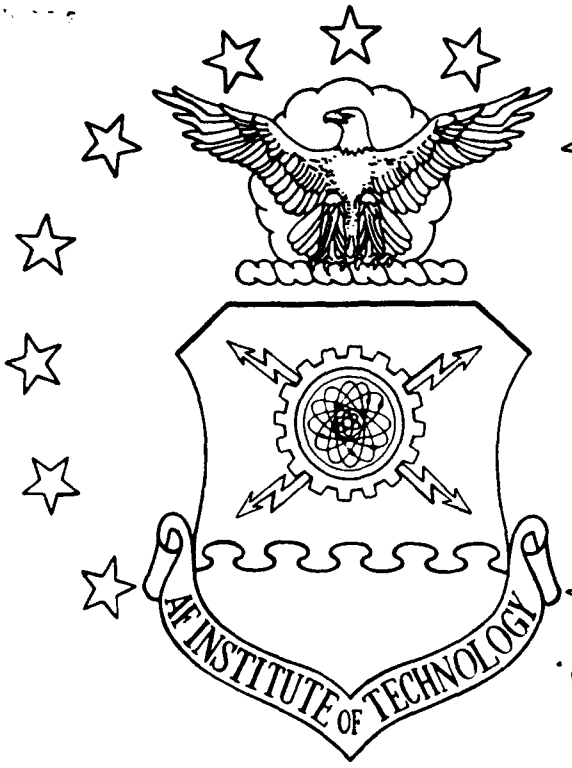





# THE MILITARY CONSTRUCTION (MILCON) PROGRAM AND PRIVATIZATION: A COMPARATIVE ANALYSIS

THESIS

Andrew D. Pope, Captain, USAF

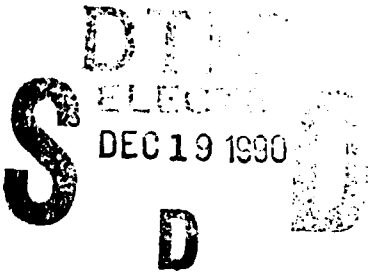
AFIT/GCA/LSG/90S-7



DEPARTMENT OF THE AIR FORCE
AIR UNIVERSITY
AIR FORCE INSTITUTE OF TECHNOLOGY

Wright-Patterson Air Force Base, Ohio

AFIT/GCA/LSG/90S-7

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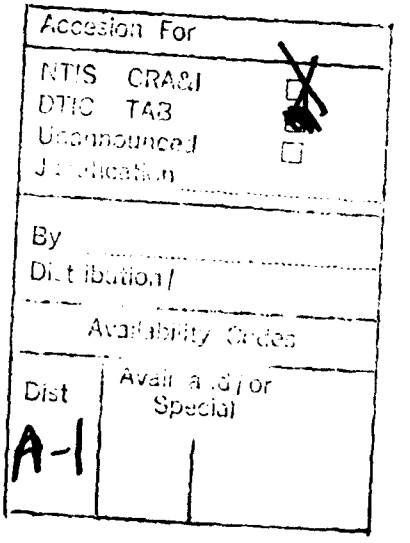

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# THE MILITARY CONSTRUCTION (MILCON) PROGRAM AND PRIVATIZATION: A COMPARATIVE ANALYSIS

THESIS

Presented to the Faculty of the School of Systems and Logistics

of the Air Force Institute of Technology

Air University

In Partial Fulfillment of the

Requirements for the Degree of

Master of Science in Cost Analysis

Andrew D. Pope, B.S., M.S.A., C.C.A.

Captain, USAF

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## Preface

This research was the result of the concern expressed by many about the budget problems that are expected to occur in the future. The Military Construction (MILCON) program will be impacted by future budget shortfalls. Identifying the difference between MILCON projects and privatization/ commercial projects will alert officials to possible private sector efficiencies which can be utilized by the military to obtain quality facilities at a reasonable cost in the future. The results of this study should be useful to those parties interested in minimizing the costs of acquiring facilities.

I would like to thank numerous members of my team who willingly, and at times unwillingly, provided invaluable assistance towards the completion of an AFIT thesis and degree.

First, my unofficial thesis reader, official thesis reader and thesis advisor, Capt Donna Fry, Dr Anthony D'Angelo, and Lt Colonel John Shishoff respectively. Secondly, Lt Colonel Roy Smoker, the sponsor of this research. I sincerely appreciate all of your support.

Last, but not least, my wife and daughter, Sue and Melissa. Without their strength, patience, perseverance, and motivation, this project would have never reached fruition.

Andrew D. Pope

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## Abstract

This study investigated the differences between military construction (MILCON) and privatization/commercial projects. Specifically, this study examined four areas of possible incongruity which impact cost: administrative requirements; construction standards; contract clauses; and the Davis-Bacon Act. Interviews were conducted with representatives from government and industry. Data gathered indicated that all four areas do cause costs to be higher on MILCON projects than projects accomplished in the commercial sector.

The most significant findings resulted in the Davis-Bacon area. The Davis-Bacon Act requires that prevailing wages, as determined by the Department of Labor, be paid on all federal construction contracts over $2500. Data gathered in the Dayton, Ohio area indicated that prevailing wages exceeded commercial sector wages by 37 to 149 percent. The excessive wages cause federal government and military facilities to be substantially higher in cost compared to the commercial sector.

# THE MILITARY CONSTRUCTION (MILCON) PROGRAM AND PRIVATIZATION: A COMPARATIVE ANALYSIS

## I. Introduction

### Chapter Overview

This chapter first identifies the basic government procurement issues of interest, the importance of government procurement, and the political influences associated with Air Force procurement methods. Secondly, this chapter explains the specific problem and the justification for and objectives of this research. This section is followed by a list of investigative questions. In conclusion, this chapter discusses the scope and limitations of this research effort.

### General Issue

When the Air Force or any government agency has a requirement for a particular good, service, or facility, officials must determine what method they should use to acquire the particular item. The government acquires goods, services, and facilities through several methods. One method uses government employees to provide the service, produce the good, or build the facility. This method is termed accomplishing the job in-house. Other

methods use contracts with private firms to provide the various goods and services, which is referred to generally as contracting out. One form of private contracting for services, referred to as privatization, is used for "contracting out a labor-intensive function (e.g., custodial services)" (Dept of the AF: The Privatization Process, 1989:1). Both methods cited above use government appropriations to fund the different goods and services and are typically short term (one year or less). A method to procure facilities, which is also referred to as privatization,

> involves attracting entrepreneurs to finance, design, construct, own, operate, and/or maintain facilities used for direct mission support and to provide services to Air Force personnel. (Dept of the AF: The Privatization Process, 1989:1)

The difference from the procurement methods cited previously is that this type of facilities privatization method "typically covers a wider range of contract durations (from 1 year to more than 20 years) and may involve substantial investment of private capital" (Dept of the AF: The Privatization Process, 1989:1).

Determining the course of action to procure a good, service, or facility involves numerous factors. <u>The predominant decision factor continues to be cost</u>. What is the cheapest way to acquire a good or service? Some believe that

> increased private sector participation in activities has great potential for increasing the efficiency,

> quality, and constructive innovation in providing goods and services for the benefit of all the people. (Report of the President's Commission, 1988:xii)

Privatization "is appropriate when it benefits the government by offering faster delivery, reduced cost, or greater value than otherwise could be obtained" (Dept of the AF: The Privatization Process, 1989:xiii).

In recent years, United States Government agencies were tasked by the Reagan Administration to explore the possibilities of privatizing many jobs and services being accomplished by federal employees. President Reagan created the Privatization Council, a non profit organization composed of members from the public and private sectors to further the concept and practice of privatization (Privatization Council, 1987:2). President Reagan's privatization policy continues to be pursued by the Bush Administration. The Department of Defense (DoD) continues to pursue this initiative with numerous privatization projects. These projects range from contracting out janitorial services to the construction of an electrical generating station at Chanute Air Force Base, Illinois. Another project currently under way is the construction and operation of a 250-room hotel and conference center, named the Hope Hotel, at Wright-Patterson Air Force Base (WPAFB), Ohio.

The true costs and benefits of privatized construction projects versus the typical military construction (MILCON)

process have not been fully estimated and documented to date. A thorough analysis of the two approaches is required to ensure that the appropriate least cost approach is utilized in the future (Smoker: 29 Jan 90).

## Specific Problem

The specific problem can be stated as follows: What are the costs and benefits of using privatization versus MILCON to construct facilities for the military services on military installations?

## Justification And Objectives

The Office of Economics and Business Development at Air Force Headquarters requested a study be undertaken to identify the costs and benefits of privatization versus MILCON projects.

The overall objective of this research was to gather data to identify differences between MILCON and privatization projects. The information obtained, which details the efficiencies and inefficiencies of MILCON versus Privatization projects, can then be used to adjust the current regulations, policy, and legislation impacting MILCON projects. Adjustments to the current guidance will allow the military to capitalize on private sector efficiencies and minimize current federal inefficiencies.

## Investigative Questions

To accomplish the research objectives, data were collected to answer the following investigative questions:

1. Is there a difference in the amount of administrative effort required on a MILCON project versus a privatization/commercial project? If differences exist, do they impact cost?

2. Is there a difference between military construction standards and the national and local standards used on privatization/commercial projects? If differences exist, do they impact cost?

3. Are procurement restrictions or operating constraints imposed on contractors performing MILCON contracts which are not imposed on firms accomplishing privatization/commercial projects? If differences exist, do they impact cost?

4. Does the Davis-Bacon Act affect the cost of MILCON versus privatization projects?

## Scope and Limitations of the Research

A complete comparison of privatization versus the military construction process would require a cost comparison of the planning, design, construction, and operation of a privatized/commercial facility and a comparable MILCON facility. As a first step, this research examined the construction cost differences between the two methods as they pertain to the construction of a government

facility on a military installation. The perspective of this thesis is broad, and looked for general differences. However, when possible, the Hope Hotel, which is allowed by the United States Code (U.S.C.), Title 10, Section 2667, was used as a specific example of privatization. Unfortunately, the researcher could not use the Hope Hotel as an in-depth case study to determine the precise magnitude of any efficiencies and lower costs. This was due to pending litigation involving the applicability of the Davis-Bacon Act to the project.

## II. Background of the Problem/ Review of the Literature

### Chapter Overview

This chapter presents a review of the MILCON and privatization arena. The chapter first reviews the definitions used to describe privatization. Secondly, this chapter reviews two common privatization methods, the Office of Management and Budget (OMB) Circular A-76 method, and Third Party Financing. The review then provides an two acquisition alternatives available to Air Force management: the military construction program and the privatization process. Legislative considerations which impact the acquisition choice are reviewed; and the chapter concludes with an overview of the differences between privatization and the military construction program.

### Privatization Defined

The term privatization has numerous meanings and definitions. One definition developed by OMB and described by Grier is the "transfer of government services, assets and/or enterprises to private-sector owners and suppliers, when those owners and suppliers have the capability of providing better services at lower costs" (Grier, 1989:31). The OMB definition closely matches the wording "as set forth in Executive Order No.2607 (Sep. 2,1987), [which defines privatization as] finding ways to divest the government of programs and functions that can be provided

more efficiently by private citizens, businesses, and organizations" (Dept of the AF: The Privatization Process, 1989:1).

A second definition developed by the Air Force Engineering and Services Division and cited by King defines privatization as "the process where the private sector provides capital, goods, and services to the public sector which traditionally are provided by the government" (King, 1988:13). The definition also notes that privatization is "the umbrella term used to describe private sector contracting, leasing, third party financing, [and] alternative financing" (King, 1988:13).

One extreme interpretation of privatization states:

> The idea is that private is invariably more efficient than public, that government ought to stay out of as many realms as possible, and that even where government gets involved, government should contract out tasks to private firms or give people vouchers rather than provide them the services directly. (Kuttner, 1986:14)

Due to the nature of the services the Department of Defense provides, distributing vouchers to DoD customers may not be practicable. However, in general, privatization reflects the belief that "projects that require direct application of private sector capabilities induce entrepreneurs to find better ways to meet Air Force needs" (Dept of the AF: The Privatization Process, 1989:xiii).

The Evolution of Privatization

Privatization is not a new phenomenon. "Its lineage has been largely, but not totally, Republican. In 1955, President Eisenhower's Bureau of the Budget announced the governmental policy of reliance on commercial sources for goods and services" (Wheeler, 1987:30). The privatization policy was officially stated when the "Bureau of the Budget issued its first authoritative document on commercial activities in 1966, during the Johnson years" (Wheeler, 1987:30). This document, Circular A-76, became the guide for all privatization initiatives and was developed to "discourage the federal government from being in direct competition with private industry for goods and services" (Dept of the AF: The Privatization Process, 1989:1).

Circular A-76 was not developed to apply to the procurement of all types of goods, services and facilities. These limitations eventually provoked Congressional action "During the late 1970's, Congress began looking for creative ways to fund large, expensive, near-term projects without large up front outlays and provide for long-term contracts (up to 30 years) to expense them" (Young, 1988:18). One privatization method that met Congressional concerns was Third Party Financing. For example, Young notes that "Third Party Financing (TPF) may be the short-term answer to the long-term problem of reduced budget authority in the Department of Defense" (Young, 1988:18).

The Third Party Financing and A-76 methods do not have the goal of eliminating government, but rather are techniques to improve the quality, efficiency, and affordability of government goods and services. An additional advantage of privatization is that it benefits both the government and the private sector. "Benefits to private interests include growth in new markets; investment, management, and organizational experience; and adequate returns on their investments" (Dept of the AF: The Privatization Process, 1989:2). The following two sections describe these methods in detail.

Circular A-76. This method, which is commonly referred to in the field as "the A-76 program" (Fry, Spring 1990), is described as "one specific contracting technique" (Grier, 1989:34) which allows the use of private firms to provide public goods or services. A-76 is "typically used to evaluate the potential for contracting out a labor-intensive function. The contracts are usually awarded for 1 year, with three or four 1-year options" (Dept of the AF: The Privatization Process, 1989:1).

One difficulty of enacting the A-76 program is determining what particular jobs should only be done by government employees. For example, "in Alaska, private sector personnel maintain U.S. early warning radars; in Oman, they watch over stored U.S. military equipment" (Grier, 1989:30). In another case, a "McDonnel Douglas-led

team . . . won a contract award of more than $400 million last fall to provide aircrew training on the Air Force's new C-17 air transport when it comes on line in 1992" (Grier, 1989:33). Other examples include "basic base operations, such as motor pool management and food service, [which] are increasingly being let to private operators" (Grier, 1989:30).

Proponents of privatization believe that the system has room to improve before fully capitalizing on the savings of contracting out (Grier, 1989:30). The difficulty of defining pure governmental responsibilities continues:

> It may seem clear that no defense secretary would contract out the operation of a battleship. It is equally clear that if the man behind the counter at the post cafeteria cooking hamburgers is not wearing a uniform, national security has not been affected. But where does DoD draw the line? (Grier, 1989:33)

It appears that Congress may make many of the decisions as to which specific jobs will be contracted out. "In recent years, lawmakers have enacted some 35 specific restrictions reserving certain functions for full government employees" (Grier, 1989:33).

Wheeler suggests a series of questions to be answered before commencing the contracting out process:

> (1) Is the function inherently Governmental?; (2) Is in-house performance required for national defense?; (3) Would performance by a contractor cause unacceptable delay?; and (4) Are satisfactory commercial sources available? An affirmative response to any of the first three questions or a negative response to the fourth terminates the

process, and the function is exempted from study. (Wheeler, 1987:31)

This question and answer process is useful in determining what functions should be contracted out. For example, a hotel is not a function that is inherently governmental, does not require in-house performance for national defense reasons, would not be delayed if provided by a contractor, and does have available commercial sources. Thus, using the Hope Hotel as an example, the question and answer process clearly indicates that the construction and operation of a visiting quarters and conference center can be accomplished via the private sector.

A second problem associated with enacting the A-76 program is determining the costs of the services being provided. The "OMB stipulates that a cost study will determine whether an operation will continue as a government function or will be contracted out with a commercial source" (Wheeler, 1987:30). The private sector cost is relatively easy to obtain by requesting proposals for a particular job. Circular A-76 prescribes that ". . . federal managers of a particular activity can be required to compare their in-house costs with the price bid for the same work by a private firm" (Grier, 1989:33). The government cost of accomplishing a job, however, is often difficult to determine. "Doing cost studies that determine whether a job is to be privatized or not has turned out to be a more lengthy and burdensome process than expected" (Grier,

1989:34). It is difficult to obtain reliable and useful data from employees who could lose their jobs due to contracting out. The employees "are asked to produce work descriptions for use in cost estimating. Predictably, these descriptions are often vague and incomplete, according to GAO" (Grier, 1989:34).

It should be noted that once a function is contracted out under the A-76 program, a third problem can arise. One result of contracting out is the loss of government control. The contractor is bound to comply with the contract, and does not have to respond to the government beyond the specifications in the contract. This binding of the contract limits the flexibility of the government and is in direct contrast to normal government operations. Using a print shop as an example, if the service is provided by government personnel, the print shop could accommodate unique requirements. If the service were contracted out, the print shop could limit the service to the government to contractual requirements. This loss of control and capability, results in a loss of flexibility for the government (Landino, 27 July 90).

Even with the problems associated with the A-76 program, privatization efforts have "indeed saved the government money and increased competition for the provision of government goods and services" (Grier, 1989:34). The DoD has reportedly shared in the success in privatization

efforts. "So far the Pentagon has studied a total of about 40,000 jobs under the A-76 process, for an estimated annual savings of $613 million" (Grier, 1989:33). Therefore, the A-76 program seems to be a useful tool for the privatization of many goods and services.

Third Party Financing. A second approach to privatization is using Third Party Financing. Third Party Financing attempts to "have the private sector deliver a package of services to the government at a lower cost than that of the purchasing of the service through normal government acquisition methods" (Lamontagne, 1987:26). The DoD has been directed to "investigate a new method of procuring certain types of services, namely, through Third Party Financing (TPF)" (Lamontagne, 1987:26). The types of services financed by the private sector include "design, construction, operation, and maintenance of a service facility (VOQ, base housing, power plants, heating plants, etc.) by a contractor" (Lamontagne, 1987:26). Third Party Financing, in this sense, is an alternative to the MILCON process which attempts to attenuate certain problems experienced in that process.

One advantage of this method is that it uses "third party financing in lieu of appropriating limited capital funds" (Lamontagne, 1987:26). When using MILCON "a main concern . . . is the effect on the federal deficit." Young states that with the military construction program (MCP),

"financing would require a large outlay of funds in the first few years and, if all other revenues and outlays remain the same, MCP [MILCON] financing would increase the deficit" (Young, 1988:20). Third Party Financing provides a way to extend the payments over a specified time period with a smaller immediate impact on the deficit.

The A-76 difficulties with obtaining relevant cost data are not as prevalent with Third Party Financing projects. The A-76 program is used primarily for goods and services currently provided by the government. The Third Party Financing program is currently used for new facility construction and project operation. The costs of new facility construction projects are often relatively easier to estimate than many goods and services. Estimates can be produced using the Construction Cost Management Analysis System (CCMAS). The CCMAS, developed by the Air Force Engineering and Services Center, estimates the complete costs of a new building using information compiled in a database which contains over 1,500 Air Force items, 2,500 DoD items, and 25,000 industry items (Gregory, 24 Apr 90). Thus, with this new estimating tool, data to prepare economic analyses for third party financed privatization construction projects are reasonably easy to accumulate (Martin, 25 Apr 90).

## The Acquisition Alternatives

The procurement methods used by Air Force managers to acquire goods and services are often dependent upon the amount of available resources. If resources and manpower are available, certain goods and services can often be produced in-house. If resources and manpower are not available, or if specialized skills or equipment are required, other methods must be used to meet the need. The particular procurement method used may also reflect the nature of a particular good or service. Most goods and services can be procured through established contracting channels. However, for some unique projects this channel may not be available, and privatization methods must be utilized.

Each method has its own governmental approval process. The process and reports for both methods are similar, but are broken out into different phases. The two methods also have a different emphasis embedded in their phases. The MILCON emphasis is on the design of the facility, because without a design the facility will not be built. The privatization emphasis is on the financial and economic issues involved with the project. Privatization does not require government development of designs because the contractor involved with the project will develop his own designs. The following two sections describe in detail the

phases and elements required of both a MILCON project and a privatization project.

The Military Construction (MILCON) Process. The MILCON process consists of five major phases, which are summarized in Table 1. This table reflects the new MILCON Planning and Execution Process as discussed in the Construction Technical Letter (CTL) 90-1, dated 16 April 1990.

The objective of the planning phase is to determine installation needs in terms of real estate and facilities. Major documents prepared during this phase include the Base Comprehensive Plan (BCP) and the Area Development Plan (ADP). The BCP is "a long range vision required to frame short range decision-making" (Arboleda, 30 July 90). The ADP "bridges the gap between long range planning and design, . . . and provides enhanced planning details, emphasis on [the] complete project, [and examines] complex development versus single siting solutions" (Arboleda, 30 July 90).

Table 1

PHASES OF THE MILCON PROCESS

| |
|---|
| 1 - Planning |
| 2 - Programming |
| 3 - Design |
| 4 - Contracting |
| 5 - Construction |

(Arboleda, 30 July 90)

The second phase is the programming phase. It consists of three major elements: determining the facility requirements needed to accomplish the mission, evaluating existing assets and determining the most economical means of satisfying the requirements, and acquiring additional facilities that are needed or modifications that must be done on existing facilities (Arboleda, 30 July 90). Major documents prepared during this phase include Military Construction Project Data forms (DD Form 1391's) and a Requirements and Management Plan (RAMP). The DD Form 1391 "is a programming tool used to request and justify a construction need" (Dept. of the Air Force: Project, 1989:2-7). The DD Form 1391 "serves as the budgeting basis for the Major Command and HQ USAF in their long-range acquisition plans" (Dept. of the Air Force: Project, 1989:2-7, 2-8). The RAMP "provides the Design Agent (DA) and the designer project planning information to be utilized in negotiating the design contract" (Dept. of the Air Force: Construction, 1990:2/9). The Design Agent is actually a team that represents the Air Force throughout the life of the project. This agent can either be the Army Corps of Engineers or the Navy Facilities Engineering Command, depending upon the regional location of the base.

The third phase, the design phase, consists of three stages: the project initiation stage, the Architect-Engineer (A-E) selection stage, the Design Phase I - Project

Definition (PD) stage, and the Design Phase II - Project design stage. Each stage results in the production of numerous documents to include a Planning Instruction (PI), a Field Design Instruction (DI), an A-E contract, a parametric cost estimate (PE), and drawings (Arboleda, 30 July 90).

The fourth phase is the contracting phase, which is initiated when the Air Staff issues authority to advertise. The agent makes a "Commerce Business Daily (CBD) announcement and issues an Invitation for Bids (IFB)/Request for Proposal (RFP) which is sent out to all perspective bidders" (Arboleda, 30 July 90). The phase is culminated by the award of a contract for construction of the facility.

The fifth phase is the construction phase, which is initiated upon contract award and is the phase in which the actual work starts. This phase is culminated when the Base Civil Engineer accepts the facility by signing a Transfer and Acceptance of Military Real Property form (DD Form 1354) (Arboleda, 30 July 90).

The Privatization Process. The process to establish a Third Party Financing project is not standardized. No regulation currently exists, but guidance is provided by the Air Force Engineering and Services Center and the Air Force Office of the Deputy Comptroller, Cost and Economics Division. Another organization that significantly impacts the use or non-use of privatization is the Office of Management and Budget(OMB). OMB has made a

> policy decision requiring a comprehensive economic analysis which demonstrates a cost savings for privatization projects relative to the continuance of the status quo situation and/or the traditional appropriation and federal construction process. (Rast, 1990:1)

The "decision for contract award is primarily based on the total life cycle cost of the project" (Lamontagne, 1987:26). The life cycle cost is established by a team of engineers and cost analysts and is "prepared to compare the Government's total cost to the total cost of the lowest bidder. Consequently, the economic analysis can become the most scrutinized area in the approval process" (Lamontagne, 1987:26).

The privatization process consists of three major phases which are summarized in Table 2 and delineated in detail in Appendix A. Each phase is composed of several steps which result in the production of numerous documents.

Table 2

PHASES OF THE PRIVATIZATION PROCESS

| |
|---|
| 1 - Project Identification and Evaluation |
| a. Establish the requirement |
| b. Conduct preliminary analysis |
| c. Develop project details |
| 2 - Project Programming and Approval |
| a. Project programming |
| b. Project review |
| c. Project approval |
| 3 - Project Delivery and Execution |
| a. Call for proposals |
| b. Project award |
| c. Project execution |
| d. Project delivery |

(Dept of the AF: The Privatization Process, 1989:xiv)

The first phase is the project identification and evaluation phase, which is composed of the following steps: establish the requirement, conduct the preliminary analysis, and develop project details (Dept of the AF: The Privatization Process, 1989:17).

> This phase involves analyzing and comparing potential projects and alternative methods of delivery. Economic and technical aspects of MILCON, status quo, and privatization are reviewed. After these aspects and various political implications have been considered, a decision is made to pursue a privatization approach, the status quo, a MILCON alternative, or some other action. (Dept of the AF: The Privatization Process, 1989:xiv).

Actions occurring during this phase result in the identification of requirements and the following analyses: economic analysis, engineering analysis, environmental analysis, socioeconomic analysis, and a financial feasibility analysis. Local community coordination and support is also garnered during this phase (Dept of the AF: The Privatization Process, 1989:4).

The second phase is the project programming and approval phase which is composed of the following steps: project programming, review, and approval (Dept of the AF: The Privatization Process, 1989:17).

> The project is entered in the MAJCOM facilities program and integrated into the Base Comprehensive Plan, and a business plan is developed. This phase includes obtaining necessary authority (including new or revised legislation) and approvals at Air Staff, Secretariat, DoD, and Congressional levels, as appropriate. At the conclusion of this phase,

> the project is approved and proposals can be solicited from the private sector. (Dept of the AF: The Privatization Process, 1989:xiv)

Actions occurring during this phase result in numerous reports, submittals and approvals. This includes documentation of the requirement, development of the business plan, identification of enabling legislation, fund source determination, and the authorization to issue the RFP (Dept of the AF: The Privatization Process, 1989:4).

The third phase is the project delivery and execution phase which is composed of the following steps: call for proposals, project award, project execution, and delivery of the project (Dept of the AF: The Privatization Process, 1989:4). This phase entails preparing a delivery plan, inviting proposals, evaluating offers, selecting an entrepreneur, and executing the project. After receiving approval for award, the Air Force completes an agreement with the entrepreneur. Project execution includes management of the design, construction, and operation of the facility or service. (Dept of the AF: The Privatization Process, 1989:xiv) Actions occurring during this phase also result in numerous reports, submittals, and events. These include: an acquisition/lease plan; a management plan; an RFP; a source selection; a final economic analysis; a contract; a lease/companion operation agreement; actual design and construction; inspection and acceptance; quality

control; and payment (Dept of the AF: The Privatization Process, 1989:4).

As noted earlier, Appendix A lists in detail the essential steps, their purpose, resulting documentation, and approval authorities for privatization projects.

## Legislative Considerations

Privatization projects, like many other DoD activities, are closely monitored by members of Congress. Due to the Congressional oversight it is important to consider how a project is impacted by legal requirements. This section identifies the legislation which authorizes the different kinds of privatization projects. It also reviews the Davis-Bacon Act and the Buy American Act.

Enabling Privatization Legislation. The "Air Force's ability to enter into agreements and commit government resources is governed by authorizing legislation" (Dept of the AF: The Privatization Process, 1989:5). The enabling legislation currently in force, which governs public-private partnerships, is listed in Table 3. Each piece of legislation governs a different type of project, as indicated by the titles of the Acts. A more in-depth review which summarizes and compares the types of enabling legislation for different projects, using military construction (MILCON) as the baseline for comparison, is provided in Appendix B.

Table 3

PRIVATIZATION LEGISLATION

| |
|---|
| 1 - 10 U.S.C. 2809, Test of Long-Term Facility Contracts |
| 2 - 42 U.S.C. 8287, Shared Energy Savings Programs |
| 3 - 10 U.S.C. 2394, Energy Production Facilities Program |
| 4 - 10 U.S.C. 2667, Real Property Outleasing |
| 5 - 10 U.S.C. 2828, Build/Lease of Military Family Housing Overseas |
| 6 - Section 801 of Public Law 98-115 Build/Lease of Military Family Housing |
| 7 - Section 802 of Public Law 98-115 Rental Guarantee of Military Family Housing |

(Dept of the AF: The Privatization Process, 1989:xii)

For example, the Hope Hotel is permitted by the Real Property Outleasing Act (10 U.S.C. 2667). "An outlease is defined as the lease of a parcel of government-owned land on or near a military installation to a private party" (Dept of the AF: The Privatization Process, 1989:7). The act specifically states that "whenever the Secretary of a military department considers it advantageous to the United States, he may lease to such lessee and upon such terms as he considers will promote the national defense or be in the public interest, real or personal property" (United States Code, Title 10, 1988:680).

The military services benefit from an outleasing agreement, because "the purpose of outleasing in

privatization is to authorize the lessee to construct a facility and/or perform a service, using private funds instead of funds appropriated by the Congress" (Dept of the AF: The Privatization Process, 1989:7). Normally, an outlease "may not be for more than five years, unless the Secretary concerned determines that a lease for a longer period will promote the national defense or be in the public interest" (Title 10, United States Code, 1988:739). To encourage the substantial investment required for most privatization projects, it is considered to be in the public interest to extend the lease term beyond the five year standard to match the expected life span of the facility being developed. The extended lease allows the entrepreneur a longer time period in which to recoup their investment. Because of these considerations, the normal life for outleases with associated construction projects is forty years (Smoker: 24 Apr 90).

The Davis-Bacon Act. An Act that impacts almost all government contracts for the construction of facilities is the Davis-Bacon Act.

> Enacted during the Great Depression, the Davis-Bacon Act was passed in response to the concerns of local contractors and construction workers, who complained that they could not compete for federal government jobs against itinerant contractors employing low-wage migrant labor. (U.S. Congress: Congressional, 1983:1)

The Act was enacted in 1931 "to compel contractors performing construction work for the federal government to

pay their workers the wage prevailing in the community in which the construction takes place" (Gould and Bittlingmayer, 1980:5). The Davis-Bacon Act applies to

> all government contracts over $2,000 for construction, alterations, and/or repair, including painting and decorating, of public buildings or public works to be performed in the United States" (Dept. of the AF: Government Contract Law, 1988: 13-4).

The Davis-Bacon Act is implemented by Federal Acquisition Regulation (FAR) 22.400 and mandates that five provisions be included in applicable contracts. The five provisions are listed in Table 4.

The first provision mandates the payment of not less than the prevailing wages as determined by the Secretary of Labor (Dept. of the AF: Government Contract Law, 1988:13-4). The Department of Labor wage determinations identify the prevailing wages by labor category and project type in each locality. The wage determinations are divided into four schedules: residential, building, highway, and heavy (Truman, 17 July 90).

Table 4

DAVIS-BACON CONTRACT PROVISIONS

| |
|---|
| 1 - Prevailing Wages |
| 2 - Weekly Wage Payment |
| 3 - Sign Posting |
| 4 - Withholding Payments |
| 5 - Termination for Default |

(Dept. of the AF: Government Contract Law, 1988: 13-4, 13-5)

The residential schedule rates "apply only to single-family housing units, including apartments up to and including four-stories (Truman, 17 July 90). The building schedule rates "apply to contracts for work involving buildings which do not meet the criteria of the residential schedule . . . and must have walk-in access" (Truman, 17 July 90). The highway schedule rates "apply to projects involving construction, alteration, or repair (including striping) of roads/ streets, runways, taxiways, alleys, trails, paths, and parking areas not incidental to building or heavy construction projects" (Truman, 17 July 90). The heavy schedule rates apply to a catch-all category to include "virtually all outdoor projects not characterized in the above schedules, as well as to 'quasi-buildings' having no walk-in access" (Truman, 17 July 90).

The second and third provisions prescribe when payment must be made and what wage information must be provided to workers. The second provision to be included in applicable contracts states that "wage payments will be made unconditionally, at least once a week, and without subsequent deductions or rebates" (Dept. of the AF: Government Contract Law, 1988:13-4). The third provision mandates that "the wage scale determined by the Secretary of Labor shall be posted by the contractor in a prominent and

easily accessible place at the work site" (Dept. of the AF: Government Contract Law, 1988:13-5).

The fourth and fifth provisions allow actions to be taken by the Government to correct Davis-Bacon violations. The fourth provision states that the contracting officer

> has a right to withhold from payments due the contractor any amounts necessary to correct violations. These amounts will then be paid directly to the injured employees by the Comptroller General" (Dept. of the AF: Government Contract Law, 1988:13-5).

The fifth provision permits the Government to "terminate for default the contractor's right to proceed with the work, or that part of the work as to which there has been a failure to pay the required wages" (Dept. of the AF: Government Contract Law, 1988:13-5). The Government may also "charge the excess costs of the completion to the contractor" (Dept. of the AF: Government Contract Law, 1988:13-5).

The Act also has provisions which allow it to be suspended by the President in the event of a national emergency. This has not happened often, but it is possible. For instance, "In 1971 the Act was suspended for five weeks by President Nixon in an effort to fight inflation; construction wages had been increasing faster than manufacturing wages" (Dept. of the AF: Government Contract Law, 1988:13-5).

The $2000 threshold has not changed since 1935. Legislation has routinely been introduced to do so, as well as to change other provisions of the Act. For example, in

1988 legislation was introduced to increase the $2,000 threshold to $25,000. However, this proposal, like others before and after it, was not adopted. As a consequence, the Davis-Bacon Act continues to impact almost every federal construction contract.

An additional constraint of the Davis-Bacon Act on government contractors is that the Act "prohibits the use of helpers on federal job sites, . . . [This] insures that skilled craftsmen working at skilled wages will [often] be performing unskilled work" (Wells, 1990:20-21). The Act was designed on the premise that "skilled craftsmen are essential at every step in the production process" (Wells, 1990:20).

The Buy American Act. Another Act that impacts most federal construction contracts is the Buy American Act. The Buy America Act requires "preferential treatment of American material in contracts for public improvements" (United States Code, Title 41, 1982:1041). The Act "was enacted during the depression as a device to foster and protect American industry, American workers, and American invested capital" (Dept. of the AF: Government Contract Law, 1988:5-1). The Act states that when reasonable,

> only such unmanufactured articles, materials, and supplies as have been mined or produced in the United States, and only such manufactured articles, materials, and supplies as have been manufactured in the United States substantially all from articles, materials, or supplies mined, produced, or manufactured . . . in the United States shall be

> acquired for public use. (United States Code, Title 41, 1982:1041)

It is important to note that the Buy American Act does not apply only to governmental entities directly procuring goods and services.

> The Act further provides that only the same types of items that can be bought by the Government under the Buy American Act for public use can be used by contractors, subcontractors, materialmen or suppliers in performance of a Government construction contract. (Dept. of the AF: Government Contract Law, 1988: 5-1)

"Buying items produced domestically provides an economic incentive for continued or increased production of those items in the United States" (Dept. of the AF: Government Contract Law, 1988:5-1).

In certain instances, waivers are available. The Act has three main exceptions. The first exception occurs when "the items are not available domestically in commercial quantities of good quality" (Dept. of the AF: Government Contract Law, 1988:5-1). In general, waivers "usually involve a specialty type item that is unavailable domestically" (Hearings Before the Subcommittee on Investigations and Oversight, 1988:67). The second exception may occur when "the cost of the domestic items is 'unreasonable'" (Dept. of the AF: Government Contract Law, 1988:5-1).

> According to the FAR, the price of a domestic end product is unreasonable if it exceeds the price of the lowest acceptable foreign offer, including transportation cost and import duty (even if the duty is waived), by more than 6 percent. If the

> domestic offer is from a small business or a labor surplus area concern, the domestic price is unreasonable if it exceeds the foreign offer by 12 percent. (Dept. of the AF: Government Contract Law, 1988:5-1)

The third exception is that foreign products may be used "if the head of the department otherwise determines it to be in the public interest to waive the requirement" (Dept. of the AF: Government Contract Law, 1988:5-1).

Penalties do exist for contractors found violating the Buy American Act. If a contractor has failed to comply,

> no other contract for construction shall be awarded to that contractor, its subcontractors, or suppliers with which that contractor is associated or affiliated, within a period of 3 years after the findings are made public. (Dept. of Defense, 1989:25-5)

Formal debarment procedures are detailed in the Federal Acquisition Regulation (FAR).

## Differences Between Privatization and Military Construction

This section describes the differences between privatization and the military construction program from three perspectives. The first focuses on the differences in several key characteristics of many construction projects. The differences highlighted reflect the constraints of the legislation which allows the outlease of government real property, 10 U.S.C. 2667, compared to general MILCON characteristics. The second focuses on differences not specifically related to the outlease of government real property, but compares privatization in general to the

military construction program. The third introduces the opinions of experts on this subject.

Differences in Key Characteristics. Table 5 compares the legislative authority of a MILCON project and the outlease of government real property (Title 10, U.S.C. 2667). As noted earlier, the Hope Hotel is an example of an outlease of government real property.

The differences between the provisions of 2667 privatization and the MILCON process are considerable. The key differences are described in the following paragraphs. A more complete list of differences between 2667 privatization and the MILCON process are detailed in Appendix B.

One key factor in any project concerns which party will own a particular facility. Using the MILCON process, the government owns the facility as soon as construction is completed, and the project is accepted. With a 2667 project, the lessee owns the facility during the life of the lease. Normally, as in the case of the Hope Hotel, upon expiration or termination of the lease,

> the Lessee shall vacate the premises and remove such personal property therefrom within a reasonable period of time as determined by the Government. In either event, if the Lessee shall fail, refuse, or neglect to remove such personal property, then at the option of the Government, such personal property shall either become the property of the Government, without compensation therefor, or the Government may cause it to be removed and/or destroyed at the expense of the Lessee. (Department of the Air Force: Lease, 1988:L-15)

Table 5

MILCON COMPARED TO TITLE 10, U.S.C. 2667

| Elements of Authority | MILCON | 10 U.S.C. 2667 Privatization |
|---|---|---|
| Government involvement | Government owns facility outright | No guarantee or underwriting by the government is allowed |
| Facilities permitted | Unlimited, subject to Congressional authorization | As determined by SAF - as long as the use of the leased land is in the "public interest" |
| Construction standards | Must be built to DoD minimum standards | Build to local standards |
| Land | Must be government owned | Limited to available nonexcess land |
| Impact on AF budget | AF pays all costs | AF or user pays rent |
| Contractual instruments | Contract | Government leases property; no guarantee or underwriting |
| Financial Risk | AF assumes all risk | Developer assumes risk |
| Management/ maintenance | AF conducts and ensures management and maintenance | Developer manages and maintains |
| Applicability of Davis-Bacon and other labor laws and procurement regs. | Applicable | In dispute |

(Dept of the AF: The Privatization Process, 1989:A-3,A-4,A-5)

Thus, it seems clear that with most 2667 projects the Air Force will eventually assume ownership of the facility.

The management and maintenance responsibility remains with the owner of the facility. If the government owns a facility procured via the MILCON process, the management and maintenance of the facility is the government's responsibility. If a contractor owns a facility via a 2667 project, typically the contractor is responsible for the management and maintenance of the facility (Dept of the AF: The Privatization Process, 1989:A-3,A-5).

Additional differences relate to financial risk and the impact on the Air Force budget. When using the MILCON process, the government assumes all financial risk and pays all costs of constructing and operating the facility. When using the 2667 legislation for a project, the contractor assumes all financial risk, and receives rent or user fees from the Air Force (Dept of the AF: The Privatization Process, 1989:A-4,A-5). For example, payment for the Hope Hotel will be provided by the users of the facility. Personnel on temporary duty (TDY) will use their per diem to pay for visits to the center. It is anticipated that the Hope Hotel will be used by government personnel when the base Visiting Officer Quarters (VOQ) has no vacancies.

> The Government may, but is not required to, refer persons traveling in support of the Air Force mission and other military and civilian personnel traveling under Government orders for occupancy of the rooms in the Visitors Quarters [Hope Hotel]. The Lessee hereby agrees to first reserve and offer its rooms to any and all such referrals on a priority basis at the rates specified . . . [in the lease]. The Government shall daily provide the

> Lessee with a referral list of civilian and military personnel eligible for occupancy of the rooms in the Visitors Quarters [Hope Hotel] at such Government rates. (Department of the Air Force: Lease, 1988:L-9)

After satisfying government demands for quarters and conference facilities, the contractor may offer use of the facilities "to persons or groups entitled to have access to Wright-Patterson Air Force Base" (Department of the Air Force: Lease, 1988:L-9).

Other General Factors. Other factors which reflect differences between MILCON and privatization relate to the type of facilities permitted by the legislation, the land that can be used, and the construction standards required. Using the MILCON process, the scope of the facility is unlimited, but is subject to Congressional approval. A MILCON facility must be built to meet the minimum DoD standards and must be built on government owned land. In contrast, the facilities permitted by the 2667 legislation are determined by the Secretary of the Air Force. The facility will be permitted as long as the use of the leased land is in the "public interest" (Dept of the AF: The Privatization Process, 1989:A-3). The facility must be built on nonexcess government land, and must, at a minimum meet the local standards. The Hope Hotel is built to national standards (Department of the Air Force: Lease, 1988:L-4) which are often more encompassing than local standards, but not as strict as DoD standards.

Additional differences relate to the type of contractual instruments used to execute a project. Using the MILCON process, a contract is signed with a contractor to build a facility. In contrast, the facilities permitted by the 2667 legislation require only a lease of property. The government does not underwrite the project or provide any guarantee to the contractor (Dept of the AF: The Privatization Process, 1989:A-5).

Other factors relate to the applicability of the Davis-Bacon Act and other labor laws and procurement regulations. Using the MILCON process, all labor laws and procurement regulations are applicable. In contrast, the applicability of labor laws and procurement regulations to the projects permitted by the 2667 legislation is in dispute (Dept of the AF: The Privatization Process, 1989:A-5).

For example, the contractor building the Hope Hotel was not required by base officials to comply with the Davis-Bacon Act. The base officials determined that since there was no construction contract (only a land lease) the Davis-Bacon Act did not apply (Von Strohe, 19 June 90). However, local unions dispute this and have initiated local action. It appears that the determination of the applicability of the Davis-Bacon Act to the Hope Hotel, and by extension to similar projects may be decided in the courts.

Expert Opinions. There are many opinions as to what the true cost differences are between military and commercial construction.

> In an effort to assemble reliable information on the comparative cost of federal and non federal construction the Federal Construction Council Consulting Committee on Cost Engineering arranged a symposium on the subject. The symposium was held at the National Academy of Sciences in Washington, D.C. on September 25, 1989. Approximately 130 individuals from both public and private organizations attended. (Federal Construction Council, 1989:v)

The following pages review the presentation made by the speakers at the symposium.

There have been numerous studies comparing the construction costs of federal and nonfederal facilities, and no consensus has been obtained. Two studies discussed at the conference demonstrate the inconsistencies. One study shows that the construction cost ratio per square foot of "federal to private remains remarkably at 151 to 100" (Morawetz, 1990:47). A second study, however, determined that "DoD construction costs compare favorably with those of other government owners and the private sector" (Dienemann and Moore, 1990:24).

A notable study was accomplished by a contractor, hired by the General Services Administration (GSA) to study the differences in cost between federal and private office buildings. The contractor performed "a micro-level study in which five carefully selected federal office buildings were compared with six private buildings" (Bowen, 1990:6). The

"study found that, on average, the private building costs represented 64.5 percent of the federal costs" (Bowen, 1990:6).

This study also identified four categories of differences. The first category reflected the difference in scope of the buildings, noting that "the federal buildings simply had more in them" (Bowen, 1990:6). The second category reflected quantitative differences, which indicates that the federal buildings "were more heavily configured with higher floor-to-floor heights" (Bowen, 1990:7). The third category reflected qualitative differences, which indicates that the federal buildings contained "higher quality systems and components striving for lower life cycle costs" (Bowen, 1990:7). The fourth category consisted of unidentified differences to include intangible factors.

One interesting thing about this study was in what it failed to identify as cost differences. The study could find "no hard evidence of cost differences arising from intangible factors such as labor standards, specification restrictions, extra federal documentation or restrictive procurement policies" (Bowen, 1990:7). This point is hotly disputed by several members of the construction industry.

Mr. John Wells, representing Associated Builders and Contractors, believes that the predominate reason for federal construction costs being greater than non-federal construction costs is the Davis-Bacon Act. He notes that

the Davis-Bacon Act, passed into law in the 1930's, "does not allow the use of helpers on federal construction work sites" (Wells, 1990:20). The use of helpers is a change from the past, because "no longer is it felt that skilled craftsmen are essential at every step in the production process" (Wells, 1990:20). Mr. Wells states that in the current construction industry, "helpers, workers who are in the process of learning their trade and are paid at a lower rate than apprentices or journeymen, are used on many construction work sites" (Wells, 1990:20). Continued Davis-Bacon prohibition of helpers "insures that skilled craftsmen working at skilled wages will be performing unskilled work" (Wells, 1990:21).

Mr. Wells also feels that the Davis-Bacon Act discourages competition in an industry dominated by small businesses. Small contractors "have a disincentive to bid on federal contracts when they are forced to pay wages in excess of what they normally pay and are burdened with the paperwork and record keeping that the Act imposes" (Wells, 1990:21).

Mr. Willis Nordlund and Mr. Soon Paik of the Department of Labor, disagree with the idea that the Davis-Bacon Act adversely impacts the costs of federal construction projects. They claim that higher wages result in higher productivity.

> Unless the level of the wage rate bears no relationship to productivity, skill level, worker

> incentives, supervision requirements, and so forth, one cannot say with certainty or even with great assurance that higher wage rates translate directly into higher construction costs. (Nordlund and Paik, 1990:35)

They assert that "the impacts of the Davis-Bacon Act on federal construction cost must be recognized as <u>one</u> aspect of many factors related to federal construction cost differentials" (Nordlund and Paik, 1990:36).

The writers appear to contradict themselves in the later pages of their paper. They state that changing the prevailing wage determination rules "would reduce federal construction costs by about $177 million per year" (Nordlund and Paik, 1990:39-40). They also note that "changing the regulations to permit the increased use of helpers on federal construction projects was estimated to reduce federal construction costs by about $213 million per year" (Nordlund and Paik, 1990:40). If the Davis-Bacon should be recognized as only <u>one</u> apparently insignificant aspect of cost differences of federal construction projects, why will changes in the Act or in the methods to determine the prevailing wages result in such significant cost savings (Moy, 1990:52)? The researchers did not address this apparent contradiction.

Other members of the construction industry do agree that the Davis-Bacon Act is not the sole cause of increased costs of federal construction projects. One study identified four areas which contribute the most to the final

cost of a federal construction project. The areas include: design; administration; quality control; and procurement methods (Jarboe, 1990:8). This writer asserted that additional costs of federal projects result from "administrative action during the course of construction which may result in delays, change orders, and claims" (Jarboe, 1990:8).

Another study stated that increased costs of MILCON projects are due to several factors including the Davis-Bacon Act. Other cost factors relate to "different criteria and specifications for MILCON and commercial construction, and the additional cost of 'doing business with the government'" (Rast, 1990:12). This study also noted that increased costs of MILCON projects reflect the concept "that the overall MILCON process has a major bearing on the cost of these projects" (Rast, 1990:12). In comparison to the private sector, "the MILCON design and construction agent is forced by the process to manage cost to the Congressionally authorized and appropriated programmed amount (PA) for each project" (Rast, 1990:12). Managing to the programmed amount induces the "MILCON program manager to push the PA value up during the planning stages of project development to avoid the possibility of breaking the project budget during the design and construction bidding process" (Rast, 1990:13). Because there is no motivation to return excess funds, "the PA then becomes the project target cost

and the designer is urged to 'design to budget,' thus potentially increasing costs" (Rast, 1990:13).

The disagreement continues. Another study determined that for both federal and non-federal construction projects, the cost of construction reflects the same cost drivers.

> When we set or restrict wages, when we have extremely complex or one-of-a-kind facilities, when we use state-of-the-art or exotic materials, when we limit competition for materials, when we constrain methods, when we require extensive terms, and when we construct an incomplete design, we impact and increase cost. (Miller, 1990:50).

It appears that a true comparison of federal and nonfederal construction may not be possible. Two problems that limit comparability: "1) no two projects are [exactly] alike, and 2) the federal government engages in projects unparalleled in the private sector (e.g., missile bases)" (Morawetz, 1990:45). Partially because of these comparability problems, this thesis was tailored to address generic differences between MILCON and privatization projects.

# III. Methodology

## Chapter Overview

This chapter describes the procedures used to answer the investigative questions presented in Chapter I. Data collection included an extensive search of the literature and numerous personal and telephone interviews. The chapter describes the population from which data were collected, how the data were analyzed, and the measures that were taken to ensure reliability and validity.

## Research Approach

To address the full scope of this research, data were gathered and analyzed to specifically address each of the four investigative questions. Each question is restated below, followed by a definition of its intent, and a listing of the individuals and organizations contacted.

## Investigative Question One

**Is there a difference in the amount of administrative effort required on a MILCON project versus a privatization/ commercial project? If differences exist, do they impact cost?**

The intent of this question was to identify administrative requirements imposed on contractors working on MILCON projects that are not required of contractors accomplishing privatization/commercial projects. The goal

was to determine to what extent any additional requirements result in additional cost to the government during the construction phase of the project.

Initially, interviews of the Wright-Patterson Air Force Base contingent of the Army Corps of Engineer personnel were conducted to identify precisely what reports and administrative requirements are imposed on MILCON contractors. The Army Corps of Engineers, as the construction agent of the Air Force, receives and reviews the required reports.

Secondly, interviews of contractors who had experience with both government and private sector projects were conducted to identify the additional cost of government projects resulting from any additional administrative requirements.

Investigative Question Two

**Is there a difference between military construction standards and the national and local standards used on privatization/commercial projects? If differences exist, do they impact cost?**

The intent of this question was to identify where differences exist between military standards and the national and local standards. The goal was to determine what, if any, differences in standards exist and to what extent these requirements result in additional costs to the government.

Expert opinions were gathered to obtain data for this investigative question. Initially, interviews were conducted with government Civil Engineers to include: Army Corps of Engineer personnel; Aeronautical Systems Division Civil Engineers; Air Force Regional Civil Engineering personnel; 2750th Air Base Wing Civil Engineers; and Air Force Engineering and Services Center personnel. Secondly, interviews were conducted with contractors who had experience with both government and private sector projects to identify the differences between military and commercial standards, and any associated impact on cost.

Investigative Question Three

**Are procurement restrictions or operating constraints imposed on contractors performing MILCON contracts which are not imposed on firms accomplishing privatization projects? If differences exist, do they impact cost?**

The intent of this question was to determine if there are any legislative or other restrictions which constrain a contractor's procurement of materials, fixtures, furnishings, or other items, or his method of operation on military contracts. The goal was to determine if any constraints or restrictions exist, and to what extent these requirements result in additional costs to the government.

This question required the knowledge of experts in the field. Initially, interviews were conducted with personnel from the Wright-Patterson Contracting Center (WPCC),

associated with the 2750th Air Base Wing, Wright-Patterson Air Force Base, Ohio. WPCC negotiated contracts in excess of $1.3 billion in fiscal year 1989. Additional data were collected and interviews were conducted with personnel from the Air Force Regional Civil Engineering Office, Louisville, Kentucky.

Secondly, interviews with contractors who had experience with both government and private sector projects were conducted. The contractors were requested to estimate any additional costs incurred due to MILCON contract restrictions which would not be incurred with privatization/commercial projects. The universe of contractors consisted of those in the Dayton regional area.

Investigative Question Four

**Does the Davis-Baxon Act adversely affect the costs of MILCON versus privatization projects?**

The intent of this question was to identify to what extent the Davis Bacon Act influences the costs of military construction projects versus privatization/commercial projects. Data gathering addressed the impact on federal construction in general, within the Dayton metropolitan area.

Initially, a current listing of the prevailing wages in the Dayton metropolitan area was required. This listing is prepared by the Labor Department, and was obtained from the Air Force Regional Civil Engineers, Louisville, Kentucky.

Updates were obtained from the Contractor Industrial Relations office, located at Wright-Patterson Air Force Base, Ohio.

Secondly, a determination of what wages were currently being paid for labor in the Dayton metropolitan area was required. Union and non-union contractors in the Dayton area provided this data.

Data Analysis

Data collection was accomplished in two separate phases prior to data analysis. The first phase consisted of interviews of government personnel. The purpose of these interviews was to determine what the government required in the areas addressed in the investigative questions. For example, investigative question one is concerned with government administrative requirements. Interviews with Army Corps of Engineer personnel identified exactly what the government requires. A limitation affecting the government personnel was that they did not, in general, have experience with both government and commercial projects. Most of the interviewees had worked exclusively for the government for their entire careers.

The second phase consisted of interviews of contractor personnel. These interviews were of prime importance to the research because the contractor interviewees had personal experience with both government and commercial projects. They had the real time experience necessary to directly

address the comparison of the issues presented. This is a significant difference from the government interviewees. Because of this difference, contractor interviewees provided the primary source of cost difference data.

Data analysis was conducted by attempting to identify a consensus in the replies. Both the government and contractor replies were summarized separately. Data obtained from government interviewees was relatively easy to manage and analyze, because for the first three investigative questions there were specific individuals and organizations which could provide detailed information. Additionally, the fourth investigative question involved only the opinion of the government interviewees. For the most part, they had no first hand experience with the possible Davis-Bacon incongruities between commercial sector wages and prevailing wages because the government only pays the prevailing wage. Because of these factors, a minimum number of government interviews were required.

Contractor interviews represent a different case. The interviews were more diverse, necessitating a larger sample than that required for the government interviews. The contractor interview results are provided in detail in Appendix C. These summaries were used to assist the researcher in identifying a consensus for each investigative question.

Data Integrity

The primary data collection technique used for all interviews was the semi-structured interview. The researcher prepared a questionnaire prior to the interviews listing specific areas to be covered during the interview. The questionnaire served as an interview guide for the researcher and ensured some degree of standardization for each interview. The questions for the government interviews are listed in Appendix D. The questions used for the contractor interviews are listed in Appendix E. The researcher accomplished interviews in person and via the telephone with numerous individuals within the government and with contractors in the commercial environment. The quantity of standardized interviews aided in identifying a true consensus for each investigative question. The researcher believes that a representative sample was reached. Attempts were made to contact all 29 of the commercial/industrial general contractors listed in the 1990-91 Dayton Consumer Yellow Pages. 17 (56%) of these firms were contacted, and complete interviews were conducted with personnel from seven firms. The selection of the seven firms was based on their experience with both government and commercial projects. The other 12 firms did not bid on government work. Three other interviews were also conducted with mechanical and electrical contractors. Additional

interviews were also conducted with a union representative, and several business association representatives.

With personal interviews, the "greatest value lies in the depth and detail of information that can be secured. It far exceeds the information secured from . . . surveys" (Emory, 1985:160). Due to these facts, personal interviews were the preferred method when possible. This method allowed the interviewer to probe with additional questions when appropriate, and to obtain more detailed information in critical areas. Personal interviews were invaluable because they provided both a technique to gather data and also to educate the researcher in the interviewees various specialized fields.

Personal interviews do, however, have certain disadvantages. "Results of personal interviews can be affected adversely by interviewers who alter the questions asked, or in other ways, bias the results" (Emory, 1985:161). To minimize the possibility of interviewer bias, the researcher cautiously avoided inappropriate suggestions, word emphasis, tone of voice, and question rephrasing.

Telephone interviewing was also used extensively due to the limited travel funds available to AFIT students. "Of all the advantages of telephone interviewing, probably none ranks higher than its moderate cost" (Emory, 1985:169). The telephone interviews provided an efficient way to reach individuals in distant locations such as Washington, D.C.;

Florida; and Kentucky. Another advantage to telephone interviewing is that, "when compared to personal interviewing, it is also likely that interviewer bias is reduced by using telephones" (Emory, 1985:170). Telephone interviewing required methods different from personal interviewing because of the lack of eye contact. Questions were read from the questionnaire slowly and enunciated clearly to ensure the interviewee would understand the question.

For both telephone and personal interviews, the researcher attempted to conduct a standardized interview. To gain access to the knowledgeable persons within an organization, a brief description of the study was presented. Once in contact with the appropriate individuals, several standardized statements were made: the brief description was repeated to orient the person with the project, the voluntary nature of their participation was stated, and the probable uses of the results were explained. To maintain standardization, questions were read exactly as printed on the questionnaire, and common probing questions were used to solicit full responses. Several probing techniques included: repeating the question, using expectant pauses, and repeating the interviewee's reply. Answers to the questions were immediately written on the questionnaire to prevent any loss or misinterpretation of data. After the

interview, a short description of the interviewee and the tone of the interview was documented.

The behavior of the interviewer was also standardized throughout the interviewing process to minimize the negative impacts of interpersonal aspects. For personal interviews, the interviewer was always in military uniform to present a professional image. "To behave as a professional, not a friend, helps to standardize the relationship across interviewers and respondents" (Fowler, 1984:110).

Data was compiled and summarized on a separate format for each investigative question. This compilation made it easier to not only identify any trends or consensus ideas for each question, but also to identify any outliers to the data.

The use of the techniques cited above helped to ensure that a consistent measurement was obtained. Additionally, the techniques used should enhance the reliability and validity of the information obtained, serving to maximize the data integrity.

# IV. Presentation of Results

## Chapter Overview

This chapter describes the findings of the investigative questions presented in Chapter I. To adequately address the full scope of this research, the data were gathered and analyzed to specifically answer each of the four investigative questions. To answer the investigative questions, interviews were conducted with government, contractor, and union personnel. Of the contractors contacted, interviews were conducted with ten firms. A summary of the results is presented in Table 6, which reflects the comparison of MILCON versus privatization/ commercial practices used for military facility projects. For example, contractors believe that the administrative requirements associated with MILCON projects increases the cost of constructing government facilities.

Table 6

SUMMARY OF RESULTS
IMPACT ON COST BY INVESTIGATIVE QUESTION

| INVESTIGATIVE QUESTION IMPACT ON COST | GOVERNMENT CONSENSUS | CONTRACTOR CONSENSUS |
|---|---|---|
| 1 - ADMINISTRATIVE REQUIREMENTS | NO IMPACT | INCREASE |
| 2 - CONSTRUCTION STANDARDS | INCREASE | INCREASE |
| 3 - CONTRACT CLAUSES | INCREASE | INCREASE |
| 4 - DAVIS-BACON ACT | INCREASE | INCREASE |

Each investigative question will be restated in the following pages, followed by a detailed description of the results illustrated in Table 6.

Investigative Question One

**Is there a difference in the amount of administrative effort required on a MILCON project versus a privatization/ commercial project? If differences exist, do they impact cost?**

The intent of this question was to identify administrative requirements imposed on contractors working on MILCON projects that are not required of contractors accomplishing privatization/ commercial projects. The goal was to determine to what extent any added requirements result in additional costs to the government.

The government and contractor interviews identified two areas of increased administrative requirements for a MILCON project. The first is due to the reports and plans required by the Army Corps of Engineers and other organizations. The second is due to increased conference and meeting requirements of the government. For MILCON projects, the Army Corps of Engineers has a number of conferences and meetings requiring contractor attendance.

Interviews with the Army Corps of Engineers identified eight different reports or plans that are required from contractors for a typical construction project. It should

be noted that there may be a requirement to provide more than the eight reports identified below. The number of required reports is dependent on the scope and complexity of the contract (Jageman, 20 June 90). The eight basic reports are listed in Table 7 below:

Table 7

REPORTS REQUIRED BY THE ARMY CORPS OF ENGINEERS

| | |
|---|---|
| Safety Plan | Phase Hazard Analysis Plan |
| Progress Schedule | Quality Control Plan |
| Davis-Bacon Reports | Quality Control Daily Report |
| Hazards Communication | Submittal Register |

(Hogsette, 6 June 90) (Jageman, 20 June 90)

Each report or plan serves a unique purpose and is submitted to the local Army Corps of Engineers representative.

The Safety Plan establishes how the contractor plans to maintain a safe working environment at the construction site, and indicates if the contractor will have a separate independent safety representative (Hogsette, 6 June 90). The Safety Plan is prepared for the Army Corps of Engineers at the beginning of the project (Jageman, 20 June 90).

The Progress Schedule is used to monitor the pace of the construction. The original Progress Schedule serves as the baseline and identifies the anticipated project start and completion dates. The Progress Schedule baseline must be submitted for approval to the Army Corps of Engineers prior to the start of the project (Jageman, 20 June 90). After the start of construction, monthly progress reports

are submitted. The monthly reports are used as supporting documentation to justify progress payments (Hogsette, 6 June 90).

The Davis-Bacon Reports are required by the Corps of Engineers and the Department of Labor to ensure compliance with the Davis-Bacon Act. The initial submittal identifies all subcontractors and the certified paymaster, who is the individual responsible for paying wages and completing the certified paymaster sheets (Jageman, 20 June 90). These reports document the amount of wages and the date they were paid to the contractor's personnel. During interviews with contractors in the Dayton, Ohio region, this report was identified as the main driver of additional administrative expense that is not required on privatization/commercial projects (Carone, 18 July 90, O'Brien, 13 July 90).

The Hazards Communication report is composed of reports on hazardous materials. These reports identify how the contractor will label, store, and ventilate any hazardous materials that will be used in construction. Common examples of hazardous materials includes paints, waxes, lacquers, and adhesives (Hogsette, 6 June 90). This report becomes a component of the Safety Plan and is typically prepared prior to the construction start, with updates as needed (Jageman, 20 June 90).

The Phase Hazard Analysis Plan is a detailed plan which attempts to identify possible hazards at the construction

site. This plan provides a safety report which lists hazards at each phase of construction (Hogestte, 6 June 90). "A typical construction job has approximately twenty phases" (Jageman, 20 June 90). One contractor stated that the safety reports they prepare for government projects are similar to the reports they prepare for their commercial projects (Stafford, 10 July 90).

The Quality Control Plan details how the contractor is going to control quality at the site. This plan identifies what tests will be used to verify levels of quality, and also identifies if full time quality control representative will be employed. The need for a full time quality control person is usually dependent on the complexity of the project (Hogsette, 6 June 90). This plan is prepared prior to the start of the construction and is updated and supplemented as needed. The plan is used as a baseline for three types of inspections by the government: preparatory; initial; and follow-up (Jageman, 20 June 90).

The Quality Control Daily Report identifies the current conditions of the work site. Items reported include safety information, receipts of materials, weather conditions, number of employees working, and the number of hours the employees worked. The Army Corps of Engineers assists inspectors in tracking quality assurance (QA) and validating the contractors Quality Control Daily Report (Hogsette, 6 June 90). One contractor stated that the quality control

reports that they prepare for the government are similar to the reports they prepare for their commercial projects (Stafford, 10 July 90).

The Submittal Register is a register the MILCON contractor uses to schedule materials that are anticipated to be used in the job. The Submittal Register, which must be approved by the Army Corps of Engineers, is updated monthly and is also used as a scheduling tool. This register ensures that a contractor is not overpaying for materials. Based on this register, vouchers are validated by the government, which allows payment to be made to the contractor (Jageman, 20 June 90).

The second primary area of increased requirements relates to the number of conferences that are held by the Army Corps of Engineers which must be attended by contractor personnel. Examples include: preconference meeting, mutual understanding conference-QC (Quality Control), and mutual understanding conference-safety (Jageman, 20 June 90).

Several contractors cited the increased meeting and conference requirements of government projects as an element of increased cost (Daxon, Stine, 12 July 90, Flatter, 13 July 90). One contractor cited the need for increased supervisory personnel on military projects to attend meetings (Flatter, 13 July 90). A second contractor cited the need for a full time superintendent and full time quality engineer on many government projects when a similar

commercial project would only require part time support (Daxon, 12 July 90). These two opinions were supported by a third contractor who stated that the government requires safety meetings weekly (Stine, 12 July 90). The contractors were unanimous in citing the fact that the additional manpower results in increased costs to the government.

Generally, government personnel did not feel that the reporting and conference requirements were an unnecessary burden for MILCON contractors. Personnel from the Army Corps of Engineers speculated that bids received from contractors for MILCON projects should not include a significant amount of increased costs over a comparable privatization project (Hogsette, 6 June 90, Jageman, 20 June 90). They stated that the additional reports should not generally require additional manpower, and that the site foremen could accommodate the increased administrative requirements at very little additional cost to the government (Jageman, 20 June 90).

The government personnel further suggested that the increased reporting and conference requirements are simply a way to insure that the taxpayer's investment in a high quality MILCON projects is protected. They suggested that the firms involved with privatization projects are not concerned with protecting the taxpayer by providing a quality facility, but rather are concerned with creating cash flow to support their investment (Jageman, 20 June 90).

The contractors interviewed strongly disagreed with the government personnel. The contractors estimated that the additional reporting adds from two to thirty percent additional cost to the price of a government facility, depending on the size of the project. One contractor stated that there is "ten times as much paperwork" (Miller, 19 July 90) for government projects and that he increases his overhead rate five to eight percent to account for the added administrative requirements (Miller, 19 July 90).

Investigative Question Two

**Is there a difference between military construction standards and the national and local standards used on privatization/commercial projects? If differences exist, do they impact cost?**

The intent of this question was to identify where differences exist between military standards and the national and local standards. National standards were used as the guidelines for the Hope Hotel project. The goal was to determine if any differences in standards exist, and if they do, to what extent these requirements result in additional costs to the government.

Standards impact "the Lessee's use of the leased premises, including construction, use, operation, maintenance repair, and replacement of buildings and facilities" (Dept of the Air Force: Lease, 1989:L-4). The seven national standards used for the Hope Hotel

construction were identified and compared with the applicable military standards. The Air Force guide which outlines the criteria and standards for Air Force construction is AFR 88-15.

> The AFR 88-15 criteria apply to all new construction and to all reconstruction, rehabilitation, alteration, modification, and maintenance and repair of existing facilities constructed with Military Construction Program (MCP), minor Construction Program, Operation and Maintenance (O&M) and nonappropriated funds. (Dept. of the Air Force: Criteria, 1985:1-1)

The seven national standards required for the Hope Hotel listed in Table 8. Interviews identified the differences between these standards and military standards, and the related impact on cost.

Table 8

NATIONAL CONSTRUCTION STANDARDS USED FOR THE HOPE HOTEL

| |
|---|
| The Uniform Building Code |
| The Uniform Mechanical Code |
| The Uniform Plumbing Code |
| The National Electrical Code |
| The National Life-Safety Code |
| The Occupational Safety and Health Act |
| Federal Barrier-Free (Handicap) Requirements |

(Dept. of the Air Force: Lease, 1989:L-4)

Interviews with government personnel provided mixed results. Most of the civil engineers interviewed felt that the national standards are comparable to the military

standards. Personnel from the Army Corps of Engineers provided a different opinion. The Corps personnel stated that the national standards were essentially the same as the military standards, with three exceptions. The exceptions included plumbing standards, fire alarm standards, and refrigeration standards. The Corps personnel stated that the difference in standards would result in increased costs to the government (Jageman, 20 June 90).

One opinion stated by a government employee suggested that military standards are not more restrictive, but are simply clearer and more specific. The government identifies precisely what the requirements are, which, in turn, makes it easier for the contractors because they do not have to guess what the government really requires (Decker, 19 June 90).

Interviews with contractors also provided mixed results. The general consensus was that the military standards are stricter than national and local standards (Ayers, 23 July 90, Kuck, 12 July 90). Most interviewees stated, however, that the differences were not significant. The most common difference cited was the military seismic standards. The codes used in the Ohio area for commercial projects do not have specific requirements to meet any seismic guidelines. The contractors estimated that there would be some minor added costs in materials to meet the military seismic requirements (Flatter, 13 July 90), but in

return the government obtains buildings with heavier structural frames than the commercial sector (Daxon, 12 July 90).

One contractor, who identified the government as having stricter standards, stated that the "government hasn't changed to modern methods" (Daxon, 12 July 90). An example given was that the government still requires cast iron pipe in their facilities, but in the commercial sector, plastic pipe is now commonly used (Daxon, 12 July 90). This statement is consistent with the Army Corps of Engineers opinion.

Investigative Question Three

**Are procurement restrictions or operating constraints imposed on contractors performing MILCON contracts which are not imposed on firms accomplishing privatization projects? If differences exist, do they impact cost?**

The intent of this question was to determine if there are any legislative or other restrictions which may constrain a contractor's procurement of materials, fixtures, furnishings, or other items, or his method of operation on military contracts. The goal was to determine if any constraints or restrictions exist, and if they do, to what extent these requirements result in additional costs to the government during the construction phase of the project.

It is clear through interviews that there is a considerable amount of contractual language which impacts

all construction contractors. It is unclear from a government perspective, however, if the additional contractual language actually impacts a contractor's ability to contain costs. One feeling is that the government is not more restrictive, just clearer and more specific in identifying requirements (Decker, 19 June 90).

Information obtained from the Air Force Regional Civil Engineers (AFRCE) Office identified 97 contract clauses which are part of the "boilerplate" used for all construction contracts. A sample of the clauses and their titles are listed in Table 9 below. A complete listing is provided in Appendix F.

It should be noted that there may be requirements to increase or decrease the number of clauses included in each construction contract. The number of clauses included is dependent on the scope and complexity of the contract (Decker, 19 June 90).

Table 9

CLAUSES IN CONSTRUCTION CONTRACTS

| | |
|---|---|
| Definitions | Officials not to Benefit |
| Gratuities | Suspension of Work |
| Disputes | Davis-Bacon Act |
| Withholding of Funds | Payrolls and Basic Records |
| Equal Opportunity | Apprentices and Trainees |
| Drug-Free Workplace | Buy American Act |
| Assignment of Claims | Authorization and Consent |
| Interest | Insurance |
| Additional Bond Security | Federal, State, and Local Taxes |

(Dept. of the Army, 1990:1-4)

The clauses listed in Table 9 and those listed in Appendix F do not all increase the costs of contractors and the subsequent cost of government contracts. For example, the Patent Indemnity - Construction Contracts (APR 84) clause does not incur any immediate additional expense to the contractor, but

> protects the Government and its officers, agents, and employees against liability, including costs and expenses, for infringement upon any United States patent arising out of performing the contract or out of the use or disposal by or for the account of the Government of supplies furnished or work performed under the contract. (Dept. of the Army, 1990:I-68)

The Definitions clause is another example of a no cost clause, which serves only to provide definitions of terms to the contractor. Many of the other clauses included in the contracts serve to identify the rules of doing business with the government and do not require any additional expense to the contractor.

Interviews with contractors resulted in a consensus that the voluminous contractual requirements in military contracts for the most part did not impact costs. There were two notable exceptions, however; the Buy American Act, and the Davis-Bacon Act. The Davis-Bacon Act will be discussed in the results section of investigative question number four, which follows. The contractors who cited the Buy American Act were the firms who use structural steel on government projects. The contractors cited the problem of procuring American steel. They contend that "much of the

steel is indirectly foreign made" (Flatter, 13 July 90). Another contractor provided an example to illustrate the difficulty of procuring American steel. He stated that on one project his firm received steel, nuts, and bolts for a government job. Upon researching the origin of the steel, nuts and bolts, it was discovered that some of the materials were foreign made. The contractor could only find one American manufacturer for the required nuts and bolts. This search resulted in a three week delay in the start of the project, costing time and money (Daxon, 12 July 90).

Privatization projects do not always require a construction contract. For example, the Hope Hotel which was allowed by U.S.C., Title 10, Section 2667, was an outlease of government land. The only contract on the facility was a land lease. At the present time, there is no standard listing of clauses for land leases which can be compared to normal military construction contracts.

Investigative Question Four

**Does the Davis-Baxon Act adversely affect the costs of MILCON versus privatization projects?**

The intent of this question was to identify to what extent the Davis Bacon Act influences the costs of military construction projects versus privatization/commercial projects. The results of this question are very clear from the contractor's perspective. The Davis-Bacon Act, which mandates the payment of prevailing wages on government

construction projects, causes higher costs for military construction projects in the Dayton, Ohio, area. Even a union representative who was interviewed agreed that the prevailing wage costs the government more than if the Davis-Bacon Act were repealed (Thomas, 20 July 90).

In the Dayton area there is an abundance of non-union labor. In general, it has been estimated that 70 to 85 percent of the commercial and industrial work accomplished in the Dayton area is performed by non-union labor (Fitch, Summers, 20 July 90). A union representative stated that only 60 to 65 percent of the painting work in the Dayton area is performed by union personnel (Thomas, 20 July 90). These facts are mentioned to demonstrate the availability of non-union labor in the Dayton area, which could be used on government projects if the Act is eventually repealed.

Six non-union firms with over fifteen employees provided wage data for the Dayton area for several categories of labor. The commercial wages listed in Table 10 include benefits and reflect an average of the data accumulated. The prevailing wage data listed in Table 10 was obtained from the Department of Labor General Wage Decision, number OH90-29, with a publication date of July 6, 1990. The table reflects the comparison of the Davis-Bacon Act mandated prevailing wage and the associated wage paid in the commercial sector. For example, for a pipefitter in the Dayton area, the prevailing wage that must be paid on

government contracts is $23.04 per hour. The average wage of a pipefitter in the commercial sector is $13.25 per hour. This data reflects a $9.79 per hour or 74% difference (9.79/13.25) between the rate paid on a government versus a commercial project.

Table 10

A COMPARISON OF PREVAILING WAGE RATES AND COMMERCIAL WAGE RATES

| LABOR CATEGORY | PREVAILING WAGE INCLUDING BENEFITS $ | COMMERCIAL WAGE INCLUDING BENEFITS $ | DELTA $ | DELTA % |
|---|---|---|---|---|
| PIPEFITTERS | 23.04 | 13.25 | 9.79 | 74% |
| SHEET METAL WORKERS | 22.24 | 12.62 | 9.62 | 76% |
| CARPENTER | 21.17 | 15.5 | 5.67 | 37% |
| CARPENTERS HELPER | 21.17 | 8.5 | 12.67 | 149% |
| LABORER - GROUP ONE | 16.57 | 8.5 | 8.07 | 95% |

Table 10 reflects a tremendous difference in labor cost for commercial projects using non-union labor. One example was provided by a contractor who is currently working on a government project with a contract cost of $3.6 million. The total cost is composed of a higher than normal percentage of materials, thus, a lower than normal percentage of labor. The contractor estimated that over $200,000 would be saved if the payment of prevailing wages was not required (Stafford, 10 July 90). More significant savings would presumably occur on labor intensive projects.

Table 10 also contains the rates paid for a carpenter's helper. The Davis-Bacon Act does not contain provisions to allow the use of helpers on government projects at a reduced rate. Thus, firms who use helpers on government jobs still must pay the prevailing wage for a fully qualified journeymen (Miller, 19 July 90) as reflected in Table 10.

Several contractors also had productivity and morale concerns with the Davis-Bacon Act. One contractor stated that the employees have no incentive to work hard on government projects, because they have no desire to return to non-government, lower paying projects (Miller, 19 July 90). Another contractor stated that morale problems arise due to the assignment of some personnel to the higher paying government jobs, and others to the lower paying commercial jobs. The problems associated with assigning personnel to jobs, and the administrative requirements of the Davis-Bacon Act, convinced the contractor to discontinue bidding on government work (Ayers, 23 July 90).

# V. Conclusions and Recommendations

## Chapter Overview

The purpose of this research effort was to identify differences between MILCON projects and privatization/ commercial projects and their related impact on cost. To accomplish this task, information was first provided to enable the reader to understand the issues involved. The background of privatization was reviewed, including the facility acquisition alternatives, the legislative considerations, and the expected differences between MILCON and privatization/commercial projects. The methodology used to answer each investigative question, as well as the associated analysis and data integrity concerns were also reviewed. The results were presented in Chapter four. In this final chapter, each investigative question will be restated and followed by a recommendation for further action. A list of topics for further research is also provided.

## Investigative Question One

**Is there a difference in the amount of administrative effort required on a MILCON project versus a privatization/ commercial project? If differences exist, do they impact cost?**

It is clear that there are a significant number of reports required for an Army Corps of Engineer managed

project. It is also clear that many of the reports, with the exception of the Davis-Bacon reports, amount to a partial duplication of other reports and schedules used on many commercial projects. Thus, any additional costs may be due to the supplemental clerical support required to reformat the information for presentation in the standardized government reporting formats.

Recommendation. It appears that government contractors are required to submit numerous reports based on the contract boiler-plate. It seems reasonable to suggest that a review of these requirements is essential to ensure that only the minimum number of reports are required for each project. Minimizing the amount of required documentation will also minimize the cost of reporting. Privatization projects should continue to be pursued to allow the government to capitalize on the commercial efficiencies relating to the decreased level of administrative requirements.

Investigative Question Two

**Is there a difference between military construction standards and the national and local standards used on privatization/commercial projects? If differences exist, do they impact cost?**

It appears that military standards are stricter than national and local standards in several areas. Thus, any

additional costs may be due to the increased materials and labor required to meet the standards.

Recommendation. A review of military standards is essential to ascertain the necessity of the stricter requirements to determine if they are truly warranted. If the military is willing to accept an alternative VOQ (the Hope Hotel), which was built to national standards and will eventually be owned by the government, then the military should consider accepting MILCON projects built to national standards. This relaxing of requirements would result in reduced costs. Privatization projects should continue to be pursued to allow the government to capitalize on the commercial efficiencies relating to the less strict national standards, as compared to the military standards.

Investigative Question Three

**Are procurement restrictions or operating constraints imposed on contractors performing MILCON contracts which are not imposed on firms accomplishing privatization projects? If differences exist, do they impact cost?**

It is clear that the Buy American Act and the Davis-Bacon Act cause additional expense on military construction projects. The impact of the Davis-Bacon Act is discussed in investigative question number four. Concerning the Buy American Act, the difficulty of obtaining steel produced in the United States may continue until the American steel industry recovers from past problems. Until the recovery,

reasonably priced American steel may be difficult to obtain, and will cost the Government additional funds to meet the mandate of the Buy American Act.

Recommendation. A recommendation regarding the Buy American Act depends upon an individual's perspective. If an individual supports subsidies for American firms at additional cost to the United States Government and its agencies, then that individual will suggest continuation of the Buy American Act. If an individual is in favor of minimizing the cost to the government, then that individual will support the repeal of the Buy American Act. Privatization projects should continue to be pursued to allow the government to capitalize on the commercial practices which do not mandate the procurement of American made goods.

Investigative Question Four

**Does the Davis-Baxon Act adversely affect the costs of MILCON versus privatization projects?**

It is clear that the Davis-Bacon Act causes higher costs on government projects in the Dayton, Ohio area. Data obtained reflects an additional labor expense to government projects from 37 to 149 percent. These results will be used by the Air Force Contracts Management Division, Contractor Industrial Relations Office as the basis for a request to the Department of Labor. This request will be for a new

wage survey of the Dayton area to determine the true prevailing wages.

Recommendation. Ms. Kathy Summers, Executive Director of the Associated Builders and Contractors, Inc. Ohio Valley Chapter, stated that the Davis-Bacon Act fosters contractor inefficiencies, and, until removal of the Act, the military won't see the efficiencies of the private sector because there is no incentive to compete. Removal of the Davis-Bacon requirements would force contractors to compete on the value they bring to the job. Ms. Summers continued by stating "that the Davis-Bacon Act keeps the construction industry from being as competitive and productive as it should be. This makes the industry vulnerable to foreign competition" (Summers, 20 July 90). The data obtained documents that the prevailing wage is significantly higher than the commercial wage. At a minimum, the survey methods used by the Department of Labor to determine the prevailing wage should be revised to more accurately capture what the true prevailing wage is. At a maximum, the Act should be repealed. Privatization projects should continue to be pursued to allow the government to capitalize on the commercial practices which, at the present time do not mandate the payment of the prevailing wage.

## Recommendations for Further Research

The Military Construction and privatization methods are fertile areas for future research. The following is a list

of the possible research to be accomplished, to obtain real-time data to assess the magnitude of differences between MILCON and privatization:

1- Prepare a case study of the Hope Hotel, Wright-Patterson AFB, OH.

2- Prepare a case study of the Aeronautical Systems Division (ASD) Tomorrow project, Wright-Patterson AFB, OH.

3- Research the differences between government operated and contractor operated facilities, such as the Hope Hotel.

4- Research privatization and the impact of construction loans, interest rates, taxes, and insurance.

5- Research the new MILCON Planning and Execution Process.

## Conclusion

As the need for new military facilities grows faster than the appropriation of construction funds by congress, the desire to use privatization and third party financing will rise in importance as a method to obtain needed facilities. "Doing more with less" will continue to be the normal state of affairs in this period of declining resources. Efficiency will be required to maximize the usefulness of a minimum of resources.

This research has attempted to identify areas where the government can increase its utilization of private sector efficiencies. The information obtained from this research should be used as a starting point to ultimately adjust current regulations, policy, and legislation impacting MILCON projects. However, if the efficiencies can not be instituted within existing MILCON policies and procedures,

privatization offers an alternative, cost effective method for the government to capitalize on private sector efficiencies.

## Appendix A: Essential Steps for Privatization Projects

| Step | Purpose | Resulting document | Approval authority |
|---|---|---|---|
| 1. Establish requirement | Establish basis for action | Requirement definition (Sect. 4.1.1) | Base/wing commander |
| 2. Preliminary analysis | Choose promising alternatives for further development | DOPAA (Sect. 4.1.5) | Base civil engineer or base commander |
| 3. Project development | Establish foundation for project programming | Operational impact analysis (Sect. 4.3.1), financial feasibility analysis (Sect. 4.3.2), initial economic analysis (Sect. 4.3.3), EIAP (Sect. 4.3.4.1/3), socioeconomic analysis (Sect. 4.3.4.2/4), summary comparison document (Sect. 4.4) | Wing commander |
| 4. Project programming | Initiate Air Force corporate review | Business plan (Sect. 5.1), programming documentation (e.g., DD Form 1391) and supporting documentation (Sect. 5.2) | MAJCOM |
| 5. Project review and approval | Air Force corporate approval and congressional agreement | Approval for projects, with specific scope and content (Sect. 5.3) | Air staff, Secretariat, congressional committees |
| 6. Call for proposals | Get priced offers from competing firms | Acquisition plan (Sect. 6.2.3), lease plan (Sect. 6.3.3), management plan (Sect. 6.5), RFP, and selection plan (Appendix F) | Selection authority (base or MAJCOM level) |
| 7. Award project | Choose preferred offer | Contractual agreement (Sect. 6.2.5), lease (Sect. 6.3.5) | Selection authority with HQ USAF approval and congressional notification |
| 8. Execute project | Oversee design, construction, and operation of project | Approved design and construction documents (Sect. 6.6.1), documentation of performance monitoring (Sect. 6.6.2) | Base or MAJCOM |

(Dept of the AF: The Privatization Process, 1989:17)

## Appendix B: Elements of Legislative Authority

As noted in Chapter 2, the differences between Title 10 U.S.C. 2667 privatization and the MILCON process are considerable. Additional differences between the MILCON process and Title 10 U.S.C. 2667 are identified on the following page.

Other tables are also provided in this appendix which detail the differences between the MILCON process and the following legislation:

PRIVATIZATION LEGISLATION

| |
|---|
| 1 - 10 U.S.C. 2667, Real Property Outleasing |
| 2 - 10 U.S.C. 2809, Test of Long-Term Facility Contracts |
| 3 - 42 U.S.C. 8287, Shared Energy Savings Programs |
| 4 - 10 U.S.C. 2394, Energy Production Facilities Program |
| 5 - 10 U.S.C. 2828, Build/Lease of Military Family Housing Overseas |
| 6 - Section 801 of Public Law 98-115 Build/Lease of Military Family Housing |
| 7 - Section 802 of Public Law 98-115 Rental Guarantee of Military Family Housing |

(Dept of the AF: The Privatization Process, 1989:xii)

Each piece of legislation governs a different type of project, as indicated by the titles of the Acts.

MILCON Compared to 10 U.S.C. 2667

| Elements of Authority | MILCON | Outlease 10 U.S.C. 2667 |
|---|---|---|
| Term | Not applicable | If over five years, SAF must determine the lease to be in the best interest of the public. Otherwise, no statutory limit |
| Renewal | Not applicable | May be renewed |
| Rental Rate | Not applicable | Contractually established |
| Congressional Notification Procedures | Conventional authorization approval process | SAF's current policy is to notify appropriate committees prior to solidification and award |
| Assignment | Assigned and managed as government facilities | Elective. Generally, the same occupancy policy as 802 |
| Enforcement responsibilities to ensure delivery of quality product over time | Burden of execution and enforcement on the AF | Private sector incentives and profit motivation drive developer to ensure quality to attract and keep renters |

(Dept of the AF: The Privatization Process, 1989:A-3, A-4, A-5)

MILCON Compared to 10 U.S.C. 2809

| Elements of Authority | MILCON | Long-term Contracting 10 U.S.C. 2809 |
|---|---|---|
| Government involvement | Government owns facility outright | Government leases project and guarantees payments |
| Facilities permitted | Unlimited, subject to congressional authorization | Troop housing, depot level supply, child-care services, potable water and wastewater treatment, transient quarters, logistics, administrative services, and medical facilities |
| Construction standards | Must be built to DoD minimum standards | May use local or DoD standards |
| Land | Must be government owned | Same as 802 |
| Impact on AF budget | AF pays all costs | AF pays all costs over lease term |
| Contractual instruments | Contract | Contract under FAR with a lease attached |
| Financial Risk | AF assumes all Risk | AF assumes all risk |
| Management/ maintenance | AF conducts and ensures management and maintenance | Determined by agreement |
| Applicability of Davis-Bacon and other labor laws and procurement regs. | Applicable | Applicable |

(Dept of the AF: The Privatization Process, 1989:A-7, A-8, A-9)

MILCON Compared to 10 U.S.C. 2809 (cont)

| Elements of Authority | MILCON | Long-term Contracting 10 U.S.C. 2809 |
|---|---|---|
| Term | Not applicable | Term statutorily limited to twenty years |
| Renewal | Not applicable | May be renewed |
| Rental Rate | Not applicable | Contractually established. AF pays rent |
| Congressional Notification Procedures | Conventional authorization approval process | Annual report to congress |
| Assignment | Assigned and managed as government facilities | Assigned and managed as government facilities |
| Enforcement responsibilities to ensure delivery of quality product over time | Burden of execution and enforcement on the AF | Contract enforcement rests with AF. Incentives for quality product rest with contractor |

(Dept of the AF: The Privatization Process, 1989:A-7, A-8, A-9)

MILCON Compared to 42 U.S.C. 8287

| Elements of Authority | MILCON | Shared Savings 42 U.S.C. 8287 |
|---|---|---|
| Government involvement | Government owns facility outright | Government owns facilities. Contractor owns, operates, and maintains energy retrofits |
| Facilities permitted | Unlimited, subject to congressional authorization | Limited to energy-efficient retrofits in government-owned facilities |
| Construction standards | Must be built to DoD minimum standards | DoD standards for modification |
| Land | Must be government owned | Not applicable |
| Impact on AF budget | AF pays all costs | Money-maker for AF |
| Contractual instruments | Contract | Contract document under FAR |
| Financial Risk | AF assumes all risk | Contractor assumes most risk |
| Management/ maintenance | AF conducts and ensures management and maintenance | Contractor manages and maintains |
| Applicability of Davis-Bacon and other labor laws and procurement regs. | Applicable | Davis-Bacon Act may or may not apply (depends on scope of project). Services contract probably applies |

(Dept of the AF: The Privatization Process, 1989:A-7, A-8, A-9)

MILCON Compared to 42 U.S.C. 8287 (cont)

| Elements of Authority | MILCON | Shared Savings 42 U.S.C. 8287 |
|---|---|---|
| Term | Not applicable | Term statutorily limited to twenty five years |
| Renewal | Not applicable | Renewable up to twenty five years maximum (normally not practical to extend beyond initial contract term) |
| Rental Rate | Not applicable | Government and contractor share (at predetermined rate) the savings below baseline costs |
| Congressional Notification Procedures | Conventional authorization approval process | None. Normal contract approval thresholds |
| Assignment | Assigned and managed as government facilities | Assignment made by the government facilities |
| Enforcement responsibilities to ensure delivery of quality product over time | Burden of execution and enforcement on the AF | Contract enforcement rests with AF. Incentives for quality product rest with contractor |

(Dept of the AF: The Privatization Process, 1989:A-7, A-8, A-9)

MILCON Compared to 10 U.S.C. 2394

| Elements of Authority | MILCON | Energy Production 10 U.S.C. 2394 |
|---|---|---|
| Government involvement | Government owns facility outright | Government guarantees to buy all or portion of utility load. Contractor owns, operates, and maintains facility |
| Facilities permitted | Unlimited, subject to congressional authorization | Limited to energy production facility |
| Construction standards | Must be built to DoD minimum standards | State and local standards |
| Land | Must be government owned | May be on AF land or private property |
| Impact on AF budget | AF pays all costs | Decreases long-term AF budget requirements |
| Contractual instruments | Contract | Contract under FAR with lease attached |
| Financial Risk | AF assumes all risk | Varies with each situation |
| Management/ maintenance | AF conducts and ensures management and maintenance | Contractor manages and maintains |
| Applicability of Davis-Bacon and other labor laws and procurement regs. | Applicable | Probably will be applicable |

(Dept of the AF: The Privatization Process, 1989:A-7, A-8, A-9)

MILCON Compared to 10 U.S.C. 2394 (cont)

| Elements of Authority | MILCON | Energy Production 10 U.S.C. 2394 |
|---|---|---|
| Term | Not applicable | Term statutorily limited to maximum of thirty years |
| Renewal | Not applicable | Not applicable |
| Rental Rate | Not applicable | Contractually established - varies with type and size of facility. Most common method is two-part structure with one covering fixed costs and the other variable or escalationary |
| Congressional Notification Procedures | Conventional authorization/ approval process | HAC, SAC, HASC, SASC notification required of SECDEF through SAF |
| Assignment | Assigned and managed as government facilities | Contractor occupied |
| Enforcement responsibility to ensure delivery of quality product over time | Burden of execution and enforcement on the AF | Contract enforcement rests with AF. Incentives for quality product rest with contractor |

(Dept of the AF: The Privatization Process, 1989:A-7, A-8, A-9)

MILCON Compared to 10 U.S.C. 2828

| Elements of Authority | MILCON | Foreign Housing 10 U.S.C. 2828 |
|---|---|---|
| Government involvement | Government owns facility outright | Government leases project and guarantees payments |
| Facilities permitted | Unlimited, subject to congressional authorization | Family housing units and neighborhood support facilities |
| Construction standards | Must be built to DoD minimum standards | Must be built to DoD minimum standards |
| Land | Must be government owned | May use government, private, or host government land |
| Impact on AF budget | AF pays all costs | AF pays all costs over lease term |
| Contractual instruments | Contract | Long-term lease |
| Financial risk | AF assumes all risk | AF assumes all risk |
| Management/ maintenance | AF conducts and ensures management and maintenance | AF managed; owner maintained |
| Applicability of Davis-Bacon and other labor laws and procurement regs. | Applicable | Not applicable |

(Dept of the AF: The Privatization Process, 1989:A-10, A-11)

MILCON Compared to 10 U.S.C. 2828 (cont)

| Elements of Authority | MILCON | Foreign Housing 10 U.S.C. 2828 |
|---|---|---|
| Term | Not applicable | Term statutorily limited to ten years |
| Renewal | Not applicable | Renewable on year-to-year basis after ten years |
| Rental Rate | Not applicable | No unit rental rate. AF pays all annual leases |
| Congressional Notification Procedures | Conventional authorization/ approval process | SECDEF submits proposed lease ceiling to Armed Services and Appropriations committees for approval prior to solicitation. Economic analysis based on the acceptable proposal is submitted by SECDEF via OMB to the committees prior to award |
| Assignment | Assigned and managed as government facilities | Assigned and managed as government facilities |
| Enforcement responsibilities to ensure delivery of quality product over time | Burden of execution and enforcement on the AF | Burden of enforcement on the AF |

(Dept of the AF: The Privatization Process, 1989:A-10, A-11)

MILCON Compared to Section 801

| Elements of Authority | MILCON | Section 801 of Public Law 98-115 |
|---|---|---|
| Government involvement | Government owns facility outright | Government leases project and guarantees payments |
| Facilities permitted | Unlimited, subject to congressional authorization | Limited to housing and neighborhood support facilities. Rehabilitated units added in FY 1988 legislation |
| Construction standards | Must be built to DoD minimum standards | Must be built to minimum DoD standards identified in RFP |
| Land | Must be government owned | DoD policy requires future 801 projects to be sited off government owned land on government optioned sites |
| Impact on AF budget | AF pays all costs | AF pays all costs over lease term |
| Contractual instruments | Contract | Agreement to lease and government obligates payments, outleases on federal land |
| Financial Risk | AF assumes all risk | AF assumes all risk |
| Management/ maintenance | AF conducts and ensures management and maintenance | AF ensures management and maintenance |
| Applicability of Davis-Bacon and other labor laws and procurement regs. | Applicable | Applicable |

(Dept of the AF: The Privatization Process, 1989:A-3, A-4, A-5)

MILCON Compared to Section 801 (cont)

| Elements of Authority | MILCON | Section 801 of Public Law 98-115 |
|---|---|---|
| Term | Not applicable | Term statutorily limited to twenty years |
| Renewal | Not applicable | Renewable on year-to-year basis after twenty years |
| Rental Rate | Not applicable | No unit rental rate. AF pays all annual leases |
| Congressional Notification Procedures | Conventional authorization approval process | SECDEF submits proposed lease ceiling to Armed Services and Appropriations committees for approval prior to solicitation. Economic analysis based on the acceptable proposal is submitted by SECDEF via OMB to the committees prior to award |
| Assignment | Assigned and managed as government facilities | Assigned and managed as government facilities |
| Enforcement responsibilities to ensure delivery of quality product over time | Burden of execution and enforcement on the AF | Burden of enforcement on the AF |

(Dept of the AF: The Privatization Process, 1989:A-3, A-4, A-5)

MILCON Compared to Section 802

| Elements of Authority | MILCON | Section 802 of Public Law 98-115 |
|---|---|---|
| Government involvement | Government owns facility outright | Government guarantees up to 97% occupancy and debt service payments |
| Facilities permitted | Unlimited, subject to congressional authorization | Limited to housing and neighborhood support facilities. Rehabilitated units added in FY 1988 legislation |
| Construction standards | Must be built to DoD minimum standards | DoD specifications or local at AF discretion |
| Land | Must be government owned | May use government or private land |
| Impact on AF budget | AF pays all costs | Service member pays rent to developer. AF pays debt service on vacant units below 97% occupancy |
| Contractual instruments | Contract | Government guarantees agreement; outleases on federal land |
| Financial Risk | AF assumes all risk | AF assumes risk for the guarantee |
| Management/ maintenance | AF conducts and ensures management and maintenance | Developer manages and maintains |
| Applicability of Davis-Bacon and other labor laws and procurement regs. | Applicable | Will most likely be applicable |

(Dept of the AF: The Privatization Process, 1989:A-3, A-4, A-5)

MILCON Compared to Section 802 (cont)

| Elements of Authority | MILCON | Section 802 of Public Law 98-115 |
|---|---|---|
| Term | Not applicable | Term statutorily limited to twenty five years |
| Renewal | Not applicable | FY88 legislation allows renewal if on government land |
| Rental Rate | Not applicable | Rental rate contractually established |
| Congressional Notification Procedures | Conventional authorization approval process | SECDEF submits economic analysis via OMB to Armed Services and Appropriations committees prior to award |
| Assignment | Assigned and managed as government facilities | Elective housing. Military given occupancy priority. Civilians can rent if there is insufficient military demand |
| Enforcement responsibilities to ensure delivery of quality product over time | Burden of execution and enforcement on the AF | Burden of enforcement on the AF |

(Dept of the AF: The Privatization Process, 1989:A-3, A-4, A-5)

## Appendix C: Data Summary Sheets

This appendix duplicates the data summary sheets used to aid the researcher in identifying a consensus. The data and comments were obtained from the questionnaires used during the interviews. Each investigative question is restated, followed by the results.

### Investigative Question One

Is there a difference in the amount of administrative effort required on an MILCON project versus a privatization/ commercial project? If differences exist, do they impact cost?

1- payroll reports - add 1-2% based on labor hours
2- more paperwork than private sector
Corps of Engineer jobs have the most administrative requirements,
- more supervision time in military projects attending meetings
- running down paperwork numerous safety reports & daily reports
- duplication of paperwork
- extra cost w/ security requirements, time losses due to passes & permits in an escorted facility w/ checkpoints. Firm only get 6.5 hrs of work in an 8 hr day - if one goes to bathroom, all employees must go
3- add 3.5% for paperwork over and above payroll reports in general, for a Corps of Engineer job - estimate cost, double it and add some
4- significant amount of increased paperwork - add 2-2.5% corps jobs - add 7-7.5% for administrative
5- reports are no major deal once you are used to the process does require additional clerical support
- on big jobs add 1500k per month for full time support to complete payroll reports
6- a considerable amount of added paperwork, add 5% for more personnel
7- quality control & safety reports are the same as they do for private
- payroll reports are a big admin job
8- payroll reports
- on site supervision req is higher
- may need a full time superintendent

- may need a full time quality engineer
9- 10 times as much paperwork - increase cost 5-10%
- Corps of Engineers are the worst
- increase overhead rate up 5-8%
- up miscellaneous categories 3% vs 1% in commercial
- overall cost is 10-15% higher on gov
10- gov has more requirements
- safety meetings weekly
- pre meetings with employees
- still have req with private, but less oversight
- add 25-30% to cost due to bureaucratic paperwork

Investigative Question Two

Is there a difference between military construction standards and the national and local standards used on privatization/commercial projects? If differences exist, do they impact cost?

1- corps standards - too strict
- exceed normal building codes
- adds 2-3% additional cost
2- structural req are higher - seismic
- some minor added costs in materials
3- electric - very different from industry standards
- stupid rules & regulations
- doesn't decrease life cycle costs
4- big difference - military standards looser than national standards
- commercial inspectors are more thorough
5- government is slightly more strict
- federal buildings are designed to last a long time
- federal buildings are better quality than commercial
6- government is slightly more strict
7- military standards require seismic considerations
- sprinkler requirements are more strict on federal buildings - add $1.50 per foot
8- military more strict
- government hasn't changed to modern methods
- government still requires cast iron pipe vs PVC
- may impact life cycle cost - pay now or pay later
- government gets good quality for their $
- government structural frames heavier than private
9- military same as national
10- military very close as national

Investigative Question Three

Are procurement restrictions or operating constraints imposed on contractors performing MILCON contracts which are not imposed on firms accomplishing privatization/commercial projects? If differences exist, do they impact cost?

1- no
2- in general, no added costs
 - much steel is indirectly foreign made
 - material may cost more, especially if the item is normally not american made
3- in general, no added costs
4- no, no real impact
5- not much impact
6- not much impact - they try to use american made on their own jobs
7- not much impact
8- Buy American causes a problem
 - got American steel & nuts, but the nuts & bolts turned out to be foreign after a search. They could only find one American manufacturer of nuts & bolts. Work was 3 weeks late starting because of nuts & bolts.
9- not much impact
10- not much impact

Investigative Question Four

Does the Davis-Bacon Act affect the cost of MILCON versus privatization projects?

Note: Wage data is not detailed here to ensure the anonymity of the individuals and their firms.

1- quit doing gov work because of davis bacon
 - too much labor animosity
 - who gets to work DB jobs?
2- union & DB are usually identical or very close
3- open shop has 70% more productivity & output than union shop
4- big impact
5- big difference
 - uses helpers on commercial
 - union - are best skilled craftsmen
 - less $ means less skilled people
6- low-end skill workers end up being paid higher wages
 - with high skill categories, rates aren't as different (20%)
 - uses helpers on commercial jobs
7- DB time is past

- brick masons, carpenters, laborers, roofers are 40% more expensive
- ex. on a current base job of $3.6m, heavy in materials, could save 200K w/out D-B

8- big difference

9- still uses helpers on gov jobs- but pays DB
- productivity is lower on DB jobs
- no incentive to work hard
- this attitude carries over to non DB jobs

10- a union contractor
- skill level and productivity is higher
- employs a full time secretary to do DB reports
- electrical & mechanical is 20% more expensive

## Appendix D: Interview Questions for Government

This appendix lists the questions asked during every contractor interview. The questions were used as an interview guide and ensured some degree of standardization for each semistructured interview. Several common probing questions were used to solicit full responses. Each question and the related investigative question is listed below. Some questions were used to gather general background information about the individual and the firm.

1. Please list your name, title, and organization.

- background information

2. What administrative requirements (reports, etc.) does the government require for the federal projects. Are these reports, etc. required for private sector projects? If differences exist between the reports required, is there any impact on cost?

- investigative question one

3. Building & other standards:

- all elements of question 5 relate to investigative question two.

a. Are the national standards different from the local (Ohio) codes?

b. Are there any associated cost differences of building with the national codes versus the Ohio codes?

c. Are the national and Ohio codes different from the military standards which are required by the Army Corps of Engineers for large construction projects?

d. On construction projects in general, do the differences of the national and Ohio codes versus military standards result in higher/lower construction costs for government projects?

4. Are there contractual/legislative constraints placed on contractors who are performing work on a government project which are not imposed on firms working on projects in the private sector? Is the government more or less restrictive?

The intent of this question is to determine if there are any legislative (ex. Buy America Act) or other restrictions (contract clauses) that may constrain a contractor in his method of procurement of materials, fixtures, furnishings, and other items, or in any way constrains a contractor's method of operation on military contracts. If true, to what extent do the restrictions and constraints impact a contractor's ability to contain costs?

- investigative question three

5. In the Dayton Area, does the Davis-Bacon Act require different wages be paid on government contracts versus those wages in the private sector?

- investigative question four

a. How different are the wages, and in what labor categories do any differences exists?

6. Can you identify any efficiencies of the private sector that the government can use to improve the federal construction program?

- all investigative questions

7. Can you identify any inefficiencies of the government construction program that could be changed or eliminated which will maintain quality and also save tax dollars?

- all investigative questions

## Appendix E: Interview Questions for Contractors

This appendix lists the questions asked during every contractor interview. The questions were used as an interview guide and ensured some degree of standardization for each semistructured interview. Several common probing questions were used to solicit full responses. Each question and the related investigative question is listed below. Some questions were used to gather general background information about the individual and the firm.

1. Please list your name and title.

- background information

2. Would your consider your employer to be a prime contractor, a sub-contractor, or a construction management firm? How many individuals do you employ?

- background information

3. Does your firm also have experience with federal/military and private sector construction projects? What size projects have you been involved in?

- background information

4. Are there administrative requirements (reports, etc.) the government requires for the federal projects that would not be required for private sector projects? Do the differing requirements result in increased or decreased costs?

- investigative question one

5. Building & other standards:

- all elements of question 5 relate to investigative question two.

a. Are the national standards different from the local (Ohio) codes?

b. Are there any associated cost differences of building with the national codes versus the Ohio codes?

c. Are the national and Ohio codes different from the military standards which are required by the Army Corps of Engineers for large construction projects?

d. On construction projects in general, do the differences of the national and Ohio codes versus military standards result in higher/lower construction costs for government projects?

e. On construction projects in general, do the differences of the national and Ohio codes versus military standards result in higher/lower life cycle costs (construction and operation/ maintenance) for government projects?

6. Are there contractual/legislative constraints placed on contractors who are performing work on a government project which are not imposed on firms working on projects in the private sector? Is the government more or less restrictive?

The intent of this question is to determine if there are any legislative (ex. Buy America Act) or other restrictions (contract clauses) that may constrain a contractor in his method of procurement of materials, fixtures, furnishings, and other items, or in any way constrains a contractor's method of operation on military contracts. If true, to what extent do the restrictions and constraints impact a contractor's ability to contain costs?

- investigative question three

7. In the Dayton Area, does the Davis-Bacon Act demand different wages be paid on government contracts versus those wages in the private sector?

- investigative question four

a. How different are the wages, and in what labor categories do any differences exists?

- investigative question four

8. When you estimate the costs of a gov job versus a private job to prepare your bid, do you use any different factors to increase or decrease the costs?

- all investigative questions

9. Can you identify any efficiencies of the private sector that the government can use to improve the federal construction program?

- all investigative questions

10. Can you identify any inefficiencies of the government construction program that could be changed or eliminated which will maintain quality and also save tax dollars?

- all investigative questions

## Appendix F: Contract Clauses - Construction

Information obtained from the Air Force Regional Civil Engineers (AFRCE) Office identified 97 contract clauses which are part of the "boilerplate" used for all construction contracts. This appendix lists the 97 clauses.

1 - Definitions (Civil Works)

2 - Authorized Deviations

3 - Audit-Negotiation

4 - Government Property (Fixed-Price Contracts)

5 - Limitations on Payments to Influence Certain Federal Transactions

6 - Pledges of Assets

7 - Transportation of Supplies by Sea

8 - Notification of Transportation of Supplies by Sea

9 - Utilization of Small Disadvantaged Business Subcontracting Plan

10 - Utilization of Small Disadvantaged Business Subcontracting Plan--Alternate I

11 - Definitions--Alternate I

12 - Officials Not to Benefit

13 - Gratuities

14 - Covenant Against Contingent Fees

15 - Anti-Kickback Procedures

16 - Special Prohibition on Employment

17 - Statutory Compensation Prohibitions and Reporting Requirements Relating to Certain Former Department of Defense (DoD) Employees

18 - Protecting the Government's Interest when

19 - Subcontracting with Contractor Debarred, Suspended, or Proposed for Debarment

20 - Defense Priority and Allocation Requirements

21 - Variation in Estimated Quantity

22 - Suspension of Work

23 - Audit--Sealed Bidding

24 - Price Reduction for Defective Cost or Pricing Data--Modifications--Sealed Bidding

25 - Subcontractor Cost or Pricing Data--Modifications--Sealed Bidding

26 - Order of Precedence--Sealed Bidding

27 - Examination of Records by Comptroller General

28 - Price Reduction for Defective Cost or Pricing Data

29 - Subcontractor Cost or Pricing Data

30 - Termination of Defined Benefit Pension Plans

31 - Order of Precedence

32 - Utilization of Women-owned Small Businesses

33 - Liquidated Damages--Small Business Subcontracting Plan

34 - Small Business and Small Disadvantaged Business Subcontracting Plan (DoD Contracts)

35 - Utilization of Labor Surplus Area Concerns

36 - Labor Surplus Area Subcontracting Program

37 - Notice to the Government of Labor Disputes

38 - Convict Labor

39 - Contract Work Hours and Safety Standards Act--Overtime Compensation

40 - Davis-Bacon Act

41 - Withholding of Funds

42 - Payrolls and Basic Records

43 - Apprentices and Trainees

44 - Compliance with Copeland Act Requirements

45 - Subcontracts (Labor Standards)

46 - Contract Termination--Debarment

47 - Compliance with Davis-Bacon and Related Act Regulations

48 - Disputes Concerning Labor Standards

49 - Certification of Eligibility

50 - Equal Opportunity

51 - Affirmative Action Compliance Requirements for Construction

52 - Affirmative Action for Special Disabled and Vietnam Era Veterans

53 - Affirmative Action for Handicapped Workers

54 - Employment Reports on Special Disabled Veterans and Veterans of the vietnam Era

55 - Clean Air and Water

56 - Drug-Free Workplace

57 - Buy American Act--Construction Materials

58 - Restrictions on Contracting with Sanctioned Persons

59 - Authorization and Concern

60 - Notice and Assistance Regarding Patent and Copyright Infringement

61 - Patent Indemnity--Construction Contract

62 - Rights in Shop Drawings

63 - Additional Bond Security

64 - Insurance--Work on a Government Installation

65 - Federal, State, and Local Taxes

66 - Payments Under Fixed-Price Construction Contracts

67 - Interest

68 - Assignment of Claims

69 - Prompt Payment for Construction Contracts

70 - Disputes

71 - Protest After Award

72 - Certification of Requests for Adjustment or Relief Exceeding $100,000

73 - Differing Site Conditions

74 - Site Investigation and Conditions Affecting the Work

75 - Material and Workmanship

76 - Superintendence by the Contractor

77 - Permits and Responsibilities

78 - Other Contracts

79 - Protection of Existing Vegetation, Structures, Equipment, Utilities, and Vegetation

80 - Operations and Storage Areas

81 - Use and Possession Prior to Completion

82 - Cleaning Up

83 - Accident Prevention--Alternate I

84 - Schedules for Construction Contracts

85 - Specifications and Drawings for Construction

86 - Composition of Contractor

87 - Modification Proposals - Price Breakdown

88 - Contract Prices - Bidding Schedules

89 - Changes

90 - Pricing of Adjustments

91 - Subcontracts (Fixed-Price Contracts)

92 - Government Furnished Property (Short Form)

93 - Inspection of Construction

94 - Value Engineering--Construction--Alternate I

95 - Termination for Convenience of the Government (Fixed Price) (Short Form)

96 - Termination for Convenience of the Government (Fixed Price)--Alternate I

97 - Default (Fixed-Price Construction)

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## Vita

Captain Andrew D Pope [redacted]. He graduated from Cumberland Valley High School in Camp Hill, Pennsylvania, in 1980 and attended the State University of New York, College at Plattsburgh, from which he received a Bachelor of Science in Accounting. Upon graduation, he attended Officer Training School, Lackland AFB, Texas and was commissioned into the USAF in December of 1985. He was subsequently assigned to the Aeronautical Systems Division, Wright-Patterson AFB, where he served as a Budget Officer and a Financial Manager. In May 1989, he was transferred to the School of Systems and Logistics, Air Force Institute of Technology. Captain Pope received his Master of Science in Administration degree from Central Michigan University in December of 1989. Captain Pope became a Certified Cost Analyst in June of 1990, and completed Squadron Officer School in September of 1990. He is married to the former Susan [redacted] and has one daughter, [redacted], age one year and nine months.

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**13. ABSTRACT** (Maximum 200 words)

This study investigated the differences between military construction (MILCON) and Privatization/commercial projects. Specifically, this study examined four areas of possible incongruity which impact cost: administrative requirements; construction standards; contract clauses; and the Davis-Bacon Act. Interviews were conducted with representatives from government and industry. Data gathered indicate that all four areas do cause costs to be higher on MILCON projects than projects accomplished in the commercial sector. The most significant findings resulted in the Davis-Bacon area. The Davis-Bacon Act requires that prevailing wages, as determined by the Department of Labor, be paid on all federal construction contracts over $2500. Data gathered in the Dayton, Ohio area indicated that prevailing wages exceeded commercial sector wages by 37 to 149 percent. The excessive wages cause federal government and military facilities to be substantially higher in cost compared to the commercial sector.

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