and  
National Security Subcommittee,  
Committee on Government Operations  
House of Representatives

April 1986

# OVERSEAS CONSTRUCTION

## Problems in Constructing Embassy Facilities in Cairo, Egypt



129950

RESTRICTED—Not to be released outside the General  
Accounting Office except on the basis of specific  
approval by the Office of Congressional Relations.

RELEASED

---

---



United States  
General Accounting Office  
Washington, D.C. 20548

National Security and  
International Affairs Division

B-219284

April 18, 1986

The Honorable Jack Brooks  
Chairman, Legislation and National  
Security Subcommittee  
Committee on Government Operations  
House of Representatives

Dear Mr. Chairman:

In response to your letter of June 18, 1985, we examined the Department of State's construction practices for two projects in Cairo, Egypt—the ambassador's residence in the Giza area and the new chancery. We reviewed activities of the Department's Foreign Buildings Office (FBO) in contracting for and ensuring quality construction of these structures.

Our review disclosed serious deficiencies in FBO's activities with respect to these two projects. Specifically, we found that (1) design problems and changes caused delays and added costs, (2) FBO contracted with builders without adequately evaluating their financial and technical capabilities, (3) FBO headquarters staff did not adequately monitor the activities of the site project manager, and (4) the project manager did not monitor construction closely, reject materials and workmanship which did not comply with the contract, or report problems to his supervisors. In addition, the Department did not follow the appropriations committees' notification procedures for its reprogramming of nearly \$1 million to cover cost overruns on the residence construction.

These deficiencies have resulted in delays, shoddy work, and cost overruns. The ambassador's residence, which was to have been completed in 1981 at a cost of almost \$2 million, had not been completed as of March 1986 after expenditures of \$3.5 million. An estimated \$930,000 would be required to repair poor workmanship and complete the building. Instead, FBO has decided to abandon the project and sell the land. At the time we completed our work, FBO had received an offer and was waiting for final approval from the Egyptian government to sell the property.

The chancery building, which was to have been completed in January 1986 at a cost of \$27.6 million, was only one-third complete in March 1986. About \$16 million had been spent. In January 1985, FBO terminated the contract because the contractor failed to maintain progress toward completion of the building. Subsequently, the contractor went

bankrupt. At the completion of our work, FBO had just awarded a contract for completion of the chancery and estimated that total costs would be about \$45 million, partly because of recent security requirements. A chronology of key events in the design and construction of the ambassador's residence and the chancery is included as appendix I.

FBO had no overall plan or strategy for its space requirements in Cairo. Its plans for an ambassador's residence and for acquiring office space in that city have changed several times during recent years. As discussed on page 8, the U.S. government now owns three ambassador residences in Cairo. Also, during a 6-year period, plans for the new chancery have changed from an initial 20-story design, to 16 stories, to 17 stories, with a decision pending on whether to add an 18th and 19th story.

Because our work was limited to the two construction projects in the Cairo area, we are not making overall recommendations to the Department of State. However, because of the deficiencies noted on these projects, we are recommending several specific actions relating to facilities in Egypt. At your request, we are also initiating a broad review of FBO's overall management.

---

## Management of Building Activities

FBO, which is within the Department's Bureau of Administration, manages State's construction and real estate activities overseas. FBO has three main functional divisions: (1) Building Design, which is responsible for project design, coordination with outside architect and engineer designers, and technical review and approval of the design package; (2) Acquisition, which contracts for supplies and services as well as design and construction of buildings; and (3) Construction and Maintenance, which reviews construction plans and specifications and oversees construction, maintenance, and repairs of facilities. A project manager, who is part of the Construction and Maintenance Division, inspects construction on a daily basis and coordinates with contractors to ensure compliance with design drawings and specifications. With the exception of the project manager, who is located at the construction site, all other personnel are located in Washington, D.C.

Each division contributed to the deficiencies we noted in constructing the embassy residence and chancery.

---

## Building Design Deficiencies and Changes

The costs and completion dates of both projects have been affected significantly by deficiencies and changes in the designs.

---

### Ambassador's Residence

FBO's Building Design Division officials did not follow the Department's criteria requiring the use of U.S. industry building specifications and standards in acquiring a design, and allowed the architect to use less stringent Egyptian standards. As a result, design and construction problems developed which added to the cost and time to construct the residence. FBO officials had previously experienced similar problems in that Egyptian contractors and craftsmen had not met U.S. building standards on other projects.

The division's "Planning Procedures and Engineering Criteria" is used as a guide by private design architects to meet Department design criteria. Requirements in this document complement the specific provisions of the architectural and engineering contract. Article II of FBO's contract with the design architect for the project required that standards "comply with the current American National Building code and with building codes and ordinances of the area in which the project is being constructed. When there is a difference between these, the more stringent provisions of each shall govern."

In designing the project, the architect was required by the contract to visit the site; familiarize himself with the availability of materials, local construction techniques, capability of local contractors and workmen, utility requirements, local ordinances, and material and labor costs; and provide to the design division a comprehensive feasibility study. This study could have alerted the division to possible construction problems in using Egyptian materials and workmen that might not meet U.S. buildings specifications. We found no evidence that the study had been prepared as required or that the contractor requested or received approval from FBO to use local building standards.

Numerous deficiencies have been identified in the design of the residence. An example of one of the more serious was the failure to require pipe chases, which are channels through which pipes or wiring is passed. Instead, the contractor embedded the plumbing pipes directly in the masonry. This made correction of plumbing leaks extremely difficult and expensive and was responsible for most of the cost of remedial work

performed on the residence. A list of design deficiencies identified by the project manager and a U.S. Army Corps of Engineers consultant to the State Department is included as appendix II.

## Chancery

Design changes which have delayed or added to the cost of building the chancery have resulted from indecision on the number of floors the building should have and from recent State security requirements. The chancery was originally designed to have 20 floors; however, the number was reduced to 16 floors because some post officials believed a 20-floor building would be too ostentatious and would symbolize the growing role of the United States in Egypt. Subsequently, a 17th floor was added, and at the time we completed our work a decision was pending on whether to add an 18th and 19th floor.

FBO has also had to redesign the chancery to meet State's new security requirements implemented in 1985, i.e., a 100-foot setback from streets or thoroughfares for any embassy building to be staffed by U.S. citizens, no underground parking, no windows within 16 feet of ground level, and use of certain types of materials. As a result of the 100-foot setback requirement, for example, the space originally planned for perimeter wall offices will be used for warehouse and mechanical service equipment storage, and the displaced activities will be moved into the new chancery or currently existing structures.

## Builders' Financial and Technical Capabilities Not Examined Thoroughly

Acquisition Division officials did not thoroughly investigate the Egyptian contractors' financial and technical capabilities prior to awarding the contracts. The projects subsequently failed, and the U.S. government incurred unnecessary costs in trying to correct construction problems and complete the buildings.

### Ambassador's residence

In February 1979, seven firms were invited to bid and were provided bid documents; however, only two firms submitted bids—one of about \$2 million and the other \$2.4 million. In June 1979, the Acquisition Division accepted the lower of the two bids, even though the project manager questioned whether the project could be successfully completed at that cost. Because the contractor had performed remedial work on the U.S. Embassy and subcontract work on staff apartments, FBO did not require a pre-award survey or a Certification of Financial Qualifications. A

State Department inspection report concluded that a cursory examination of the contractor would have disclosed that he was merely a construction broker who subcontracted virtually all of the trade work, that he was not financially sound, and that the quality of previous work performed at the embassy was poor.

Shortly after the contract was signed, the contractor requested an advance payment and submitted a personal check instead of a required bank guarantee as surety for the advance payment. According to the inspection report, these were early signs of financial problems and an examination of his accounts at this stage could have led to early termination of the contract.

As construction progressed, a number of serious problems with defective materials and workmanship surfaced. In January 1980, a consultant employed by the design contractor discovered that substandard pipes and conduits were being used in the project. The consultant reported this to both the site project manager and to FBO headquarters. The consultant reported similar inspection deficiencies as work progressed; however, the site project manager's monthly reports to FBO headquarters did not indicate whether the identified defects were corrected. In fact, his reports did not always refer to the defects and appeared to indicate that adequate progress was being made. For almost 2 years, FBO headquarters staff did not question the project manager concerning defects identified in the consultant's inspection reports.

By the end of 1981, FBO realized that the contractor was incapable of finishing the project. In June 1982, work under the original contract was suspended because of a sustained period of poor productivity and the contractor's lack of responsiveness to FBO directives to correct and complete the work. An October 1984 State Department Inspector General report disclosed that the contractor's performance bond was allowed to expire in early 1983 and that the contract had not been terminated—even though work had been suspended for about 2 years.

During 1982, FBO arranged to have other contractors try to remedy mechanical and electrical problems and complete necessary work. As corrective work progressed, it became apparent that problems caused by the use of poor construction materials and practices by the original contractor were serious. In April 1983, FBO selected a contractor to begin testing the mechanical systems and to perform limited demolition to uncover concealed work. Serious defects and shoddy workmanship were

uncovered, primarily in the plumbing system but also in the air conditioning and electrical systems. Remedial work was initiated and continued until February 1984 when all available funds were exhausted. About \$925,400 was spent on the remedial work; however, the building was still incomplete. After expending about \$3.6 million, FBO decided to sell the land and the partially completed building.

The \$3.6 million expended far exceeded the original contract bid of \$2 million. FBO had reprogrammed nearly \$1 million from miscellaneous accounts and from other construction projects in Cairo to cover a portion of the overruns on the residence without notifying appropriate congressional committees, as required by congressional reports accompanying the Department's appropriations acts.

## Chancery

In November 1982, FBO awarded a contract to an Egyptian firm to build a 17-story chancery in Cairo for \$27.6 million, to be completed by January 1986. This choice was questionable because (1) FBO had not made an in-depth analysis of the contractor's financial condition; (2) the contractor had limited experience; and (3) key technical construction personnel left the firm prior to award of the contract.

Even though State's Inspector General is available to review financial conditions and statements of potential contractors, FBO chose not to request such assistance. While FBO collects some financial data on potential contractors, it has no written procedures for interpreting or analyzing the data or for evaluating financial capabilities relative to the work under consideration. The two officials who evaluated the contractor for the chancery said they rely on experience since each situation is different.

Previously the contractor had been affiliated with a Swiss international construction firm which, according to FBO Acquisition Division officials, provided top management and technical personnel; however, by the time the contract for the chancery was awarded, the Swiss component (including key management and technical personnel) had left the firm. The contractor had been involved in only five projects, all in Egypt—four were ongoing, and one had been completed at the time the contract was awarded. A Dunn and Bradstreet Bureau report on the contractor indicated a lack of payment history because the firm was recently established.



Beginning in late 1983, subcontractors complained that the contractor was late in making payments and they were receiving inadequate assurance of payment. In spite of a number of contract amendments and other accommodations by FBO, the contractor failed to work out financial arrangements with its subcontractors and work on the chancery eventually stopped. The FBO Director formally terminated the contract for default on January 13, 1985, citing lack of performance. FBO solicited new bids to complete the building, and in March 1986 awarded a contract for about \$19,400,000 to do so.

## FBO and Project Manager Oversight Problems on the Ambassador's Residence

Oversight of construction activities by both headquarters personnel and the on-site project manager was inadequate. Lack of communication between Washington and the field contributed to delays in uncovering and remedying problems.

FBO's Construction and Maintenance Division did not properly support the resident site project manager with technical advice and support staff. FBO headquarters files contained little evidence of communication with the project manager between June 1979, when the contract was awarded, and July 1981, when the project was to have been completed. During this period, FBO received information from other sources which indicated problems in construction. A consultant's report noted that FBO seemed to have provided little oversight during the critical periods of construction.

The project manager told us that FBO headquarters almost invariably followed the advice of the design contractor in any matters concerning questionable design. He said that the usual response to a request or query was simply to "build it as designed and specified." He stated that such responses seemed to indicate a lack of any careful examination of the contract documents. The project manager said that upon reassignment to Washington, he learned that a complete set of drawings was not available in FBO headquarters. He said that FBO had been issuing directives for a number of years without drawings being available for reference.

In December 1978, about 6 months prior to the award of the construction contract for the residence, FBO recognized that because of the building's complex architectural details, a project manager should be assigned exclusively to the project. However, the project manager was responsible for about 12 other projects, including 2 major ones. A memorandum from the Embassy Counselor for Administration noted that in

1982 the project manager was responsible for oversight of three major projects, and acknowledged design problems and problems with Egyptian contractors. The memorandum concluded that no single architect/engineer could have properly supervised all three projects at the same time.

The project manager stated that the design required meticulous attention to the most minute detail and the residence could not be satisfactorily constructed using indigenous craftsmen; however, he told us that because of his work load he could not closely monitor the contractor and his workers. As a result, some inferior and previously rejected material was used and some totally unacceptable workmanship took place. Some of the problems were concealed in the construction.

An August 1985 State Inspector General report noted that FBO had insufficient headquarters and construction site procedures and staff to oversee its major projects. That report also observed that FBO had no procedures manuals which clearly delineate specific actions to be followed by individuals during various phases of construction. The study concluded that unless revisions to FBO's policies and procedures were made, FBO would continue to experience erratic results and incur excessive costs throughout its construction program. We plan to follow-up on these points during our review of FBO's overall management.

---

## Need to Decide on Facility Requirements

FBO has made numerous costly and time-consuming changes to its construction plans for Cairo during recent years. Some changes were unavoidable because of enhanced departmental security requirements, while other reflected the preferences of officials assigned to the mission. These changes have been made without an overall plan for facilities needed in Cairo.

In November 1975, FBO purchased a residence in the El Maadi section of Cairo for about \$1.8 million, and spent an additional \$1 million for extensive renovations. The residence was ready for occupancy in early 1978; however, the ambassador expressed reservations about using the property because of its distance from the embassy, security considerations, and the locations of residences of the heads of other diplomatic missions. Although nearly \$3 million was spent on this property, it has never been used as a residence for the U.S. ambassador. In fact, the property has remained vacant since it was completed in 1978. On

June 24, 1982, the embassy signed a preliminary deed to sell the property for about \$2.4 million; however, at the time we completed our work, the Egyptian government had not approved the sale.

In June 1979, FBO contracted for the construction of the ambassador's residence in Giza. The details of FBO's actions on this project have been discussed in this report. After spending about \$3.5 million on the residence over a 7-year period, the residence is uninhabitable because of construction problems.

Since November 1973, the ambassador has been residing in a residence which FBO originally purchased for the deputy chief of mission. At the time we completed our work, FBO expected to continue using the property for the ambassador's residence and to lease an additional residence for the deputy chief of mission.

As discussed previously, plans for the new chancery building have changed several times and had not been finalized at the time we completed our review, about 6 years after the project was designed.

---

## Conclusions and Recommendations

FBO officials did not follow State Department policies and regulations in building the ambassador's residence and the chancery, resulting in excessive costs and delays. Previous experience and problems in constructing facilities in Cairo should have made these officials more cautious.

In view of the construction difficulties experienced in Egypt, and the costly and time consuming changes made to previous plans there, we recommend that the Secretary of State direct FBO to

- follow departmental procedures for the design and construction of facilities in Egypt;
- ensure that necessary attention is directed toward deciding the height of the chancery building; and
- require that future decisions regarding the ambassador's residence be based on an examination of the costs and benefits of alternatives.

Our review was conducted at FBO during the period August 1985 to January 1986. We also performed field work in Cairo, Egypt. We held discussions with officials of all the respective FBO branches involved in planning, contracting, and monitoring construction in Cairo. We

reviewed records relating to the two projects and performed on-site project inspections.

As requested, we did not ask the Department of State to officially comment on this report, nor did we obtain the views of responsible officials on our conclusions and recommendations.

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days from the date of the report. At that time, we will send copies to interested parties and make copies available to others upon request.

Sincerely yours,

A handwritten signature in cursive script that reads "Frank C. Conahan".

Frank C. Conahan  
Director



---

# Contents

---

Letter 1

---

Appendix I 14  
Key Events in the  
Design and  
Construction of the  
Ambassador's  
Residence and the  
Chancery

---

Appendix II 19  
Deficiencies in the Identified by Project Manager 19  
Design of the Identified by Consultant 20  
Ambassador's  
Residence Identified by  
the Project Manager  
and a State Department  
Consultant

---

## Abbreviations

FBO Foreign Buildings Office



# Key Events in the Design and Construction of the Ambassador's Residence and the Chancery

## Ambassador's Residence

<b>October 7, 1975</b>	A firm, fixed-price contract was awarded to a Washington, D.C., architectural and engineering firm for the design of the embassy residence at Giza at a cost of \$180,000. FBO required 11 amendments to this contract for various services, including site inspections during construction, which brought the total cost of the design contract to \$373,239.
<b>August 24, 1977</b>	FBO approved the contractor's design for the residence.
<b>December 28, 1978</b>	FBO project manager arrived in Cairo.
<b>February 8, 1979</b>	Bid documents for the construction of the residence were picked up by seven potential contractors.
<b>April 19, 1979</b>	Bids were received from two firms—both Egyptian. The low bid was \$1,941,800 and the next bid was \$2,441,338. The project manager judged the low bid as too low for successful construction and indicated this to Acquisition Division officials.
<b>June 5, 1979</b>	FBO awarded the contract to the low bidder with a scheduled completion date of July 5, 1981.
<b>June 1979</b>	FBO began assigning other responsibilities to the project manager in addition to the residence project.
<b>January 1980</b>	During an inspection, a consultant engineer employed by the design contractor discovered that substandard pipes and conduits were being used in the project. He reported this to both the site project manager and FBO headquarters.
<b>May 1981</b>	First FBO headquarters official with technical construction skills visited the project.
<b>December 1981</b>	Substandard quality of the architectural finish work on the residence caused FBO to realize that the contractor was incapable of finishing the project.
<b>June 1982</b>	Work under the original contract was suspended because of a sustained period of poor productivity and the contractor's lack of responsiveness to FBO directives. FBO arranged to have the architectural work completed by another local contractor.
<b>September 11, 1982</b>	A second project manager was assigned to the embassy residence project. Both managers were to carry out monitoring activities, but the second project manager was given primary responsibility.
<b>December 1982</b>	An FBO team, including the original design engineer consultant, visited Cairo and prepared a new scope of work in order to rectify the construction defects in the residence. A new general contractor was being considered to begin testing the mechanical systems, performing limited demolition, and uncovering workmanship flaws.
<b>March 9, 1983</b>	The general contractor submitted a report with test results specifying renovation work required.
<b>April 1983</b>	The general contractor was hired to do additional demolition and renovation work. This included architectural, plumbing, and air conditioning systems. Serious defects and shoddy workmanship were uncovered. Remedial work was initiated.



**Appendix I  
Key Events in the Design and Construction of  
the Ambassador's Residence and  
the Chancery**

**Ambassador's Residence**

<b>February 2, 1984</b>	Work was suspended on the residence because no more funds were available. Total spent on project to date was \$3,559,205 (\$2,633,939 for original contract payments and change orders, \$925,266 for rework). Building was still incomplete.
<b>March 19, 1984</b>	The Assistant Secretary for Administration, Department of State, requested the Inspector General to conduct a special inquiry to answer questions raised in the Congress concerning the cost and timeliness of the construction. The investigation team included a professional construction engineer from the U.S. Army Corps of Engineers.
<b>October 1984</b>	The State Department Inspector General issued a report on its special inquiry into the embassy residence project.
<b>January 23, 1986</b>	Land and unfinished residence were sold for \$15,809,524, subject to final approval by the government of Egypt.

**Chancery Building**

<b>September 10, 1979</b>	A firm, fixed-price contract was awarded to an architectural and engineering firm for the design of a 20-story chancery. FBO officials were unable to locate a copy of the contract.
<b>June 3, 1980</b>	The architectural and engineering service contract for the 20-story chancery was terminated because of controversy concerning the height of the structure. After contract termination, the architect began a 6-month study to develop other design solutions.
<b>September 29, 1980</b>	A firm, fixed-price contract was awarded to an architectural and engineering firm for the design of a 16-story chancery building at a cost of approximately \$3.2 million.
<b>February 1981</b>	The basic design of the chancery was accepted.
<b>April 30, 1982</b>	Bid documents were sent to 22 potential contractors.
<b>August 9, 1982</b>	Bids were submitted by 15 contractors, including Egyptian, French, Korean, international, and U.S. firms. The low bidder was an Egyptian/Swiss construction firm.
<b>October 1982</b>	A cable to Cairo indicated that the Swiss component of the firm submitting the low bid had been experiencing difficulties. The American consulate in Zurich, Switzerland, had been asked to investigate and report on the financial and business reputation of the firm.
<b>November 3, 1982</b>	The contract was awarded to the low bidder at an original contract cost of \$27,600,000, with a scheduled completion date of January 1986. At the time of the award, information available in FBO indicated that the contractor had been involved in five projects, all in Egypt, since being incorporated in 1980. Four of the projects were ongoing and one had been completed (April 1, 1982). A Dunn and Bradstreet Bureau report dated July 17, 1981 indicated a lack of payment history because the firm was recently established.
<b>November 30, 1982</b>	A cable from the Swiss component to FBO indicated that it was not involved in the chancery construction project.
<b>November 1983</b>	Subcontractors complained that payments from the general contractor were late and assurance of payment was inadequate.

**Appendix I  
Key Events in the Design and Construction of  
the Ambassador's Residence and  
the Chancery**

**Chancery Building**

**February 8, 1984**

The contract was amended to provide for the U.S. government to make direct payments on behalf of the general contractor to subcontractors for imported construction material for the project in exchange for a contract price credit by the general contractor.

**March 5, 1984**

The mechanical and electrical subcontractor informed FBO that the general contractor owed the firm \$309,148 as of January 23, 1984, and requested the United States to withhold funds due to the general contractor and make payments directly to him. The subcontractor indicated a willingness to continue the project if it had assurances from the U.S. government that the funds would be forthcoming.

**June 5, 1984**

A second amendment was made to the contract extending the contract completion date by 30 days, adding \$32,500 to the contract price, and reducing the amount of funds retained under the contract from 10 percent to 7 1/2 percent (releasing approximately \$410,000) in exchange for an agreement by the general contractor to apply the sum released to the project. Using the released funds, the general contractor made a major payment of \$250,000 to the mechanical and electrical subcontractor who consequently continued working.

**August 8, 1984**

The mechanical and electrical subcontractor indicated scheduled payments agreed to by the general contractor had not been made and additional payments due totalled \$446,881.

**August 1984**

FBO officials met with the general contractor to discuss a number of outstanding claims totalling \$737,777, and the possibility of adding 82 calendar days to the contract performance period.

**October 16, 1984**

The mechanical and electrical subcontractor stopped work at the project for nonpayment by the general contractor. Subsequently, the general contractor continued to build in areas not affected by the absence of the mechanical and electrical subcontractor but reached a point where significant progress on the construction could not be made without the participation of the mechanical and electrical subcontractor.

**October 24, 1984**

The Deputy Assistant Secretary of State for FBO informed the general contractor to submit its plans for payment of the subcontractors and a revised project completion schedule, and of the need for additional senior technical and management staff to be dedicated to the project. The general contractor was to respond within 10 working days.

**November 5, 1984**

FBO officials met with the general contractor (in Cairo) and bankers since there had been no response to the October 24, 1984, letter. The general contractor requested an extension until the end of November to work out financial arrangements with his bankers and shareholders. The general contractor explained that an attempt to increase the company's equity capital had failed and that bankers were attempting to arrange additional joint debt financing.

**Appendix I  
Key Events in the Design and Construction of  
the Ambassador's Residence and  
the Chancery**

<b>Chancery Building</b>	
<b>December 11, 1984</b>	The FBO Assistant Director for Construction Management traveled to Cairo to further assess the situation. The general contractor informed him that negotiations were continuing with bankers for additional financing and the project would be completed in accordance with the contract.
<b>December 20, 1984</b>	FBO received a proposal from the general contractor that the U.S. government agree to the following as a temporary measure:  U.S. government guarantee payment to subcontractors and suppliers on behalf of the general contractor.  U.S. government distribute \$1.5 million to pay outstanding debts.  General contractor retain its contractual identity and all materials would be paid for by the U.S. government.  U.S. government pay the general contractor's workers and staff directly.  The amount earned by the general contractor would be used to pay the \$1.5 million loan.  If the general contractor was able to arrange its own financing package, the original contract would be reinstated.  The general contractor would give right of ownership of the construction equipment to the U.S. government.
<b>December 28, 1984</b>	The FBO director wrote to the general contractor in response to the December 20, 1984, letter requesting that the general contractor (1) show by January 10, 1985, that capital had been infused into the company and (2) submit a program of work reflecting an acceleration of the rate of production sufficient to accomplish the project within the time permitted by the contract.
<b>January 10, 1985</b>	The FBO on-site project manager reported that those workers who were still present on the job site (60 men) were mostly unskilled, and that a minimal amount of real work was being accomplished.
<b>January 10, 1985</b>	The general contractor delivered a letter stating that the contractor's lenders were "in the process of studying the possibility of extending additional facilities to the contractor."
<b>January 13, 1985</b>	The FBO director formally notified the contractor of the termination of the contract for default, citing the lack of performance. The decision was made to continue payment to the mechanical and electrical subcontractor to continue work on the pumping system and proceed with work on the drainage system because it was viewed as essential to maintain the U.S. government investment. The project was 1/3 complete at this point. FBO decided to solicit new bids for the completion of the project and continue with certain interim work.
<b>March 8, 1985</b>	Decision made to add a 17th story to the chancery.

---

**Appendix I**  
**Key Events in the Design and Construction of**  
**the Ambassador's Residence and**  
**the Chancery**

---

**Chancery Building**

**August 12, 1985**

Twenty-one firms were invited to bid on the contract for completion of the chancery, and 11 of these firms requested and received drawings and specifications for the project.

**October 18, 1985**

Bids were received from six firms.

**February 28, 1986**

The contract was awarded for \$19,379,200. The firm, a joint venture between U.S. and Japanese concerns, is scheduled to complete the project by April 30, 1988. This contract is for completion of the chancery to 17 stories. The current estimate for the total cost to complete the 17-story chancery, including redesign costs, interim work, and recent security requirements, is \$45.0 million.

---

Note: Details on the early design and construction activities were sketchy. Some documents were missing and some files had apparently been misplaced. Dates were estimated by FBO officials in some cases.

# Deficiencies in the Design of the Ambassador's Residence Identified by the Project Manager and a State Department Consultant

## Identified by Project Manager

- Drawings incorrectly indicated the same location in the foundation for hoisting machine for the family elevator and the access ladder to the basement.
- Architectural drawings indicated basement elevation 7.60M. Structural drawings indicated basement elevation 7.10M.
- The construction of the facility was complicated by a lack of coordinated planning to provide adequate space and orderly arrangements for mechanical/electrical equipment. Architectural drawings were apparently essentially complete before plans were made to house equipment. The size of some equipment exceeded the size of the only access, a narrow stairway opening, to planned storage areas. There was no provision for an adequate access opening in the event that some of the larger items had to be removed and replaced during the life of the facility. Similarly, the plans indicated a water tank, 7 feet in diameter by approximately 12 feet long, was located in the basement of the residence with no access openings. The orderly sequencing of the construction was disrupted by the need to install the water tank in the basement.
- The architectural drawings indicated cast iron downspouts and balcony drain lines embedded in concrete columns, which is difficult to satisfactorily execute in the field. It is normal to provide some means of access for maintenance and possible replacement. The average rainfall in Cairo is about one inch per year; therefore, the need for an elaborate drainage system was questionable.
- The plumbing drawings were unacceptable. Sanitary sewer lines under the residence building were indicated with numerous changes in direction without cleanouts; cleanouts were not indicated at the base of vertical stacks; open site drains were indicated in the main kitchen; a grease interceptor was not indicated at the pot sink in the main kitchen. The drawings were in violation of basic plumbing code requirements.
- Floor drains were not indicated in the attic. With a chilled-water air conditioning system, floor drains should be provided.
- The hydro-pneumatic system was designed on the assumption that the city water pressure would reach a certain level on a daily basis. If the city water pressure did not reach this level, the system would not function and city water could not be introduced into the water tank. When the city water pressure level was checked by the project manager, a highly erratic pattern was found and there was no assurance that the city water pressure would reach the necessary level to enter the water tank. A complex redesign of the system was required, which took over 1 year from the time the questionable design of the system was identified until the final installation of the redesigned system was completed.

---

**Appendix II  
Deficiencies in the Design of the  
Ambassador's Residence Identified by the  
Project Manager and a State  
Department Consultant**

---

**Identified by  
Consultant**

- Design did not reference U.S. industry standards for materials and workmanship.
- Electrical grounding requirements were ambiguous.
- Pipe chases were not required. Piping was embedded in the masonry; correction of pipe leaks became extremely expensive. To get to the pipes, demolition of the walls was required.
- Maintenance access and space for air handling units and other heating, ventilation, and air conditioning components were very limited.
- Attic access and space was very limited.
- Domestic water system and hydro-pneumatic tanks would not work as originally designed.

---

Requests for copies of GAO reports should be sent to:

U.S. General Accounting Office  
Post Office Box 6015  
Gaithersburg, Maryland 20877

Telephone 202-275-6241

The first five copies of each report are free. Additional copies are \$2.00 each.

There is a 25% discount on orders for 100 or more copies mailed to a single address.

Orders must be prepaid by cash or by check or money order made out to the Superintendent of Documents.

34335

United States  
General Accounting Office  
Washington, D.C. 20548

First-Class Mail  
Postage & Fees Paid  
GAO  
Permit No. G100

Official Business  
Penalty for Private Use \$300