

GAO

Report to Congressional Requesters

October 1991

PRISON COSTS

Opportunities Exist to Lower the Cost of Building Federal Prisons



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U.S. Department of Justice
National Institute of Justice

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

General Government Division

B-244494

October 25, 1991

The Honorable Dennis DeConcini
United States Senate

The Honorable Bob Graham
United States Senate

The Honorable Richard Bryan
United States Senate

The Honorable Joe Lieberman
United States Senate

The Honorable Herb Kohl
United States Senate

NCJRS
MAR 11 1992
ACQUISITIONS

In response to your joint request, this report compares federal and state prison construction and operations costs for new medium-security prisons and discusses the reasons for any differences. The report identifies opportunities for cost savings in the federal system.

As arranged with your offices, we plan no further distribution of this report until 30 days after the date of this letter, unless you publicly announce its contents earlier. At that time, we will send copies to the other appropriate congressional committees, the Attorney General, the Director of the Bureau of Prisons, the Office of Management and Budget, and other interested organizations and parties.

Major contributors are listed in appendix V. If you have any questions on this report, please call me on (202) 566-0026.

Harold A. Valentine
Associate Director, Administration of
Justice Issues

Executive Summary

Purpose

To accommodate the rapidly increasing federal prison population, the Department of Justice's Bureau of Prisons is in the midst of an unprecedented expansion program that will double its inmate capacity by 1995 at a cost of about \$3 billion. State prison populations are also soaring, and states are building and renovating hundreds of prisons to keep pace. At the request of five Senators, GAO compared federal and state prison construction and operations costs for new medium security prisons to determine the reasons for any differences and to identify any opportunities for cost savings in the federal system.

Background

The nation's prison systems have just completed a decade of record population growth, and the growth is expected to continue throughout the 1990s. The number of prisoners in federal and state correctional facilities reached 710,054 at the end of 1989, which represents an increase of about 82,000 for the year. According to the Department of Justice, the 1989 increase was roughly equivalent to a demand for 1,600 new prison beds per week nationwide.

To meet the population surge, many jurisdictions have boosted spending for correctional facilities to record levels. In fiscal years 1989 through 1991, the Bureau received a total of \$2.4 billion for prison expansion, and its fiscal year 1992 budget requested an additional \$315 million for further prison expansion—mostly through new construction. The states are spending billions of dollars on hundreds of new prisons and on major renovations to existing prisons. But construction costs are only the down payment on a prison's total cost to society. The Bureau estimates that operating its prisons over their useful lives costs 15 to 20 times the construction costs.

Prisons can vary widely in size, design, and costs of construction. There is no standard or "cookie-cutter" prison design. They come in many shapes and sizes, and many factors can influence design. Important considerations in designing a prison include its capacity, security level, urgency of need for prison beds, desire to meet the accreditation standards of the American Correctional Association, cost, and the corrections policy and philosophy of the jurisdiction.

The Bureau feels strongly about its approach to prison design and the environment it hopes to create for inmates. Federal prisons are designed to provide a "normalized," campus-like setting with recreation areas and landscaped grounds that permit freedom of movement for inmates and direct interaction between inmates and staff. In this regard, the Bureau

sees itself as a leader in the corrections field and believes that any substantive change in its prison design would have an adverse effect on inmates and staff.

To compare federal and state prison construction and operations costs, GAO prepared and sent a questionnaire to the Bureau and to selected states on construction and operating costs of medium security prisons built between 1985 and 1989. GAO also did detailed case studies in two federal and two state prisons and discussed prison construction and operations costs with knowledgeable government and private sector officials. GAO did not review in detail the various jurisdictions' philosophies on the amount of space that inmates should have, inmate quality of life issues associated with cell size or type of housing, or the effectiveness of inmate programs (e.g., education and vocational training).

Results in Brief

Federal medium security prisons opened between 1985 and 1989 cost more per bed to build than similar state prisons. They averaged \$70,000 per bed compared with \$55,000 per bed for the state prisons. The major reasons for the difference were that federal prisons were designed to provide 55 percent more space per inmate and federal designs called for inmates to be housed in single cells rather than multiple-occupancy cells or dormitories. Another reason was that federal prisons had more dedicated space for inmate programs.

However, these federal prisons cost less to operate per inmate per day than the state prisons. Salaries comprise the bulk of operations costs, and federal salaries were on average 5 percent lower than the state salaries. Also, federal prisons operated with about a 27 percent higher inmate-to-staff ratio than state prisons. Once federal law enforcement pay reform is fully implemented, differences between federal and state salaries should diminish and locality pay could make siting prisons in some geographic areas more costly.

The Bureau is considering ways to reduce construction costs. It has recently changed its policy on using single cells to permit some double-bunking in new medium security prisons. Meanwhile, the Bureau is also considering several other proposals that could achieve cost savings. While implementation of these proposals would be useful, GAO believes they do not address certain important opportunities that could substantially reduce prison construction costs. These opportunities include reducing the amount of space provided to inmates, making greater use of multipurpose space, and siting prisons in lower cost geographic areas.

GAO's Analysis

Federal Prisons Provided More Space Per Inmate Than State Prisons

One reason why these federal prisons cost more to build than the state prisons is that they were designed to provide inmates with substantially more space. Overall, the federal prisons provided an average of 643 square feet per inmate versus 415 square feet for the state prisons (see p. 32). The federal prisons were more generous with space than the state prisons in almost every category of space, particularly in housing areas. If the four federal prisons opened since 1985 had been designed with housing space equal to even the highest cost state prisons, over \$20 million—about \$8,500 per bed—might have been saved in construction costs (see p. 47).

Federal Prisons Used More Costly Designs Than Most State Prisons

Another reason the federal prisons cost more to build is that they were designed to house all medium security inmates in single cells. In contrast, 17 of the 32 state prisons in GAO's sample were designed to house some or all inmates in either multiple-occupancy cells or dormitories. The federal prisons also provided dedicated space for many program and recreation activities. In contrast, the lower cost state prisons reduced the need for dedicated space by making greater use of multipurpose rooms for a variety of activities (see pp. 37-43).

Geographic Cost Differences Affect Construction Costs

Construction cost indexes and GAO's analysis showed that construction costs can vary across different regions of the country as a result of differences in labor and material costs. Construction costs generally tended to be higher in the Northeast and West and lower in the South and Midwest. Consideration of such cost differences is not currently part of the Bureau's site selection criteria (see p. 43).

According to the Bureau, the most important factor in determining where to build prisons is that they be near inmates' homes, thereby facilitating family visits. While this is the Bureau's policy, its data show that over 60 percent of inmates are serving sentences more than 250 miles from home and 35 percent were more than 500 miles from home.

Opportunities Exist to Reduce Construction Costs

During GAO's review, the Bureau revised its single cell standard to permit some double-bunking in new medium security prison cells having 90 or more square feet. The new guidelines call for half the cells to be

double-bunked to house two-thirds of the inmates. The other cells will be single-bunked. This limited double-bunking will reduce per-bed construction costs by increasing capacity relative to cell size. Also, in July 1991, the Bureau revised its design standards for existing facilities, as recommended by GAO in an earlier report. The new policy calls for double-bunking in one-half of the medium security prison cells having 75 or more square feet. The other cells will be single-bunked.

Since GAO's review was initiated, a Bureau task force has identified 12 options for cutting construction costs. These options include the increased use of inmate labor; reduced square footage in support areas; deleting gymnasiums, dental clinics, and x-ray facilities in adjacent minimum security camps; deleting certain indoor recreation areas; and using cubicles instead of cells to house inmates. The task force recommended several of the options for Bureau approval. If adopted, the Bureau estimates they could reduce construction costs by about 6 percent (see pp. 49-50).

While these options could be useful, they do not address certain important opportunities that exist to reduce construction costs. For example, reducing square footage in support areas does not address the difference in housing and program space between federal and state prisons, and using cubicles instead of cells does not address the extent to which double-bunking in appropriately sized cells could be used to reduce prison construction costs.

Lower Salaries, Smaller Staffs Resulted in Lower Federal Operations Costs

Personnel expenses account for two-thirds of operations costs at federal prisons and three-fourths at state prisons. Two factors that affect personnel expenses are salaries and inmate-to-staff ratios. Salaries at the federal prisons were on average 5 percent less than state prison salaries. When broken down into geographic areas, however, salaries at the federal prisons were about the same as at the Northeastern prisons, higher than at the Midwestern and Southern prisons, and lower than at the Western prisons. In addition, inmate-to-staff ratios at the state prisons were about 27 percent lower than at the federal prisons. As a result, the federal prisons, on average, had lower operating costs per inmate per day than the state prisons. Recently passed legislation will raise starting salaries for some Bureau staff by about 16 percent over 2 years and provide for pay differentials ranging from 4 to 16 percent in eight locations. When these changes are fully implemented, the differences between federal and state salaries should diminish (see pp. 54-61).

Recommendations

GAO recommends that the Attorney General require the Director, Bureau of Prisons, to

- reassess current prison design standards to determine if the amount of space provided to federal inmates could be reduced,
- promote the use of multipurpose space where feasible, and
- amend prison site selection criteria to include consideration of geographical differences in material and labor costs, including locality pay differentials.

Agency Comments

GAO provided a draft of this report to the Department of Justice for written comment. Justice generally agreed with GAO's recommendations. Concerning GAO's recommendation to reassess the amount of space provided to inmates, Justice said the Bureau had determined that substantially expanding the use of double-bunking was feasible. And as GAO previously noted, in July 1991 the Bureau revised its policy on design standards to permit some double-bunking in existing medium security facilities, which include the prisons reviewed in this report.

While encouraged by the revision, GAO is concerned that the revision and the Bureau's design standards for newly constructed medium security facilities are inconsistent. The Bureau's standards now require new cells or rooms to have 90 or more square feet for double-bunking while requiring only 75 or more square feet in existing facilities. GAO believes that the Bureau's design standards for comparable facilities should be consistent. Further, as it has stated previously, GAO believes the Bureau's standards should provide for double-bunking where feasible and limit single-bunking to situations where double-bunking is clearly not feasible.

While it generally agreed with GAO's recommendations, Justice took exception to some of the analysis. But GAO does not believe the issues affect its recommendations. Justice's comments and GAO's responses are included as appendix IV.

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Abbreviations

ACA	American Correctional Association
AIA	American Institute of Architects
BJS	Bureau of Justice Statistics
BOP	Bureau of Prisons
FCI	Federal Correctional Institution
GSA	General Services Administration
WAG	Wardens' Advisory Group

Introduction

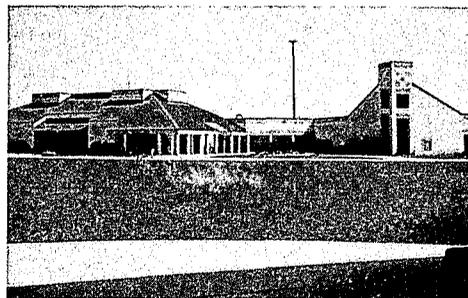
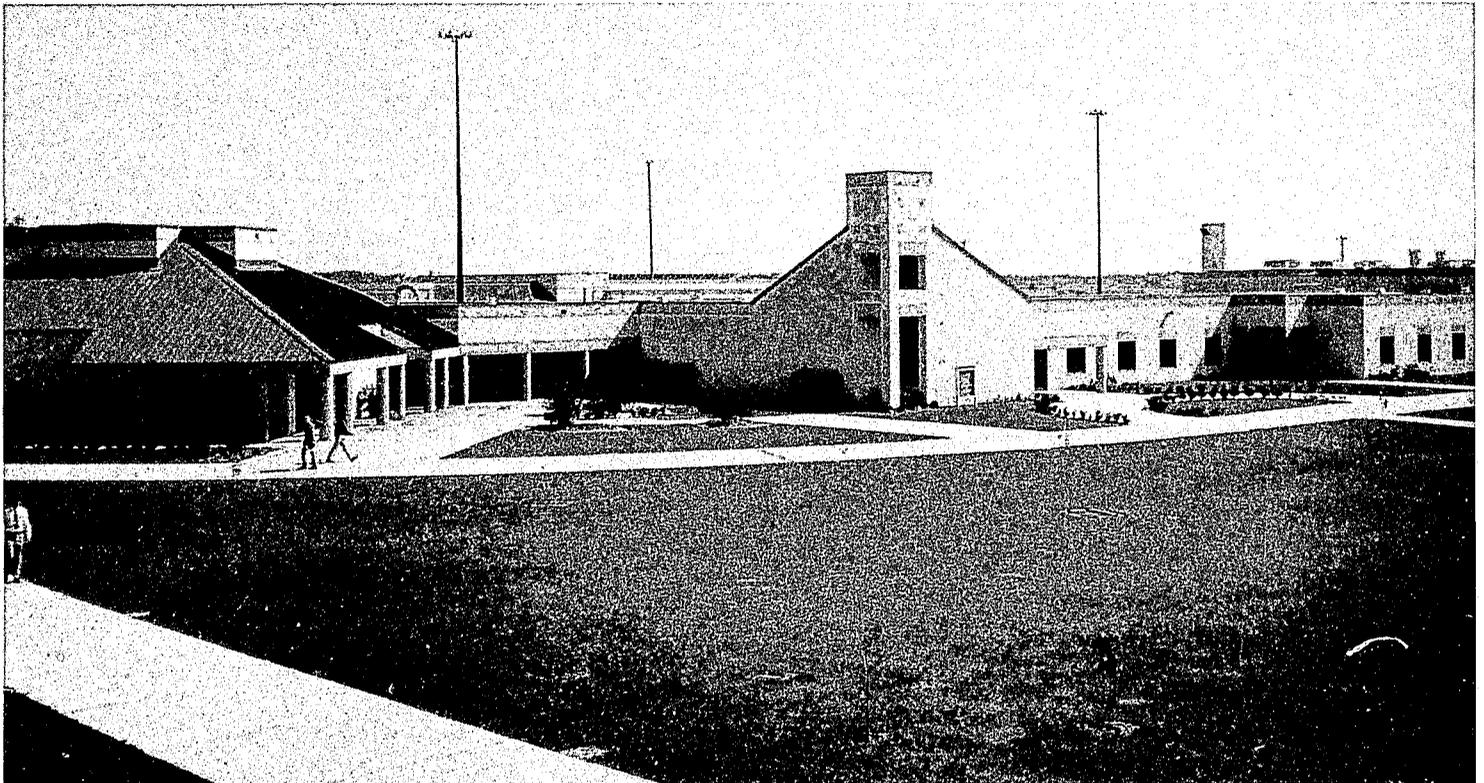
Prison populations have grown at unprecedented rates in recent years. During the 50-year period between 1925 and 1974, federal and state inmate populations increased from 91,669 to 218,466—an overall increase of 138 percent and an average annual rate of only 2.8 percent. Between 1974 and 1989, however, inmate populations grew to 710,054—an increase of 225 percent in only 14 years and an annual rate of 16 percent. According to the federal Bureau of Justice Statistics (BJS), the 1989 increase alone is equivalent to a demand for about 1,600 new prison beds per week nationwide.

These staggering increases are expected to continue through the 1990s. The federal Bureau of Prisons (BOP) projects that its inmate population will increase from about 60,000 in January 1991 to more than 98,800 by 1995. The National Council on Crime and Delinquency projects that by 1994, state prisons will hold over 1,100,000 inmates; and even further prison population increases are expected in the years beyond.

Spending for Prison Construction Is at Record Levels

Spurred by the prison population surge, and facing court orders against overcrowded prison conditions, many jurisdictions are spending for new prison construction at an unparalleled rate. Between 1985 and 1989, BOP opened four new federal correctional institutions (FCI) at a cost of about \$183 million. The four new prisons were designed to add about 2,600 beds to the federal prison system's capacity and represent the early stage of the most extensive and costly expansion in BOP's history. In fiscal years 1989 through 1991, BOP received a total of \$2.4 billion, mostly for new prison construction.

Figure 1.1: Dining Hall (Left) and Chapel at FCI Marianna



Close-up of Dining Hall

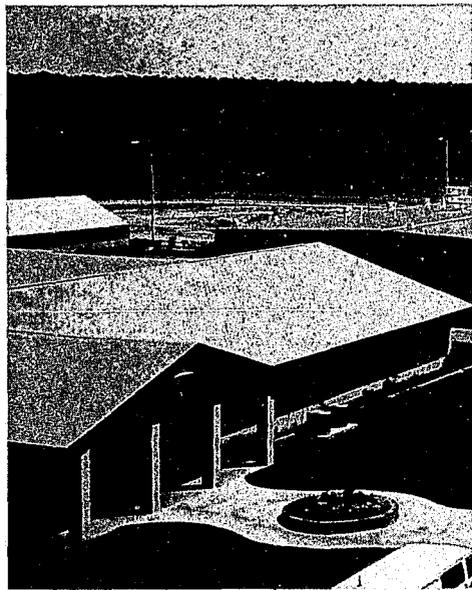
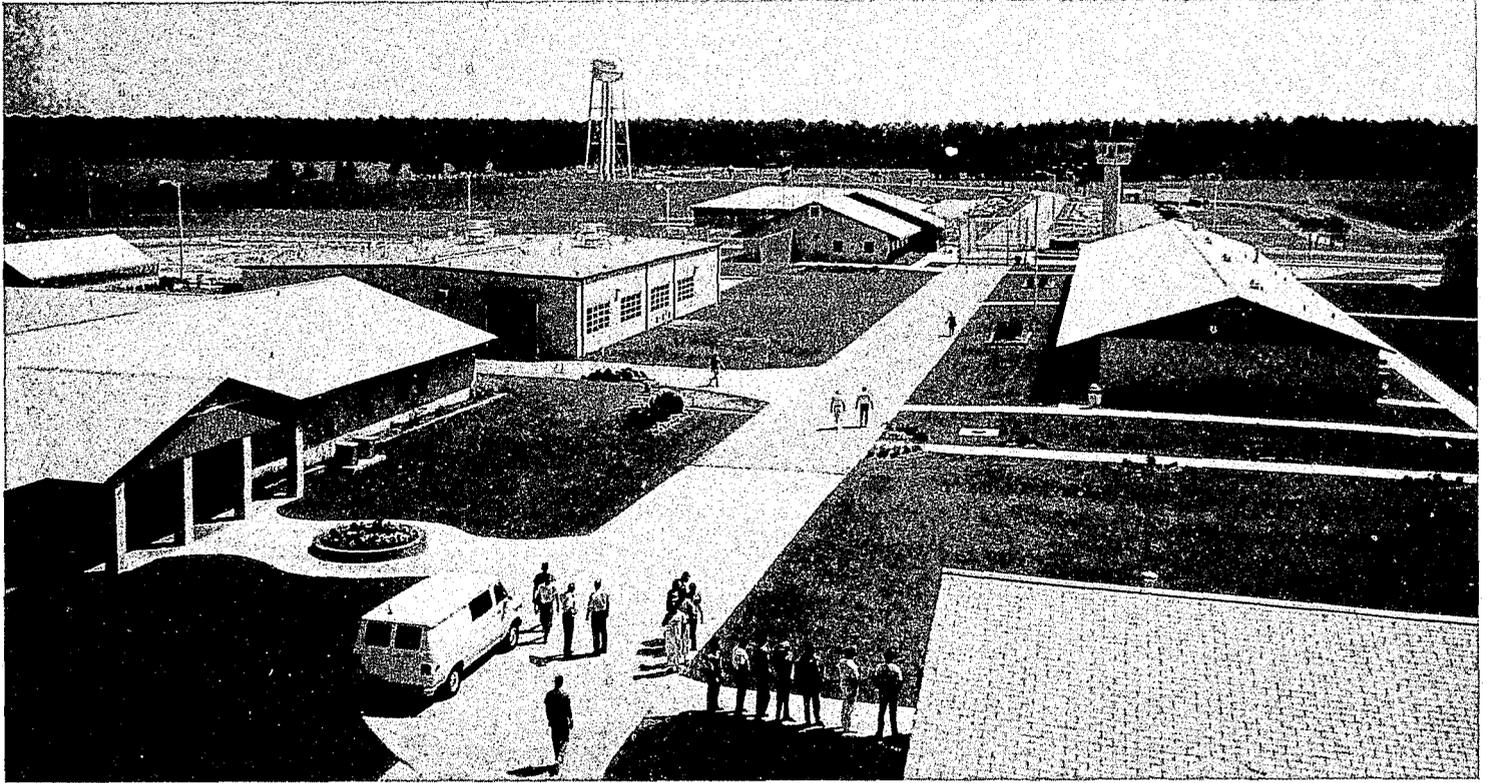
Costs could reach about \$3 billion by fiscal year 1995 and could be substantially more than that if additional expansion is approved to accommodate the more than 125,000 new inmates BOP projects for 1999.

The 1990 American Correctional Association (ACA) Directory reported that from 1985 to 1989, 43 states opened a total of 154 new adult correctional facilities, including 119 prisons, 12 camps, and 23 other facilities such as prerelease centers, health facilities, reception centers, and detention centers. A total of about 89,000 beds were added to the states' capacity. As of June 1989, the states were funding 260 major new projects and 645 major renovations that would cost over \$4 billion and would house an additional 108,000 adult inmates.

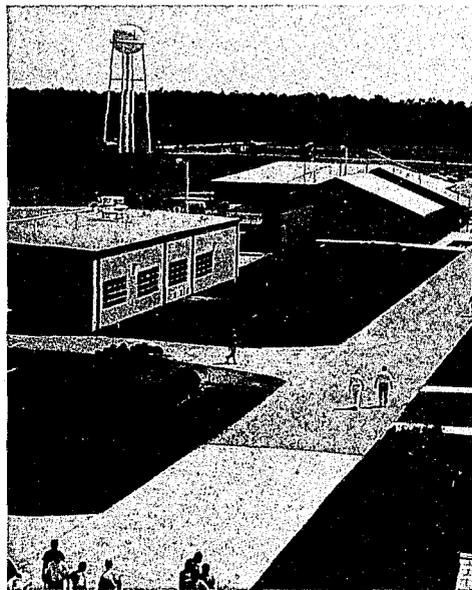
Prison Designs Vary Considerably

Prisons are not built in a "cookie cutter" fashion, but rather are built in many different sizes, shapes, and descriptions (see figs. 1.1, 1.2, 1.3, and 1.4). Some consist of a single building; others are made up of several interconnected buildings, and still others of several unconnected buildings.

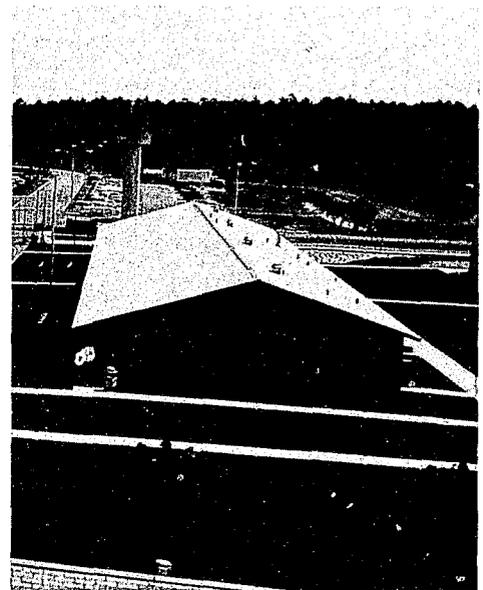
Figure 1.2: Clockwise, From Left: Medical and Counseling, Laundry, Administration, Guard Tower, Education, and Hall at Calhoun Correctional Institution, Florida



Medical and Counseling



Laundry and Administration

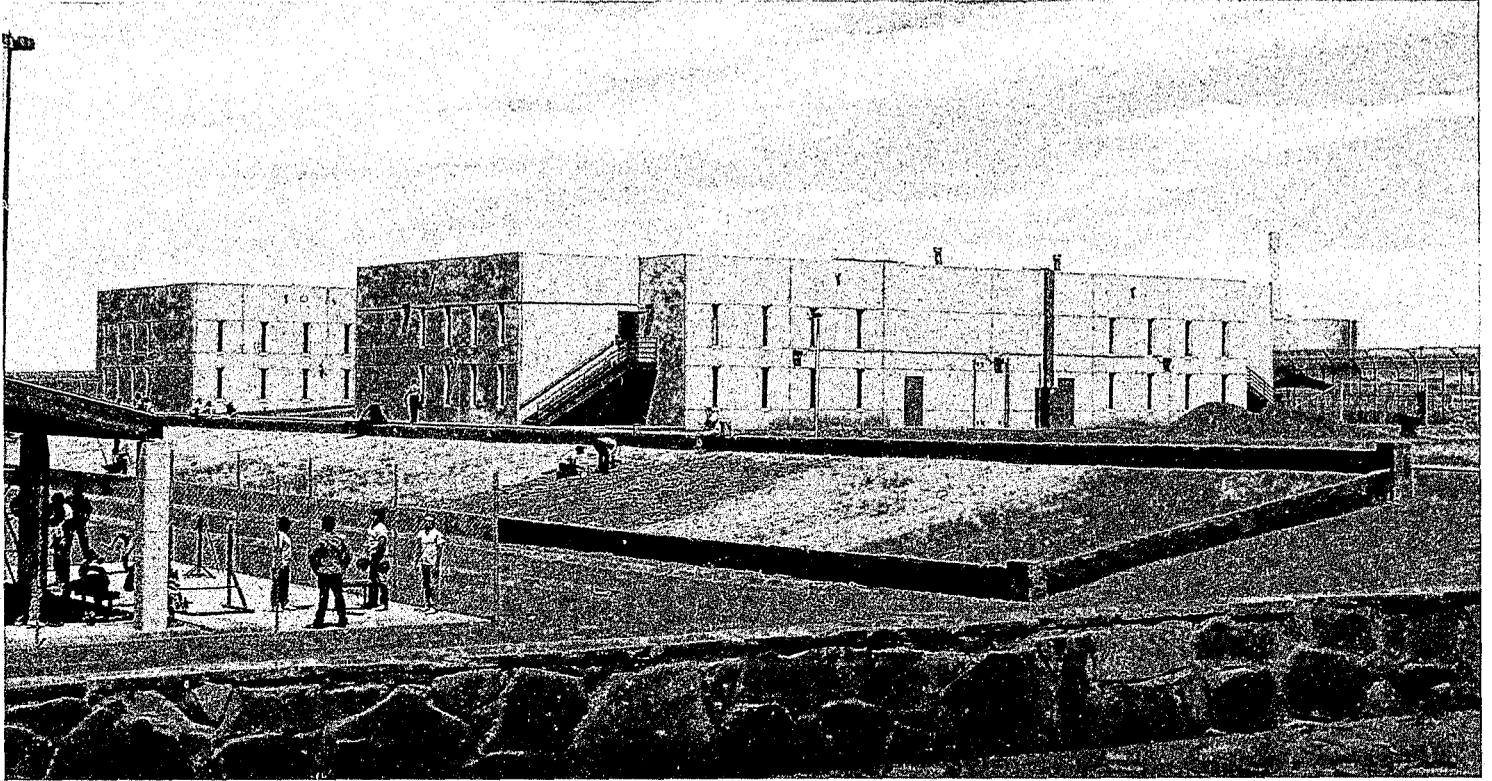


Dining Hall

Figure 1.3: Housing Unit Exterior at FCI Phoenix



Figure 1.4: Housing Unit Exterior at Arizona State Prison Complex, Winslow

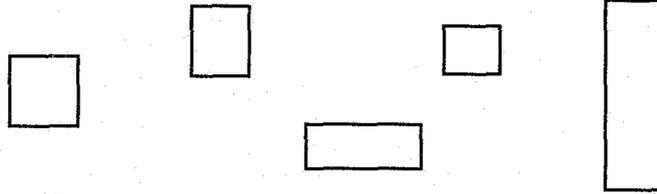


Prisons can vary widely in size, both in terms of inmate capacity and the physical area encompassed by the prison buildings. The National Directory of Corrections Construction, published by the National Institute of Justice, classified the prisons it lists into the following general types (see fig. 1.5 for illustration):

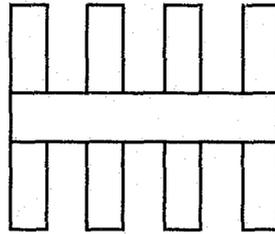
- integrated structure: one building;
- high rise: one building, more than four stories in height;
- ladder, telephone pole: linear cell blocks arranged in parallel configuration off a central connecting corridor;
- wheel, spoke, or radial: linear cell blocks that emanate from one central control area like spokes from the hub of a wheel;
- courtyard: linear cell blocks interconnected around a central enclosed courtyard;
- clusters: a number of individual buildings that are interconnected; and
- campus style: a number of individual buildings that are not connected.

Figure 1.5: Building Configurations

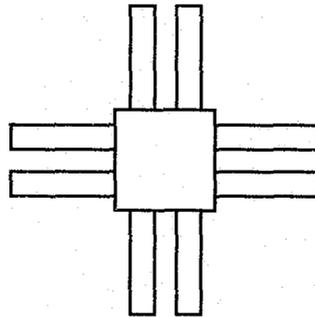
Campus



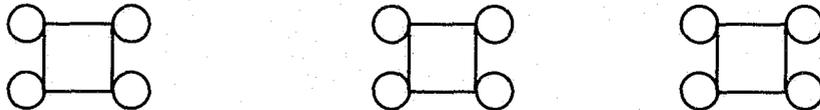
Ladder, telephone pole



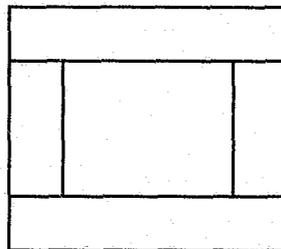
Wheel, spoke or radial



Clusters



Courtyard



A variety of housing area design concepts also add to the ways prisons can differ. Some of these designs are

- linear-outside cells: cells have windows on outside walls, permitting in direct light;
- linear-inside cells: cells are not on outside walls, and light to cells is indirect;
- module/pod: cells are arranged around a common dayroom with cell doors opening into the dayroom area.

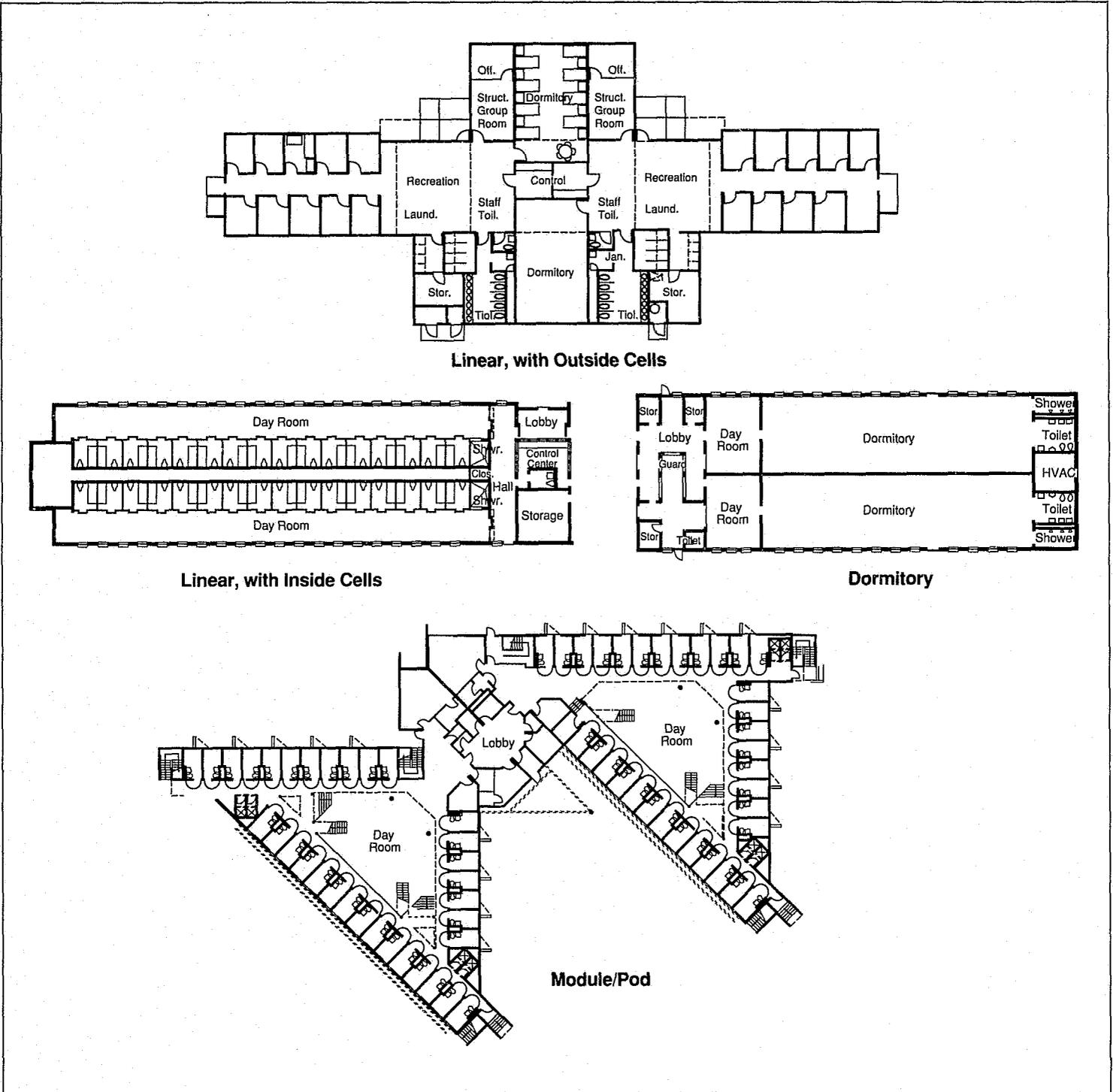
These design concepts can be used with single cells, double- and multiple-occupancy cells, dormitories, and combinations. Figure 1.6 shows an example of the design types.

Many Factors Influence Prison's Design

The design of a new prison is the result of a variety of factors. A major factor in prison design is its intended capacity, which can influence the size of the housing area, size of the kitchen, size of the dining room, the number of classrooms, and the size of records rooms and office space.

A second factor is the security levels of inmates expected to be housed in the new prison. For example, if the facility is to house predominantly minimum security inmates, it may be appropriate to design dormitory housing. For medium security inmates a more secure housing design, such as single or double cells, may be considered more appropriate. Maximum security inmates may require single cell housing designs.

Figure 1.6: Typical Housing Layouts



The security levels of the inmates can also affect the design of a facility's inmate control systems and perimeter security. The design for a minimum security facility may permit inmates to move about with little or no restrictions and may call for little or no perimeter security. Higher security facilities are designed for closer monitoring and control of inmate movements within the facility and should have formidable perimeter fences and sensing devices.

A third factor that influences design choice is how soon the facility must be ready to receive inmates. If the need for additional capacity is urgent due to overcrowding, obsolete facilities, or high inmate population growth projections, a jurisdiction may choose a design that will hasten construction by allowing simple construction methods and the use of prefabricated components.

A fourth factor is a decision on whether to seek accreditation for the new prison from the American Correctional Association (ACA). This is a private, nonprofit organization that administers the only national accreditation program for all components of adult and juvenile corrections. Building a facility to meet the ACA standards can affect the facility's design. For example, ACA standards (1) call for single cells for housing inmates at all security levels except minimum, although this is not mandatory for ACA accreditation; (2) require that each cell or living area provide 35 square feet per inmate of unencumbered space; and (3) require at least 80 square feet of total floor space per occupant when inmates are confined to their cells in excess of 10 hours per day. ACA standards also require that inmate dayrooms be situated immediately adjacent to the sleeping areas and that the dayrooms must provide a minimum of 35 square feet of space per inmate and cannot be smaller than 100 square feet.

Although no authoritative guidelines exist for what a prison should look like or how big it should be, the ACA standards do require that institutions of more than 500 inmates be divided into distinct management units of 500 inmates or less, but do not place an upper limit on the number of units per institution. For housing units containing single cells, the ACA standard for accreditation is an 80-inmate limit (i.e., no more than 80 one-person cells in one housing unit).

The ACA accreditation process is voluntary. Two of the 4 federal prisons built and opened since 1985 were accredited by ACA, and 6 of the 32 state prisons built during this period and included in our analysis of construction costs were accredited.

A fifth factor that can affect a prison's design is cost. The cost of building a prison can be staggering, and in some jurisdictions, voters have refused to approve the general obligation bonds that are the usual means of financing prison construction projects. As a result, some jurisdictions have turned to prison designs that call for such cost-saving measures as simple construction methods; less expensive material and hardware; prefabricated components; use of precast, modular construction; and dormitory housing.

The corrections philosophy of a given jurisdiction is a sixth factor that can influence a prison's design. For example, BOP's overall philosophy is that the term of confinement is the punishment, not the conditions of confinement, and that inmates should find their surroundings safe, humane, and "normalized." Thus, federal prisons are designed to provide a campus-like setting, with recreation areas and landscaped grounds that give the inmates space for some freedom of movement. Other jurisdictions use designs that house inmates safely and humanely, but are not as concerned about freedom of movement.

Also, designs can differ depending on how inmates and staff members interact. BOP has a design philosophy that encourages direct interaction between staff and inmates, including the reduction of physical barriers that tend to separate them. Living units for the general inmate population in BOP's medium security prisons require only basic security hardware sufficient to secure inmates in their quarters during a disturbance. Other jurisdictions prefer indirect supervision designs that separate staff and inmates and rely on heavy security features for inmate control.

Prison Operations Costs Exceed Construction Costs Within a Few Years

A prison's construction costs are only the down payment on its total cost to society, and is often surpassed by operations costs within 2 to 4 years. Since a prison will usually operate for decades, its operations cost will add up to many times its construction cost over its useful life. One study estimated that, not considering inflation, the operations costs for 100,000 new prison beds would be \$70 billion over the next 30 years.

Operations costs vary widely from one prison to another. A late 1970's study of interstate variations in prison operations costs concluded that most of the variations could be accounted for by differences in inmate-to-staff ratios and staff salaries. A similar conclusion was reached by the New York Department of Corrections in a study aimed at determining why New York's prisons cost more to operate than prisons in

other states. Other significant operations expenses included services, communications, utilities, supplies, and materials.

Objectives, Scope, and Methodology

We were asked by Senators Richard Bryan, Dennis DeConcini, Bob Graham, Herb Kohl, and Joseph Lieberman to compare construction and operations costs for state and federal prisons. Specifically, they asked us to compare and analyze construction and operations costs of recently opened federal and state medium security prisons, and to identify opportunities, if any, for cost savings for the federal system.

To accomplish these objectives we used a three-faceted approach. First, we sent to BOP and the states a mail-out questionnaire on the construction and operations costs of prisons built between 1985 and 1989. Second, we did detailed case studies that compared and analyzed the construction and operations costs of two federal and two state prisons built during the same period. Third, we discussed prison design, construction, and operations issues with officials from BOP, the General Services Administration (GSA), and architectural and construction firms that specialize in these areas. The convergence of this information enabled us to make overall comparisons of federal and state costs, point out possible reasons for significant cost variations, and identify potential cost savings for the federal system.

Our questionnaires were designed to obtain reliable and comparable construction and operations cost data for each state and federal prison that met the criteria listed on page 25. We took several steps to ensure that sufficient data were obtained to permit meaningful comparisons between a wide array of reporting jurisdictions. In designing the questionnaire, we met with architects, engineers, and cost accountants to identify the key information that would reveal differences in design and cost. To encourage participation in our study and lessen the burden of responding, the questionnaires focused on data that were (1) readily available at BOP and the states' departments of corrections, (2) for the most part consistently defined and captured in standard government cost accounts, and (3) objective and could be measured and compared (size, populations, number of rooms, etc.).

We pretested the questionnaires at BOP and three state corrections departments to further increase the likelihood that the respondents would understand how to complete them and provide comparable and reliable data. We also followed up with nonrespondents to encourage

their participation and with respondents who appeared to have submitted incomplete or erroneous data. In analyzing differences in design and cost, we divided the state prisons into low, medium, and high cost groups to further ensure that any undetected errors or unusual responses did not distort our analysis.

We used ACA's 1990 Directory of Juvenile and Adult Correctional Departments, Institutions, Agencies, and Paroling Authorities as our source for states and prisons to receive the questionnaires. We then sent questionnaires to BOP for the four federal prisons opened since 1985 and to states with prisons that met the following criteria:

- opened between 1985 and 1989;
- new, independent facilities;
- designed to house adult males;
- designed to house mostly medium security inmates;
- designed for a population of 200 inmates or more; and
- in operation for 1 full year at or near design capacity (operations costs only).

We identified 97 state prisons that met the selection criteria. However, some states with several new prisons chose not to complete questionnaires for all of them and agreed to participate in the study only after we made it clear that we would accept any degree of participation they were willing to provide.

We mailed questionnaires to 37 states and the District of Columbia. This distribution covered 62 prisons. Of the 62 questionnaires mailed, 11 were not used because we later found that the projects did not meet our selection criteria. Six were additions or renovations to existing facilities, one was a women's facility, two were not institutions, one was opened before 1985, and one was opened after 1989. In addition, two states voluntarily completed questionnaires for prisons that met our selection criteria but that were not listed in the Directory. Thus, we expected to receive questionnaires from 53 prisons.

Of the 53 prisons we expected to participate, 46 (from 30 states and the District of Columbia) returned the construction cost portion of our questionnaire, and 29 (from 21 states and the District of Columbia) returned the operations cost portion. However, the operations costs sample was reduced to 28 because one jurisdiction did not isolate operations costs for individual departments, and thus that questionnaire was not usable. After we reduced the sample to those prisons designed to house a

majority of medium security inmates, our final tally was construction cost data for 32 prisons in 20 states and the District of Columbia, and operations cost data for 21 prisons in 16 states. We reduced the state prison sample to those that housed predominately medium security inmates in order to provide better comparisons with the federal prisons in our sample, which were all designed to house a majority of medium security inmates.

BOP provided construction cost information for all four medium security prisons opened between 1985 and 1989. These prisons are FCI Phoenix, Arizona; FCI Marianna, Florida; FCI McKean, Pennsylvania; and FCI Sheridan, Oregon. BOP's construction cost information on FCI Phoenix and our analysis did not include a 126-bed temporary dormitory built in 1990 at a cost of \$608,000. BOP also provided operations cost information for the two prisons that had been in operation for at least 1 year at or near their design capacity. These prisons are FCI Phoenix and FCI Marianna.

We also did on-site case studies in Arizona and Florida. Those states were selected for case studies, because (1) of the four federal prisons built in the target period, only the prisons in Arizona and Florida had been in operation for at least a year; and (2) each of those states had built a medium security state prison during our target period. In the case studies, we matched the federal prisons with the state prisons in Arizona and Florida in order to bolster the questionnaire data. We interviewed the key federal and state corrections officials at these federal and state prisons and obtained documentary support for some sections of the questionnaires. The Arizona prisons were FCI Phoenix and the Arizona State Prison Complex at Winslow. The Florida prisons were FCI Marianna and Calhoun Correctional Institution, Blountstown. State corrections officials represented these prisons as the prototypical design for medium security facilities in their respective states.

We also discussed prison design, construction, and operations issues with officials who specialize in these issues. We also discussed with them our methodology for obtaining prison construction and operations costs. Specifically, we contacted officials from the following organizations and locations:

- BOP headquarters, Washington, D.C.;
- GSA Building Technical Standards Group, Washington, D.C.;
- American Correctional Association, Laurel, MD;
- California Department of Corrections, Sacramento, CA;

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- Maryland Department of Public Safety and Correctional Services, Baltimore, MD;
 - Virginia Department of Corrections, Richmond, VA;
 - Federal Correctional Institution, Phoenix, AZ;
 - Federal Correctional Institution, Marianna, FL;
 - Arizona Department of Corrections, Phoenix, AZ;
 - Arizona State Prison Complex - Winslow, Winslow, AZ;
 - Florida Department of Corrections, Tallahassee, FL;
 - Calhoun Correctional Institution, Blountstown, FL;
 - Kitchell Capital Expenditure Management Company, Sacramento, CA; and
 - American Institute of Architects (AIA), Washington, D.C.

Limitations of Data

Our questionnaires did not address subjective and policy-related issues that might impact on prison design and operations. For example, we did not ask why a given jurisdiction chose a specific prison design, number of square feet, staffing pattern, or salary schedule. In addition, we did not review the validity of the various jurisdictions' philosophies on the amount of space that inmates should have or inmate quality of life issues that may be associated with cell size or type. We also did not assess what effect, if any, prison design and construction may have on such issues as enhancing prisoner rehabilitation and the incidence of prison violence. Further, we did not review the effectiveness of inmate programs such as education, recreation, and vocational training.

Since the study queried many different state governments that finance prison construction in a variety of ways, the costs associated with financing the construction projects and servicing the debt were not included in our analyses of construction and operations costs. Also, our questionnaires asked BOP and the states to describe any designs, construction methods, or materials that were selected to minimize life-cycle costs. However, they did not provide the detailed responses necessary to do a life-cycle costing analysis. The life cycle of a prison depends on many noncost variables, such as the discipline maintained in the facility and the quality of maintenance done, that cannot be accurately captured by a questionnaire.

We designed the questionnaires to identify nonconstruction costs such as site acquisition, architect and engineering fees, inspections and fees, environmental impact studies, and other costs not directly related to the costs of construction labor, material, and equipment. Our objective was

to exclude such costs from our analyses and compare only actual construction costs. However, many of the state prisons were unable to separate such costs from total project costs. Consequently, to ensure that our data were as comparable as possible, our analyses of construction costs were actually based on total project costs.

Most of the state prisons that responded to our questionnaire did not report expenses for depreciation or overhead expenses. To ensure that our data was as comparable as possible, our analyses of operations costs excluded depreciation and overhead at all of the prisons we analyzed.

We obtained written comments on a draft of this report from the Department of Justice. Its comments and our evaluation are addressed on pages 52 and 61. In addition, Justice's letter is reprinted in appendix IV along with our detailed evaluation of its comments.

We did our work between October 1989 and April 1991 and in accordance with generally accepted government auditing standards.

Federal Prisons Cost More to Build Than State Prisons

Although prison construction costs varied widely, the federal prisons we analyzed cost more per bed to build than the state prisons. Federal prisons averaged about \$70,000 per bed compared with about \$55,000 for the state prisons. We identified two major reasons for the cost difference. First, the four federal prisons were designed to provide on average about 55 percent more space per inmate than the 32 state prisons we analyzed. Second, the federal prisons were designed to house 100 percent of the inmates in more costly single cells, compared with 59 percent overall for the state prisons. Another reason for higher federal prison construction costs was the use of more dedicated space for programs and amenities.

The comparisons between federal and state prisons were made to identify reasons for cost differences, not to endorse any particular jurisdiction's prison construction policy. Some of the state prison designs we reviewed may not be desirable or suitable for the federal system. Nevertheless, taken as a whole, the state prison designs reveal opportunities for reducing the cost of building federal prisons. These opportunities include increasing the use of multiple-occupancy cells, providing less space per inmate, increasing the use of multipurpose space for inmate programs and recreation, and siting prisons in lower cost geographic areas.

BOP is now considering ways to reduce prison construction costs. It has revised its design standards for new medium security prisons so rated capacity will be calculated using some double-bunking. BOP has also identified several proposals that would achieve a 6-percent reduction in the cost of building its prisons, but these have a narrower scope than the opportunities we identified. BOP needs to reconsider some of its correctional policies in order to achieve major cost savings.

Prison Construction Costs Vary, but Federal Prisons Generally Cost More

Our comparison of construction costs for four federal prisons and 32 state prisons opened between 1985 and 1989 found that costs varied widely. This variance was especially true among the state prisons we analyzed, which ranged from about \$11,000 to \$93,000 per bed, with an overall average of about \$55,000. Construction costs for the four federal prisons ranged from about \$50,000 to \$85,000 per bed and averaged about \$70,000.

We analyzed prison construction costs in terms of cost per bed (construction costs divided by the design capacity of the facility). Construction costs can also be measured in terms of cost per square foot

(construction costs divided by the gross square feet¹ of the facility's buildings). Using that measure, BOP prisons cost less than state prisons. Construction costs at the federal prisons ranged from \$83.73 to \$127.42 per square foot and had a weighted average of about \$109. At the state prisons, cost per square foot ranged from \$58.06 to \$215.50 and had a weighted average of about \$133.

We believe the cost per bed is a more appropriate measure than cost per square foot. Prisons are not built merely to add square footage to a prison system, but rather to incarcerate a planned number of inmates. Cost per square foot might provide insight into material, labor, equipment, and other items that went into the cost of building the prison. However, cost per bed is the standard measure of prison construction costs used in the corrections community, as evidenced by a wide variety of reports and studies we reviewed in the course of this study. Moreover, we believe that cost per bed is a better reflection of total construction costs, because BOP's lower average cost per square foot is eclipsed by the fact that it provided, on average, 55 percent more space per inmate than the state prisons. We used rated capacity as the standard measure for computing the construction cost per bed for both the federal and state prisons in our sample. The rated capacity of a prison is the number of inmates the facility was designed to hold. Rated capacity is commonly used in the corrections community as a basis for computing construction cost per bed.

As a practical matter, BOP and 11 of 16 states in our sample expected to and did operate their prisons with inmate populations greater than the rated capacity. The two federal prisons and 21 state prisons in our study that had been in operation for a year or more had average occupancy rates of 71 percent and 30 percent, respectively, above rated capacity. To recognize that their prison systems will not expand to the point at which all prisons operate at rated capacity, BOP and 3 of the 16 states specified "acceptable levels of crowding" ranging from 20 percent to 30 percent for systemwide planning and budgeting purposes. BOP has suggested that we use acceptable crowding levels in calculating construction costs. Had we done so, the \$15,000 cost per bed difference would have narrowed to about \$7,600.

¹Gross square feet is defined by the American Institute of Architects as the sum of the areas of the several floors of a building, measured from the exterior faces of exterior walls or from the centerline of walls separating buildings. The areas of covered walkways, porches, and similar space are multiplied by a factor of .5.

We chose not to use the acceptable crowding levels for several reasons. First, these are systemwide planning factors that are not based on the size or capacity of any particular prison. Local conditions might result in specific prisons operating above or below that level. Second, the percentages cited are subject to change, and any change could significantly affect the cost per bed calculation. For example, before 1989, BOP's acceptable crowding level was 20 percent over rated capacity. In 1989, BOP and the Office of Management and Budget made an executive decision to change the acceptable crowding level to 30 percent, with no corresponding change to the infrastructure at existing prisons. This 10-percent change would have caused a \$4,500 reduction in cost per bed. Third, many states operated their prisons above the rated capacity but did not officially state an acceptable crowding level. For example, Pennsylvania did not specify an acceptable crowding level, but operated its new prison at Frackville at 79 percent above the rated capacity of 504. States like Pennsylvania would compare less favorably with other jurisdictions that did specify an acceptable crowding level. Lastly, some states that did not specify an acceptable crowding level incurred additional construction costs to oversize some elements of the physical plant (e.g., dining room and water and sewer lines) to accommodate crowding and/or future expansion. Plant oversizing varied considerably in nature and extent, and its effect on construction cost was not determined.

To facilitate our analysis of construction costs, we divided the state prisons in our sample into three cost groups—low, medium, and high. A natural breakpoint existed between the low and medium groups. Between the medium and high groups, a breakpoint was selected primarily to define high cost state prisons as those that exceed the average for the four federal prisons. Table 2.1 shows the number of prisons and range of costs in each group.

Table 2.1: Cost Groups for State Prisons

Prison group	Number of prisons	Cost per bed range
Low cost states	8	\$11,243 - \$24,679
Medium cost states	17	\$45,007 - \$67,006
High cost states	7	\$70,188 - \$93,933
Federal	4	\$49,966 - \$85,391

Source: GAO analysis of questionnaire data.

Why Prison Construction Costs Differ

Officials managing the acquisition of a new prison can directly influence its cost through their control over the design of the facility. As discussed in chapter 1, there is no “cookie cutter” prison design, and different jurisdictions may opt for different designs on the basis of a variety of factors. However, identifying and measuring the specific effects of design on construction costs at the prisons we reviewed would have required a detailed audit at each prison, which was not practicable.

Nevertheless, analysis of our questionnaire data revealed that the most important determinant of construction costs was the prison’s physical size relative to its inmate population. Thus, the main reason why the federal prisons cost more on average to build than state prisons is that they were designed to provide more space per inmate. Another major reason federal prisons cost more is that they used more costly designs, such as housing inmates in single cells rather than multiple-occupancy cells or dormitories and providing more dedicated space for inmate programs. Differences in architectural features in the prisons contributed to construction cost differences, but we could not isolate a dollar amount.

It is important to note that the federal prisons in our sample might not be prototypes for all future BOP prison designs. Size and feature comparisons based on these prisons may not be applicable to prisons designed and constructed after 1989.

Federal Prisons Provided More Space Per Inmate Than State Prisons

Of the various factors that determine the construction costs of a prison, the primary cost determinant was the amount of space afforded to each inmate. The strong link between space and construction costs was confirmed by our analysis of the questionnaires. Table 2.2 compares inmate space to construction costs for the 4 federal and 32 state prisons. The four federal prisons were designed to provide, on average, about 55 percent more space per inmate than the 32 state prisons.

Table 2.2: Comparison of Inmate Space and Construction Costs

Prison group	Average gross square feet per inmate	Average cost per bed
Low cost states	215	\$17,730
Medium cost states	447	\$56,794
High cost states	544	\$86,332
Average for all 32 state prisons	415	\$55,043
Federal	643	\$70,140

Source: GAO analysis of questionnaire data.

A comparison of the federal and high cost state groups in table 2.2 shows an inverse relationship between cost and space—that is, the high cost state prisons provided less space per inmate but cost more per bed than the federal prisons. We are not totally certain of the reasons for this difference, but it appears to be the result of a combination of factors. First, all seven of the high cost state prisons contained guard towers, which add little space but can add as much as \$1 million to a prison's construction costs. None of the federal prisons in our sample had guard towers. Second, six of the seven high cost state prisons were integrated structures or clusters (see fig. 1.5), which, on average, we found to be a more costly prison design than the campus style design at the four federal prisons. However, construction costs varied for each design style because of factors such as size and geographic location. Third, an average of about 15 percent of the housing area at the high cost state prisons was designed to house maximum security inmates. None of the federal prisons in our sample included facilities designed for maximum security inmates. According to the American Institute of Architects (AIA) director of design programs, maximum security cells are very expensive compared to other types of inmate housing because of the expensive security equipment required for each cell, such as high security doors and locks, stainless steel plumbing fixtures, and security window glazing.

Table 2.3 illustrates how the prison space was distributed among the various prison functions at the 4 federal prisons and at 26 of the state prisons. Six of the state prisons did not provide this information.

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Table 2.3: Distribution of Square Feet Per Inmate

Prison group	Average gross square feet per inmate							Total
	Housing	Segregation ^a	Administration & management	Medical	Kitchen	Prison industries	All other ^b space	
Low cost states (8)	112	10	13	7	11	16	46	215
Medium cost states (14)	174	9	51	9	32	37	130	442
High cost states (4)	182	59	22	18	12	25	214	531
Average for all 26 states (26)	159	22	33	11	21	28	128	401
Federal	261	21	32	17	31	113	167	643

^aSegregated housing is used to detain inmates who are being investigated for rule infractions, who are being punished for violating institution rules, and those who would be in danger if they were housed with the main population.

^bThis category includes space not specifically included in the other categories, such as space for education services, maintenance shops, recreation, religious services, vocational training, visiting rooms, and warehouses.

Note: Totals may be off as a result of rounding.

Source: GAO analysis of questionnaire data.

The table shows that, overall, the four federal prisons in our sample averaged about 242 square feet per inmate more than the 26 state prisons. The federal prisons provided more space than the state prisons in most categories. Consistent with our findings on the relationship of space and cost, the largest differences in the amount of space provided to inmates were between the federal and low cost state prisons. Compared with inmates at the federal prisons, the average inmate in the low cost state prisons had about one-third as much space overall and less than half as much housing space. In addition, compared with the other state cost groups and the federal prisons, the low cost state prisons were particularly conservative with space for prison industries and inmate programs (included in "All other space" in tab. 2.3).

Over 40 percent of the overall difference illustrated by table 2.3 was accounted for by the more generous housing space provided by the federal prisons.² The 26 state prisons that provided data on space distribution by function were designed to be more densely populated than the federal prisons, with an average of 6.31 inmates per 1,000 square feet compared with 3.82 inmates per 1,000 square feet at the four federal prisons. Table 2.4 shows overall population density per 1,000 square feet for the housing areas of each of the cost groups.

²In addition to cells, housing areas include such space as showers, janitor closets, central multiuse space, TV/activity rooms, counseling rooms, storage rooms, and vending rooms.

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**Table 2.4: Population Density in Housing
 Areas^a**

Prison group	Inmates per 1,000 square feet
High cost states	5.49
Medium cost states	5.76
Low cost states	8.93
Weighted average for all 26 states	6.31 ^b
Federal	3.82

^aBased on design capacity.

^bThis number is a weighted average.

Source: GAO analysis of questionnaire data.

The federal prisons we reviewed provided significantly more space for prison industries than the state prisons (see tab. 2.3). The difference, about 85 square feet per inmate, accounted for about 35 percent of the overall difference between the federal and state prisons in the number of square feet per inmate. Although most of the 26 state prisons that provided data on space distribution by function had prison industry programs, only about 7 percent of the overall gross square feet was set aside for prison industry, compared with about 18 percent at the four federal prisons.

Our case studies also confirmed the relationship between inmate space and cost and that federal prisons afforded their inmates far more space than the state prisons. Winslow and Calhoun were each represented to us as the prototypical design for medium security prisons in their respective states and were selected for our case studies on that basis.³ Table 2.5 shows the space allocations for the case study prisons.

Table 2.5: Distribution of Square Feet Per Inmate for Case Study Prisons

Prison	Average gross square feet per inmate							Total
	Housing	Segregation	Administration & management	Medical	Kitchen	Prison industries	All other space	
Phoenix FCI	280	29	12	12	24	88	151	597
Winslow	141	6	50	4	25	0	26	251
Marianna FCI	252	17	30	22	20	119	209	671
Calhoun	78	9	11	18	8	47	46	219

Note: Totals are rounded.

Source: GAO analysis of questionnaire data.

³Both Winslow and Calhoun were in the low cost state group. We included the case study data solely as a means of comparing and contrasting different approaches to prison expansion.

The case studies also show a dramatic difference between federal and low cost state prisons in the space allocated for housing and prison industries. Phoenix was designed to provide 74 square feet in each single-bunked cell, compared with 40 square feet per inmate for the double-bunked cells at Winslow. At Phoenix, the total housing area, including dayroom and other support space, provided about twice as much space per inmate as at Winslow.

Marianna provided over three times more housing space per inmate than Calhoun, and its single-cell housing design provided 84 square feet per inmate. In contrast, Calhoun housed its inmates in 128-bed dormitories, which provided an average of about 42 square feet per inmate.

The relatively large amount of space devoted to prison industries at the federal prisons is a reflection of the importance BOP attaches to this correctional program. Marianna had a furniture and upholstery factory and an automated data processing operation. Phoenix had an electronics and connector assembly factory. In contrast, Winslow did not have a prison industry. Instead, medium security inmates did manual labor and landscaping duties at the facility, and any minimum security inmates worked on public projects in local communities. Calhoun also provided workers for local public works programs, and, in addition, had a prison industry program called PRIDE (for Prison Rehabilitative Industry Diversified Enterprises), which operated a garment factory and a printing facility.

Analysis of the "All other space" category—which includes space for such activities as education services, maintenance shops, recreation, religious services, and vocational training, showed that the federal prisons allocated, on average, about 39 square feet (16 percent) more per inmate than the state prisons did for these activities. As shown in table 2.5, compared with the federal prisons, Winslow and Calhoun set relatively little space aside for the programs and functions that made up this category. In fact, Marianna had almost as many square feet per inmate in this category (209) as Calhoun had in the entire facility (219).

Despite their modest allocation of space in this category, Calhoun and Winslow provided adult basic education programs and vocational training to interested and qualified inmates. At Calhoun, vocational training was provided in such trades as masonry, printing, heat and air conditioning repair, and cabinet making, while Winslow offered vocational training in landscape/horticulture, building trades, and engineering technology. Winslow also offered college-level classes leading to

an Associate of Arts degree. Both Winslow and Calhoun provided library services.

Federal Prisons Use More Costly Designs Than Most State Prisons

Prison design and layout are other key determinants of cost. Our analysis of questionnaire data found that the federal prisons used more costly designs than many of the state prisons. For example, the medium security federal prisons we reviewed were designed to house all inmates in single cells with built-in plumbing in each cell. In contrast, about 59 percent of the beds in the 32 state prisons were in single cells, and only about half of the cells had built-in plumbing. Further, 17 of the 32 state prisons were designed to house some or all inmates in either multiple-occupancy cells or dormitories, both of which have central toilet facilities. An AIA official told us that single cell housing is more costly than multiple-occupancy cells and dormitories and that providing each cell with plumbing greatly increases costs. The AIA official also said the triangular pod design (see fig. 1.6) used for the housing units at the federal prisons is being questioned by the AIA because it provides more dayroom space than is needed by the number of inmates housed in the pod.

Figure 2.1: Inmate Cells at FCI Marianna Open Onto a Triangular Dayroom (Opposite)



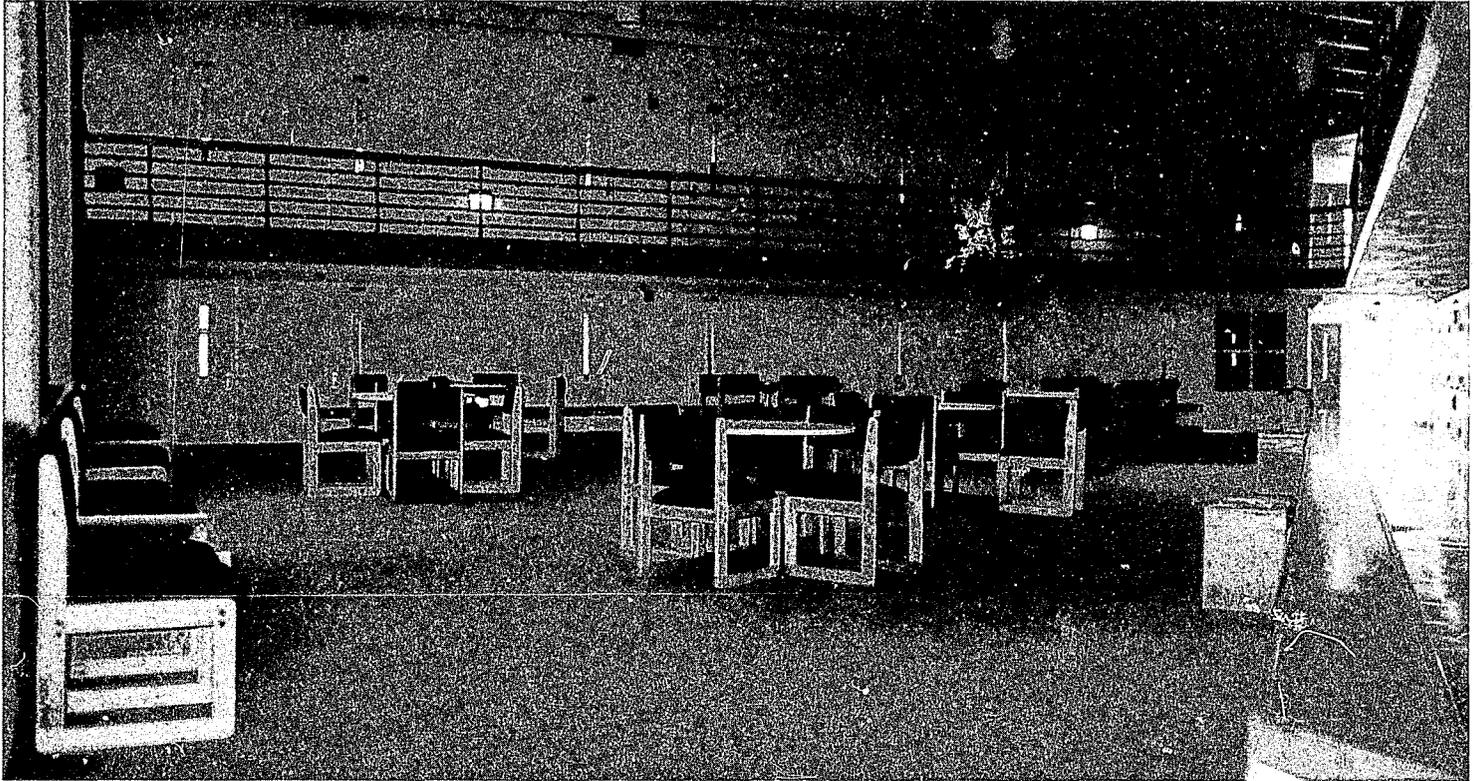
The case study prisons illustrate the relationship of design to cost. Table 2.6 compares housing designs for the two federal and two state prisons and shows that Winslow and Calhoun made much greater use of multiple-occupancy cells and dormitories. Except for the dormitory housing design at the minimum security camp adjacent to Marianna, both Phoenix and Marianna were designed using all single cell housing.

Table 2.6: Housing Configuration at the Case Study Prisons

Prison	Design capacity	Cost per bed	Distribution of inmates		
			Single cell	Multiperson cell	Dorms
FCI Phoenix	518	\$49,666	518	0	0
Winslow	650	\$24,679	0	400	250
FCI Marianna	698	\$67,446	550	0	148
Calhoun	768	\$13,825	0	0	768

Source: GAO analysis of questionnaire and case study data.

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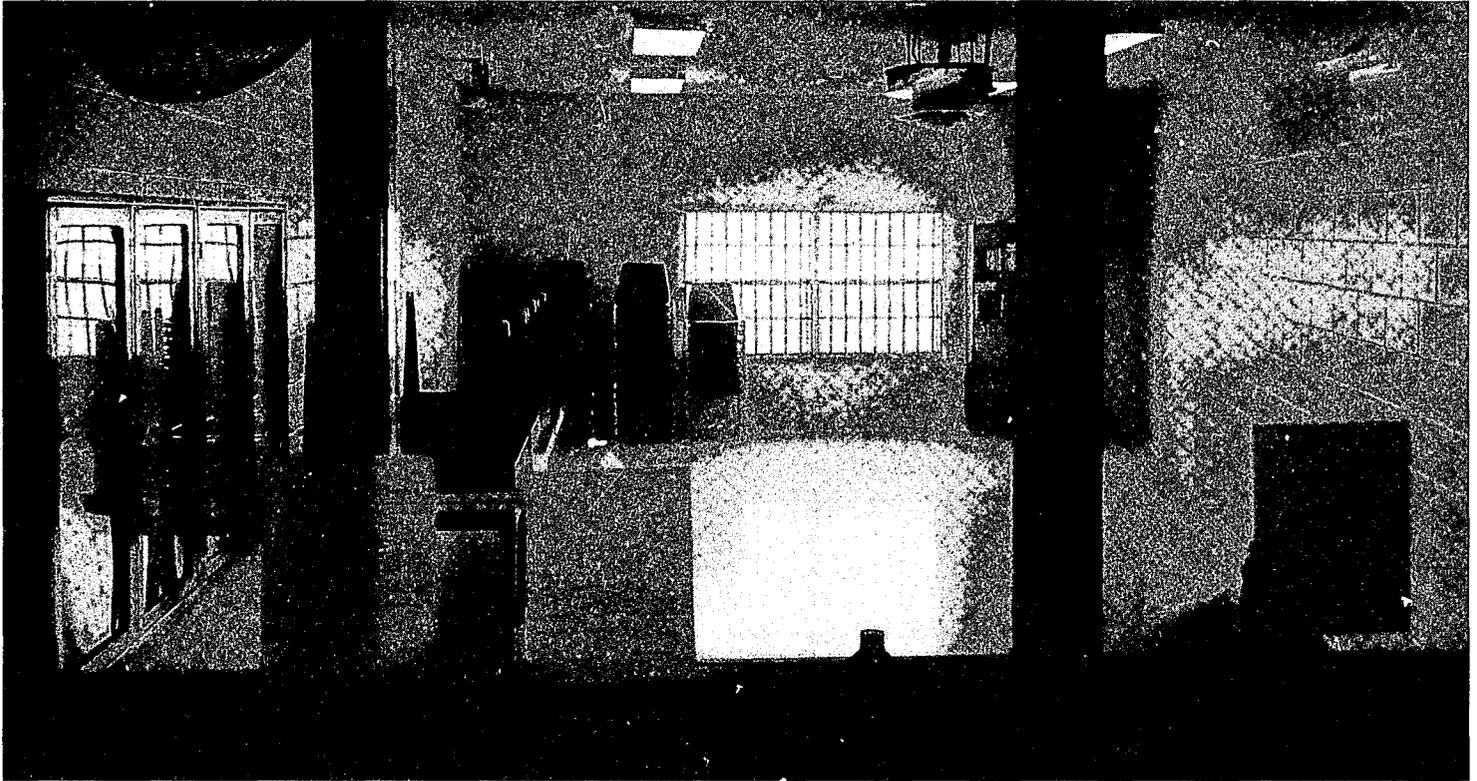
A typical housing unit at Marianna consists of two tiers of rooms, or cells, opening onto a triangular dayroom (see fig. 2.1). The rooms, which were generally double-bunked despite the single-bunk design, have a full window, painted concrete block walls, and a regular door with a small opening for observation, as well as a toilet and sink, lockers, linen storage area, and desk space for the inmates' use. In contrast, Calhoun's dormitories consist of a single open room with 64 beds, either double-bunked or single (see fig. 2.2). Each dormitory contains a dayroom, shower, and toilet. Inmates possessions are stored in a drawer below their beds.

Figure 2.2: Dormitory Housing and Adjacent Dayroom (Opposite) At Calhoun Correctional Institution, Florida



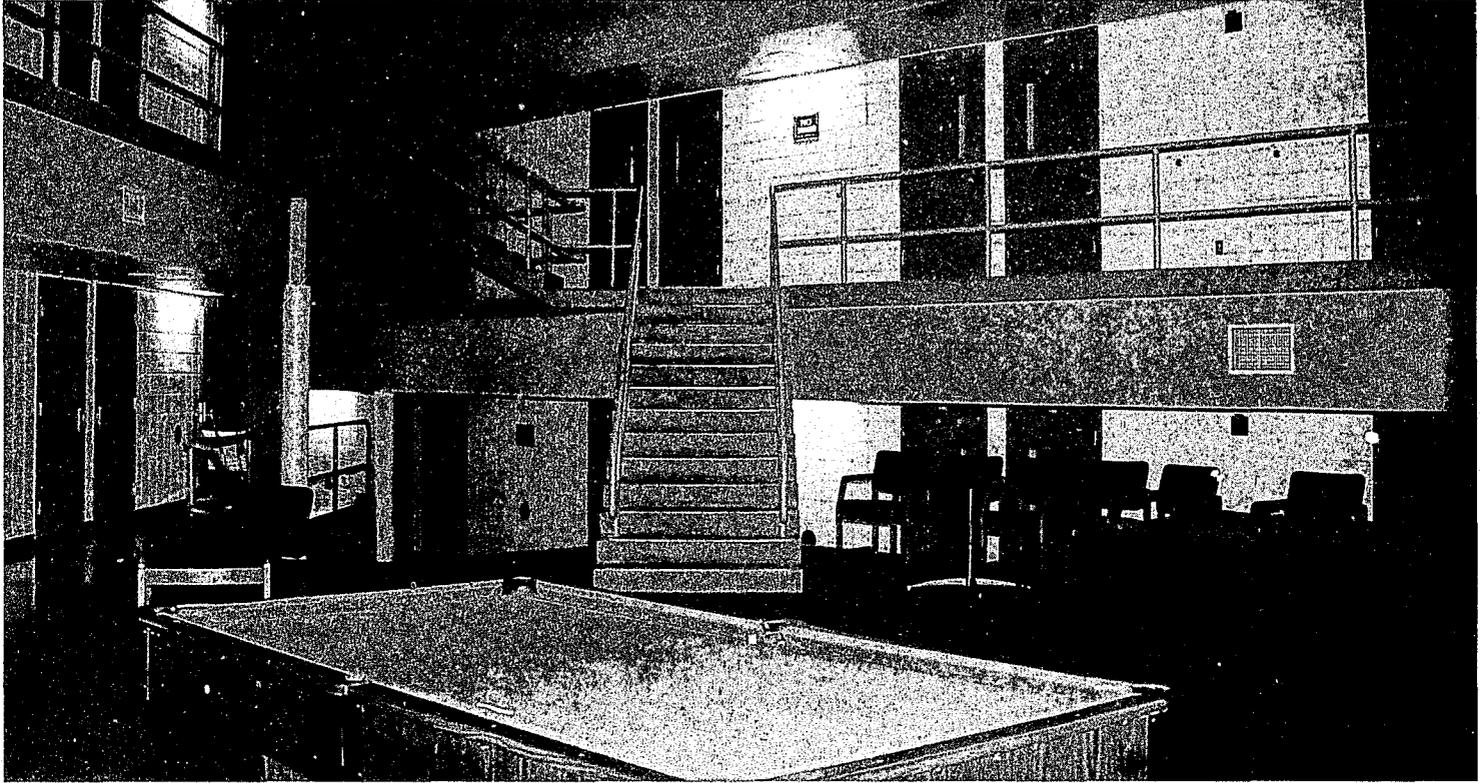
Phoenix and Marianna provided more space than Winslow and Calhoun for religious and recreational activities. For example, both Phoenix and Marianna had chapels for religious services. At Phoenix, a large room in the education and training building served as chapel, while at Marianna, the chapel had a steeple and regular church pews and could be opened to provide access to a spacious carpeted auditorium. In contrast, Winslow provided space for religious services in a multipurpose room in which a portable lectern served as an altar and a cross was hung on the wall during Christian services. At the time of our visit, religious services at Calhoun were conducted in the visiting area. A chapel was planned for the prison but had not yet been built.

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For indoor recreation, Phoenix had a music room, a painting room, a ceramics room, and a copper crafts room, as well as a game area for pool and ping pong. Pool tables were also available in some housing area dayrooms (see fig. 2.3). Winslow had no space dedicated to such activities. For outdoor recreation, Phoenix had handball courts, tennis courts, basketball courts, a running track, a weight-lifting area, and a baseball field. Winslow had a small, inmate-constructed weight-lifting area; basketball courts; volleyball courts; and a large open area for other sports. All of these areas were outdoors.

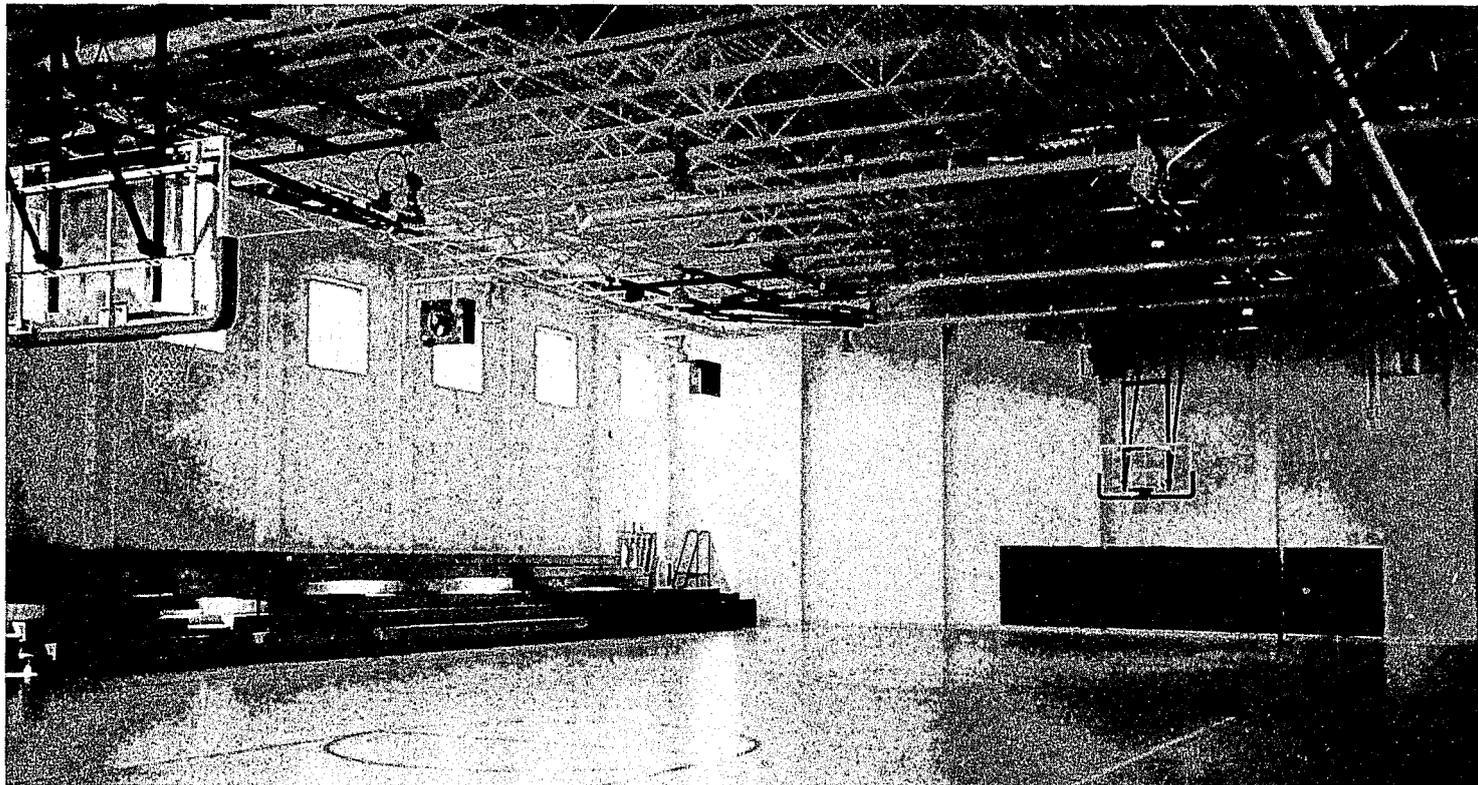
Figure 2.3: Pool Tables in Dayroom of Housing Unit at FCI Phoenix



At Marianna, dedicated space for indoor recreation included several music rooms, a room for leather crafts, a ceramics room, and an arts and crafts room. In addition, Marianna had a large gymnasium with a wooden floor and bleachers (see fig. 2.4) for basketball, racquetball, and social functions. Near the gymnasium was a large room containing pool tables and foosball tables.⁴ Outdoor recreation space included handball courts, a weight-lifting area, a baseball field, a running track, and a soccer field (which was under construction at the time of our review). Calhoun had no dedicated space for arts or crafts. There was a small multipurpose activities room that was used for indoor games, especially cards. Calhoun also had no gymnasium or billiards room; instead, outdoor recreation areas were provided for basketball, weight lifting, and baseball.

⁴After our visit to FCI Marianna, BOP officials said this recreation room was converted to an education classroom and several small hobby/craft rooms.

Figure 2.4: Gymnasium at FCI Marianna



Geographic Cost Differences Can Add to Construction Costs

Construction costs can vary from one region of the country to another. Several companies publish construction cost indexes that allow cost estimators to adjust for regional differences in the costs of labor, materials, and equipment. Among the states, construction costs generally tend to be higher in the Northeast and West and lower in the South and Midwest. For example, if a building cost \$10,000,000 to build in California in 1989, the identical building would probably have cost about \$7,438,000 to build in Florida and about \$24,711,000 if built in Alaska.⁵

⁵Computed using area modification indexes published in the 1989 National Construction Estimator, 37th Edition, edited by Kiley and Moselle, Craftsman Book Company, Carlsbad, CA.

Our sample of four federal prisons was not large enough to determine geographic cost trends. However, our sample of 32 state prisons affirmed the link between cost and geographic location. Table 2.7 shows that the prisons located in the West cost over two and one-half times as much per bed as those in the South and were also more costly than the prisons located in the Northeast and Midwest.

Table 2.7: State Construction Costs Per Bed by Geographic Region

Geographic Region	Number of prisons	Average cost per bed
West	6	\$73,814
Northeast	6	70,832
Midwest	11	52,924
South	9	26,522

Source: GAO analysis of questionnaire data.

Although analyses of regional cost differences indicate that prisons might be built less expensively in certain areas of the country, labor and material cost savings were not cited by BOP as factors used in selecting the geographic location for a new facility. When asked during the 1991 budget hearings as to the criteria it used to select the sites for new FCIS, BOP cited the following criteria:

- location in an area of the country in which BOP is experiencing current overcrowding or a region in which projections indicate that large numbers of federal offenders will come into the system in the future;
- a minimum of 200 to 250 acres of relatively flat buildable land of reasonable configuration (i.e., with roughly equal length and width) and with adequate visual buffers along the boundaries;
- available at no cost to the government;
- free from environmental difficulties, including protected "wetlands areas," significant archaeological or historic resources, habitat of threatened or endangered species, farmland preservation areas, and prime agricultural land, and not located within a flood plain area;
- located within 50 miles of a large population center to ensure the facility the availability of community resources for staff, goods, and services;
- adequate public utility services to the site;
- adequate fire protection services nearby, with a public-service fire company preferred;
- an accredited full-service hospital recognized and licensed by the state within 1 hour's driving time;
- close proximity to interstate highway systems and public transportation, preferably with commercial ground and air service nearby; and

- community support, including endorsement by local officials and Members of Congress.

According to BOP, the most important factor in choosing a site is proximity to areas where inmates are being sentenced. BOP officials believe that visits by family and friends can be a stabilizing force on inmate behavior. However, it should be noted that inmates are assigned to and transferred from facilities for a variety of reasons, including inmate security needs, a reassessment of the inmate's security classification, or crowding levels at a particular facility. As of May 1991, 38 percent of BOP's inmates assigned to prison were within 250 miles of home, 27 percent were between 251 and 500 miles of home, and 35 percent were more than 500 miles from home.

Opportunities Exist to Reduce Federal Prison Construction Costs

As stated in chapter 1, BOP is undertaking the largest and most expensive prison expansion program in its history. By 1995, BOP expects to spend about \$3 billion on construction and expansion, thus more than doubling BOP's January 1991 capacity of 37,421 to about 75,000. But despite this expansion, BOP projects that by 1995 the federal prison system will still be about 30 percent over rated capacity—its acceptable level of crowding—because of continued population growth. Clearly, it would be beneficial to BOP to revise its design standards and justifications so that the \$3 billion invested in prison construction acquires as much additional capacity as possible, while remaining consistent with the need to maintain safe and humane conditions.

One way to maximize the use of construction funds would be to reconsider the use of single-bunking as a standard for computing the rated capacity of the federal prisons. Although the rated capacities of the federal prisons we reviewed were based on a single-bunking standard, BOP routinely double-bunked the cells to accommodate increasing inmate populations. If the capacities of the four federal prisons we examined had been adjusted to reflect double-bunking as the standard, the average cost per bed and average square feet per inmate would have dropped substantially—even after BOP enlarged common-use areas (e.g., dining hall, medical unit) to accommodate double-bunking. This adjustment also would have brought these prisons more in line with the space provided to state inmates. Further, applying a double-bunking standard to new and existing facilities would reduce BOP's future facilities construction requirements because the need for new facilities would be computed on that basis.

BOP recognized that its definition of prison capacity and its adherence to a uniform single-bunking standard needed review. As a result, BOP has taken two significant steps. First, it adopted a limited double-bunking standard, using one-half of the 90-square-foot cells or living units for two-thirds of the inmates in new medium security facilities. BOP is considering adopting a similar standard for new minimum and low security facilities. Secondly, it created a Rated Capacity Task Force to review and update the capacity of existing facilities.

We discussed the double-bunking issue in our report, Federal Prisons: Revised Design Standards Could Save Expansion Funds, (GAO/GGD-91-54, Mar. 14, 1991), which was jointly requested by the Senate Governmental Affairs' Permanent Subcommittee on Investigations and the House Select Committee on Narcotics Abuse and Control. We questioned the need to provide 90 square feet per cell since BOP was double-bunking in practice in smaller cells without unmanageable problems. We also questioned the need for BOP to reserve one-half of the cells for single-bunking exemplary and problem inmates or to accommodate unexpected surges in the inmate population. We recommended that BOP adopt a double-bunking standard where feasible and use it to determine rated capacity and the need for additional facilities.

It remains to be seen how far BOP will go in adopting a double-bunking standard in its new and existing facilities. As previously mentioned, the federal prisons we reviewed might not be prototypes for all future BOP prison designs. The medium security prisons built in the future might provide inmates with significantly different amounts of housing and program space as a result of double-bunking. All general population cells in the FCIs included in our review were designed as single cells and ranged in size from 74 to 84 net square feet.⁶ The new double-bunking standard would require more space for inmate cells and common use areas. With respect to the federal prisons we reviewed, their rated capacities and space allowances will be governed by the new double-bunking standard for existing facilities that the Rated Capacity Task Force has had under consideration.

A second way to reduce prison construction costs is to use designs that reduce the amount of space per inmate. While the low cost state prisons

⁶Net square feet excludes spaces not used by staff and/or inmates and represents how much of the total square footage is actually devoted to everyday useful purposes. Single cell sizes for the FCIs we reviewed, in net square feet, were as follows: FCI Phoenix, 74; FCI McKean, 78; FCI Sheridan, 80; and FCI Marianna, 84.

we reviewed may not be the best model for determining space requirements for federal prisons, significant savings could result even if the average space in the high cost prisons was used. For example, the four BOP prisons in our sample, collectively, would have had over 207,000 fewer gross square feet if their housing areas had averaged the same amount of space per inmate as the housing areas at the four high cost state prisons. At an average cost per gross square foot of about \$109, the savings in construction costs could have amounted to over \$22 million, or about \$8,500 per bed. Even greater savings would have resulted if the averages for the medium and low cost groups were used in the estimate and if other departments or areas were considered. Table 2.8 shows estimated savings from reducing the housing areas of the federal prisons to equal the average of each of the state cost groups.

Table 2.8: Estimated Cost Savings at Selected Federal Prisons From Using Space Allowances of State Prisons by Cost Group

Federal prison	Estimated Savings		
	Using high cost standards	Using medium cost standards	Using low cost standards
FCI McKean	\$7,655,340	\$8,313,864	\$13,417,424
FCI Sheridan	5,633,555	6,337,749	11,795,255
FCI Phoenix	4,206,949	4,553,914	7,242,892
FCI Marianna	4,914,604	5,476,273	9,829,208
Total savings	\$22,410,448	\$24,681,800	\$42,284,780
Cost per bed savings	\$8,573	\$9,442	\$16,176

Source: GAO analysis.

Because the average space for housing at the federal and state prisons varied so widely, achieving savings such as estimated in table 2.8 would require substantial space reductions at the federal prisons. For example, to equal the state high cost group average, the housing areas in the federal prisons would have to be reduced by 30 percent; to equal the medium and low cost groups' averages the percentage reductions would have to be 33 percent and 57 percent, respectively. It is important to note that adopting a double-bunking standard would result in a space reduction.

We were told by corrections officials in Arizona and Florida, who we visited as part of our case studies, that neither state has a formal standard governing the overall size of its prisons in terms of square feet per inmate. Arizona uses an unwritten and flexible "rule of thumb" of about 300 square feet per inmate per facility that can range from 250 to 350 depending on the security level of the planned facility. In Florida, because a "core" amount of program space may be used in different

capacities, prison size does not vary directly with capacity. In determining prison size, they use a “ground up” design process that considers the types of programs and the number and type of staff that will be needed, as well as the expected capacity of the facility. Legislative and public pressure to be conservative with respect to prison size is also an important factor in Florida.

While this review was in progress, BOP took another look at how large it builds its prisons and decided to maintain its current policies. The current BOP position is that its programs and the space allocated for those programs act to reduce operations costs because the inmates have many worthwhile activities to pursue and thus fewer staff are needed to supervise them. Our review was not designed to evaluate the relative merits of inmate programs at the federal and state prisons or how inmate programs were affected by the amount of space provided. BOP believes that state prisons with less inmate space have high staff costs because of the additional staff required to supervise inmates who have fewer programs to keep them busy. Accordingly, BOP contends that on a life-cycle cost basis, the higher capital construction costs are more than offset by the reduced staffing and operations costs in subsequent years. However, BOP had no analysis to support this point.

Our questionnaire data do not show a direct relationship between the amount of space per inmate and prison operations costs, which are largely a function of staffing costs. We analyzed the amount of space and number of staff at the state prisons in our sample and found no statistical correlation between the two. We also reviewed these factors at the two federal prisons in our operations costs analysis—Marianna and Phoenix. We found that the operations costs and inmate-to-staff ratio were about the same at these prisons even though Phoenix had about 10 percent less space than Marianna. Thus, our analysis does not support BOP’s assertion that more space leads to lower operations costs and lower life-cycle costs. We discuss the issue of prison staffing levels further in chapter 3.

A third way to reduce federal prison construction costs is to make greater use of multipurpose space for educational, vocational, assembly, and recreational purposes. The federal prisons we visited had dedicated space for most programs and activities. We observed that the rooms dedicated for indoor recreation purposes, such as music, ceramics, and painting, were not being used during our tours of Phoenix and Marianna.

Prison officials told us that the rooms were generally used in the evenings and on weekends. In contrast, the state prisons we visited used multipurpose space for their assembly and recreation activities.

A fourth way to reduce federal prison construction costs would be to build more facilities in lower cost geographic locations. This approach could result in locating prisons in areas that do not match BOP's current site selection criteria, which emphasize placing prisons near areas where inmates are being sentenced. Our work showed that construction costs can vary considerably from one region of the country to another as a result of differences in labor, materials, and equipment costs. We believe BOP should seriously consider taking advantage of the lower labor and material costs that certain areas of the country may offer.

BOP's Cost-Cutting Proposals Have a Narrower Scope

Since our review was initiated, BOP has launched an effort to reduce prison construction costs. The Director, BOP, issued a directive for BOP to identify and implement steps to cut construction costs by 10 percent. In response to this directive, BOP convened an Administration Wardens' Advisory Group (WAG) to identify and consider several options aimed at reducing construction costs for medium security prisons. In December 1990, the BOP executive staff considered the following 12 options developed by the WAG:

1. Utilize inmate labor to construct staff training centers.
2. Delete construction of gymnasiums at satellite camps.
3. Reduce programmed square footage in the following support areas: outside and inside warehouses, maintenance shop, recreation, commissary, and laundry.
4. Replace sloping roofs with flat roofs or, at a minimum, utilize composition shingles on sloped roofs.
5. Delete landscaping and irrigation beyond basic seeding and make landscaping inmate labor intensive.
6. Although an actual savings would not be realized, certain equipment items could be paid from other funds.
7. Reduce the quality of exterior walls/insulation.

8. Delete indoor "active recreation," such as weight lifting and gymnasium; make open air recreation available.
9. Delete the central utility plant and go to an all electric facility.
10. Utilize cubicle housing in lieu of individual rooms; delete large multiuse space.
11. Delete x-ray and dental areas at all satellite camps.
12. Delete paving of perimeter patrol road and parking lots and use gravel only.

According to BOP's cost impact analysis, if adopted, options 1 through 5 would amount to a cost saving of about 6 percent. These options were recommended for approval by the executive staff. BOP also estimated that if option 6 were adopted, thereby deleting equipment items from the building and facility funds, another 4 percent could be saved on construction costs, but these costs would be shifted to operations costs. According to BOP, adopting options 7 through 10 could realize an additional savings of 10 percent. The executive staff recommended that options 6 through 10 be given further consideration only on a case-by-case basis, considering such factors as geographic location and climate. BOP estimated that options 11 and 12 would save less than 1 percent in construction costs and so dropped them as viable options. We did not assess the viability of any of these options or verify BOP's estimates of potential construction cost savings.

The measures identified by the WAG could be useful in reducing prison construction costs. However, these measures do not address certain other important opportunities that exist to cut costs. For example, option 3 envisions reducing square footage in warehouses and services areas but does not address the significant difference in space that exists between housing or program areas in federal versus state prisons. As a second example, option 10 calls for using cubicles instead of cells, but does not address the more fundamental issue of single- versus double-bunking and how many square feet are provided in a cubicle or cell. Moreover, these 12 options are largely silent on the use of multipurpose space and on geographic differences in construction materials and labor costs.

Conclusions

The federal prisons we analyzed cost more per bed to build than the state prisons. They averaged about \$70,000 compared with about \$55,000 for the state prisons. The major reasons why the federal prisons cost more is that their designs provide inmates with substantially more space than most state prisons and that their designs called for 100 percent of inmates to be housed in single cells, compared with 59 percent overall for the state prisons. Another reason for higher federal prison construction costs was the use of more dedicated space for programs and amenities.

These differences present opportunities for reducing the cost of building federal prisons. Such opportunities include designing prisons with less space per inmate, increasing the use of multiple-occupancy cells, promoting the use of multipurpose space, and siting prisons in lower cost geographic areas.

BOP is now considering several measures to reduce prison construction costs. It has revised its design standards for new medium security prisons so rated capacity will be calculated using some double-bunking. BOP is considering extending this policy to minimum and low security levels. It has also created a task force to explore a possible conversion to a double-bunking standard in existing facilities.⁷ Further, BOP has identified several proposals they believe would achieve a 6-percent cost reduction, but these have a narrower scope than the opportunities we identified. To achieve major cost savings, BOP needs to reconsider some of its current guidelines for housing and program space for inmates and its policy that limits the use of double-bunking.

Recommendations to the Attorney General

We recommend that the Attorney General require the Director, BOP, to

- reassess current prison design standards to determine if the amount of space provided to federal inmates could be reduced,
- promote the use of multipurpose space, where feasible, and
- amend prison site selection criteria to include consideration of geographic differences in labor and material costs.

⁷The issue of revised design standards and their effect on prison capacity are discussed in our previously mentioned March 14, 1991, report.

Agency Comments and Our Evaluation

The Department of Justice, in its written comments, generally agreed with our recommendations, although it took exception to some of the analysis. Justice's comments and GAO's detailed responses are included as appendix IV.

We should point out that Justice, in its letter, misstated our second recommendation, which was to promote the use of multipurpose space where feasible, not reduce it. Justice said that adopting a double-bunking standard makes the second recommendation inconsequential from a cost perspective. While the savings would not be as substantial as those resulting from double-bunking, we believe Justice should consider the opportunity to achieve further reductions in construction costs. Even in the federal prisons we visited that were double-bunked on a wide scale, the education and recreation areas were vacant or underutilized for much of the day. We believe that construction costs could be further reduced by designing multipurpose space in which different activities could reasonably be conducted in the same space at different times.

Federal Prisons Cost Less to Operate Per Inmate Day Than State Prisons

Federal prisons built since 1985 and in operation for a year or more at the time of our review cost less to operate per inmate day than state prisons that met the same criteria. The cost of operating the federal prisons averaged about \$37 per day per inmate, compared with an overall average of about \$42 at the state prisons we reviewed. The majority of operations costs in federal and state prisons were attributable to staffing costs. Staffing costs were less as a percentage of total expenses at the federal prisons for two reasons. First, salaries at the two federal prisons we reviewed were lower overall than at the state prisons.¹ Second, the two federal prisons had a higher overall inmate-to-staff ratio than the 21 state prisons. These findings are generally consistent with the conclusions of the April 1990 Report of the National Advisory Commission on Law Enforcement.

Largely because of differences in salaries, state prison costs varied by geographic region. BOP salaries have historically been determined on the basis of a uniform nationwide pay scale. Recently enacted legislation will increase starting salaries for BOP staff by about 16 percent. The increase is to be phased in over 2 years beginning in January 1992. The legislation also provides locality pay differentials ranging from 4 percent to 16 percent for eight high-cost locations. When these provisions are fully implemented, the differences between federal and state salaries should diminish. At that time, BOP should consider siting prisons, when possible, in areas not affected by locality pay differentials.

Operations Costs Varied Widely, but Federal Costs Were Generally Lower

Operations costs varied widely among the two federal and 21 state prisons opened between 1985 and 1989 and in operation for a year or more. Daily operations costs per inmate in the state prisons ranged from \$22.25 to \$81.08 per inmate per day, with a weighted average of \$42.38.² Daily operations costs at the two federal prisons—Phoenix and Marianna—were \$37.57 and \$36.26 per inmate per day, respectively, with a weighted average of \$36.93. The average daily per inmate operations costs at the two federal prisons were lower than at 14 of the 21 state prisons.

In analyzing the daily operations costs per inmate, we used the average daily population instead of rated capacity because most prisons became

¹References to salary or salaries include employee-related expenses.

²We computed these figures by dividing the total period costs by the average daily population for the period, then dividing the answer by 365.

overcrowded soon after opening and had little or no experience operating at rated capacity. At the time of our review, the two federal prisons operated at 43 percent and 108 percent above rated capacity; the average was 78 percent above capacity. At the 21 state prisons, average daily population ranged from 7 percent under to 88 percent over rated capacity; the overall average across these prisons was 29 percent over capacity. Per-inmate-day costs at the individual prisons would increase if they were operating at rated capacity, since fixed costs would be spread over fewer inmates.

Because operations costs varied so widely, for analysis purposes, we divided the state prisons in our sample into three cost groups—low, medium, and high. The division was judgmental, with daily operations costs per inmate in the \$20 to \$37 range classified as low cost, those in the \$42 to \$51 range classified as medium cost, and those in the \$59 to \$81 range classified as high cost. Table 3.1 shows the number of prisons and range of daily operations cost per inmate in each group. We found no direct relationship between the cost groups described in table 3.1 and the construction cost groups discussed in chapter 2.

Table 3.1: Ranges of Daily Operations Costs Per Inmate by Cost Groups

Prison group	Number of prisons	Daily operations cost per inmate ^a
Low cost states	10	\$22.25 - \$37.89
Medium cost states	8	\$42.12 - \$50.91
High cost states	3	\$59.34 - \$81.08
Federal	2	\$36.25 - \$37.57

^aDepreciation and overhead excluded.

Source: GAO analysis of questionnaire data.

Lower Personnel Costs Accounted for Lower Federal Operations Costs

The basic components that determine operations costs at a prison are salaries and related expenses, services, rent, communications, utilities, supplies and materials, and other miscellaneous expenses. As shown in table 3.2, salaries and related employee expenses account for the bulk of operations costs. Our analysis showed that, on average, the daily operations cost per inmate at the two federal prisons was \$5.45 lower (13 percent) than at the 21 state prisons. The lower federal operations costs were attributable to the difference between the federal and state personnel expenses, which amounted to \$8.23 per inmate per day.

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Table 3.2: Average Daily Operations Costs Per Inmate by Cost Groups, With Associated Percentages

Prison group	Expense Category					Total
	Salaries and related ^a	Services ^b	Rent, communications, & utilities	Supplies & materials	All other	
High cost states	\$46.60	\$6.47	\$1.75	\$7.22	\$0.77	\$62.81
Percentages	74%	10%	3%	11%	1%	100%
Medium cost states	\$36.25	\$8.66	\$1.86	\$5.24	\$1.62	\$45.83
Percentages	79%	2%	4%	11%	4%	100%
Low cost states	\$22.51	\$2.37	\$1.60	\$4.41	\$0.41	\$31.31
Percentages	72%	8%	5%	14%	1%	100%
State averages	\$32.26	\$2.16	\$1.75	\$5.17	\$1.04	\$42.38
Percentages	76%	5%	4%	12%	2%	100%
Federal	\$24.03	\$3.16	\$2.16	\$6.20	\$1.39	\$36.93
Percentages	65%	9%	6%	17%	4%	100%

^aRelated salary expenditures include employee benefits, insurance, and hazardous duty pay.

^bServices includes trash disposal, laundry and dry cleaning, repair and maintenance of equipment, and medical treatment from outside sources.

Note: Totals are rounded.

Source: GAO analysis of questionnaire data.

Two major reasons account for the differences in federal and state personnel costs. First, average salaries at the federal prisons were about 5 percent lower than those at the 21 state prisons, which varied from about \$18,000 to \$44,000 a year. Table 3.3 shows salary ranges and weighted averages for the state and federal prisons.

Table 3.3: Range of Staff Salaries and Average Salaries

Prison group	Salary range	Weighted average
High cost states	\$27,976 - \$34,399	\$29,802
Medium cost states	\$18,380 - \$44,024	\$35,871
Low cost states	\$18,021 - \$38,619	\$25,321
Average for all 21 state prisons	\$18,021 - \$44,024	\$31,193
Average for 2 federal prisons	\$29,360 - \$29,640	\$29,535

Source: GAO analysis of questionnaire data.

Second, federal prisons had a higher inmate-to-staff ratio than most state prisons. The two federal prisons we analyzed operated with about 27 percent fewer staff members relative to their inmate populations than the state prisons. The federal prisons had an average of about 3.37 inmates for every staff member, compared with an overall average of about 2.65 for the 21 state prisons. As shown in table 3.4, the inmate-to-

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staff ratio varied considerably between the high, medium, and low cost groups and the higher inmate-to-staff ratios were found in the low cost group. For example, the inmate-to-staff ratio at the federal prisons was almost double the ratio for the high cost state prisons but less than 10 percent more than for the low cost group.

Table 3.4: Inmate-to-Staff Ratios by Cost Group

Prison group	Inmate-to-staff ratio	As percent of federal
Low cost states	3.08	92%
Medium cost states	2.71	81
High cost states	1.75	52
Average for all states	2.65	79
Average for federal	3.37	

Source: GAO analysis of questionnaire data.

Total personnel costs are a function of both the salary paid and the number of staff employed. Thus, employing many low paid staff could account for higher overall personnel costs, while employing relatively few higher paid staff could result in lower overall personnel costs. This is why the salary averages and ranges in table 3.3 do not exactly align within and among the state cost groups. For example, the average salary and the top of the salary range for the medium cost group was higher than for the high cost group. We believe this discrepancy can be mainly attributed to the comparatively low inmate-to-staff ratios at the high cost prisons.

Our analysis of staffing at these prisons showed that the state prisons with higher crowding levels operated with higher inmate-to-staff ratios than the less crowded prisons. Therefore, staffing levels were not adjusted proportionately to increases in inmate population. Our analysis of staffing at the two federal prisons showed they operated with the same inmate-to-staff ratio despite wide difference in crowding levels. We do not know whether a larger sample of federal prisons would show a trend similar to the one found in the states.

Our findings about salary and inmate-to-staff ratios are generally consistent with the conclusions of the April 1990 Report of the National Advisory Commission on Law Enforcement.³ The Commission compared

³Report of the National Advisory Commission on Law Enforcement (GAO/OCG-90-2, April 1990).

the pay of federal law enforcement personnel, including corrections personnel, to that of state and local law enforcement personnel and concluded that state and local law enforcement positions offer higher average salaries than federal positions both at the entry level and at full performance levels. The Commission attributed the difference, at least in part, to accelerated progress through the rate ranges for state personnel because most state personnel obtain maximum pay in half the time it takes federal employees.

Our findings are also consistent with the conclusions of a report published in the February 1989 issue of Research in Corrections, which concluded that variations among states in per capita operations costs stemmed primarily from the cost and use of staff labor.⁴ The study found that the most expensive prisons reported higher salaries and lower inmate-to-staff ratios than less expensive prisons.

It is not clear why federal prisons can operate with a higher inmate-to-staff ratio. BOP's position is that higher ratios are possible because BOP provides more programs and more living space to its inmates. A BOP official stated that BOP provides a wide variety of educational, recreational, and work programs that keep the inmates busy and reduce the amount of direct supervision required, which in turn reduces staffing requirements. However, BOP had no empirical evidence to support the relationship of space to staffing. As discussed in chapter 2, at the state prisons in our sample, we found no statistical correlation between the amount of space per inmate and staffing levels. Further, Phoenix operated with the same inmate-to-staff ratio as Marianna, yet Phoenix had about 10 percent less space per inmate.

Also, BOP maintains that its inmate classification system lessens the need for security staff by separating inmates who are potentially dangerous from inmates who do not require the same degree of direct supervision. A comparison of the types of staff employed by the federal and state prisons showed that, relative to other prison functions, the security function is heavily staffed at both state and federal prisons. Compared with the federal prisons, however, the state prisons gave much greater emphasis to staffing the security function. They allotted about 67 percent of their overall staff resources to security compared with about 41 percent at the federal prisons. On the other hand, the states allotted relatively few staff—5 percent—for counseling, compared with 18 percent

⁴Douglas C. McDonald, The Cost of Corrections: In Search of the Bottom Line (Research in Corrections, Feb. 1989).

at the federal prisons. Prison industries staffing was also markedly different in the state versus the federal prisons—the federal prisons apportioned 9 percent of their staff resources to that function compared with 1 percent at the state prisons.

Aside from BOP's assertions, we believe that to some extent BOP can operate with a higher inmate-to-staff ratio because federal inmates tend to be less violent than state inmates. About 19 percent of federal inmates were serving time for a violent crime, compared with 55 percent for state prisons. Also, federal inmates tend to be older than state inmates. The median age for federal inmates was 37, while for state inmates it was 28. These differences are suggestive of a federal inmate population that needs less direct supervision than the more volatile populations in state facilities.⁵ Thus, BOP might not need as many prison staff to supervise its inmate population.

Life-Cycle Costs Could Not Be Determined

As discussed in chapter 1, operations costs will far exceed initial construction costs over the useful life of the prisons. However, efforts to reduce costs are normally directed at initial construction costs, even though these savings may result in higher operating costs over the facility's life. Life-cycle costing considers a facility's operations costs as well as its initial construction and future capital costs. Future costs are based on cost estimates for the years in which such costs would be incurred. These cost estimates are then discounted to their present values and combined with initial investment costs to arrive at the total present value cost of the proposed design. Thus, the present value life-cycle cost would provide a common basis for comparing various designs and would be an important part of our overall analysis.

We attempted to determine what consideration, if any, was given to life-cycle costing in designing federal and state prisons. We asked all questionnaire respondents to cite measures that would impact on the life-cycle costs of the prisons we reviewed. However, neither BOP nor the state respondents provided the information required for the analysis. BOP responded that life-cycle costs were considered for three of the four federal prisons we reviewed and that the focus was on durability. But BOP's response did not describe the designs, construction techniques, or materials selected to minimize life-cycle costs, as requested in the questionnaire. BOP did not list reduced staffing levels and costs as a life-cycle costing factor. Of the 32 states responding to our questionnaire, 18

⁵The differences noted are based on the most recent data available.

reported that they considered life-cycle costing and 14 reported that they did not. As was the case with BOP, the states cited durability but not staffing as a life-cycle costing factor.

While it is unfortunate that the respondents did not provide more complete information on life-cycle costing considerations, we have no reason to believe it would have affected our recommendation on reducing the amount of space provided to federal inmates. Table 3.5 shows that the operations costs at the federal prisons were, on average, higher than those at the state prisons in every category except salary costs, which were substantially less. As previously discussed, we found that the federal prisons used fewer staff relative to their inmate populations, but that no statistical relationship existed in either federal or state prisons between the space provided to inmates and the staffing levels. BOP officials relied on subjective assessments to support such a link.

State Prison Operations Costs Differed by Geographic Region

For the state prisons in our sample, operations costs were affected by the geographic regions in which the prisons were located. However, unlike our results for construction costs, our results for operations costs showed the Midwest state prisons—not those in the South—reported the lowest operations cost per inmate day. The federal prisons did not appear to be affected by regional differences in operations costs, probably because of the uniform national pay scales in effect at the time of our review. Table 3.5 shows the average daily operations cost per inmate by geographic region for the participating prisons and the associated percentages for each category of expense.

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Table 3.5: Average Daily Inmate Operations Costs by Geographic Region

Category	Expense category					Total
	Salaries and related	Services	Rent, communications, and utilities	Supplies and materials	All other	
State prisons						
West (3)	\$34.21	\$0.64	\$2.01	\$5.68	\$1.79	\$44.33
Percentages	77%	1%	5%	13%	4%	100%
Midwest (7)	\$24.36	\$1.78	\$1.74	\$4.37	\$0.58	\$32.83
Percentages	74%	5%	5%	13%	2%	100%
Northeast (6)	\$41.25	\$3.89	\$1.02	\$5.66	\$0.47	\$52.29
Percentages	79%	7%	2%	11%	0%	100%
South (5)	\$29.38	\$4.28	\$1.97	\$4.64	\$0.66	\$40.93
Percentages	72%	10%	5%	11%	2%	100%
Federal prisons						
West (1)	\$24.30	\$4.22	\$1.71	\$6.08	\$1.25	\$37.57
Percentages	65%	11%	5%	16%	3%	100%
South (1)	\$23.73	\$2.01	\$2.65	\$6.32	\$1.54	\$36.25
Percentages	65%	6%	7%	17%	4%	100%

Notes: The numbers in parenthesis indicate the number of prisons in each region. Totals are rounded.

Source: GAO analysis of questionnaire data.

Our analysis also showed that the average annual salaries at the state prisons in our sample were highest in the West and lowest in the South. Table 3.6 shows average salaries by geographical region for the 21 state prisons.

Table 3.6: Average State Prison Staff Salary by Geographic Region

Region	Number of prisons	Average salary
Northeast	6	\$29,315
Midwest	7	\$25,659
South	5	\$24,757
West	3	\$40,714

Source: Analysis of GAO questionnaire data.

In the past, most federal law enforcement agencies determined salary levels using a uniform nationwide pay scale. Congress has recently passed legislation that will raise starting salaries of BOP staff by about 16 percent, to be phased in over 2 years beginning in January 1992. The

legislation also provides locality pay differentials ranging from 4 percent to 16 percent for eight high-cost locations.⁶ When these provisions are fully implemented, the differences between federal and state salaries should diminish. BOP does not now consider differences in federal salary levels when siting federal correctional facilities. BOP should consider siting prisons, when possible, in areas not affected by locality pay differentials.

Conclusions

The federal prisons we reviewed operated at a lower overall cost per inmate day than the state prisons. Personnel costs comprised the bulk of prison operations costs, and the two federal prisons we reviewed generally paid lower salaries and used fewer staff relative to their inmate populations than the state prisons.

With regard to our objectives, we did not identify any conditions or practices at the state prisons that could be used to further reduce federal prison operations costs. However, the full implementation of locality pay differentials will provide BOP with an incentive to revise its site selection criteria. Salary costs might be curbed by locating new prisons in geographic areas not affected by the special pay adjustments for law enforcement officers.

Recommendation to the Attorney General

We recommend that the Attorney General require the Director, BOP, to consider prevailing labor costs and locality pay differentials when selecting sites for new prison construction.

Agency Comments and Our Evaluation

In its written comments, Justice generally agreed with our recommendation. Justice's comments and our detailed responses are included in appendix IV.

⁶Special pay adjustments for law enforcement officers have been approved for the following areas: Boston, 16 percent; Chicago, 4 percent; Los Angeles, 16 percent; New York, 16 percent; Philadelphia, 4 percent; San Francisco, 16 percent; San Diego, 8 percent; and Washington, D.C., 4 percent. Cities in these Standard Metropolitan Statistical Areas are also entitled to the special pay adjustment.

Examples of Standards of the American Correctional Association

Adult Correctional Institution

3-4120	The institution conforms to applicable federal, state, and/or local building codes. (Renovation, addition, and new construction only)						
3-4121	The institution conforms to applicable federal, state, and/or local fire safety codes. Compliance is documented by the authority having jurisdiction.						
3-4123	Institutions of more than 500 inmates are divided into distinct, semiautonomous management units that encourage positive staff/inmate interactions. Staff within each management unit are delegated the authority to make decisions regarding security classification, services, and programs for inmates within the unit.						
3-4125	Single-cell living units shall not exceed 80 inmates. (New construction only)						
3-4126	The number of inmates does not exceed the facility's rated bed capacity.						
3-4127	The institution is located within 50 miles of a civilian population center of at least 10,000 people, or minimally within one hour's driving time of a hospital, fire protection, and public transportation. (New construction only)						
3-4128	Single cells are required for all security levels except minimum. All cells or sleeping areas in which inmates are confined conform with the following requirements:						
	<table border="1"> <thead> <tr> <th>Number of Occupants</th> <th>Amount of Unencumbered Space</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>35 S.F.</td> </tr> <tr> <td>2 - 50</td> <td>35 S.F. per occupant*</td> </tr> </tbody> </table> <p>(minimum custody status only) *Sleeping area partitions required if more than four people in one sleeping area.</p>	Number of Occupants	Amount of Unencumbered Space	1	35 S.F.	2 - 50	35 S.F. per occupant*
Number of Occupants	Amount of Unencumbered Space						
1	35 S.F.						
2 - 50	35 S.F. per occupant*						
	When confinement exceeds 10 hours per day there are at least 80 square feet of total floor space per occupant. "Unencumbered space" is usable space that is not encumbered by furnishings or fixtures. At least one dimension of the unencumbered space is no less than seven feet. In determining unencumbered space, all fixtures must be in operational position and must provide the following minimum areas per person: bed, plumbing fixtures, desk, and locker.						
3-4130	Dayrooms with space for varied inmate activities are situated immediately adjacent to the inmate sleeping areas but are separated from them by a floor-to-ceiling wall.						
	Dayrooms provide a minimum of 35 square feet of space per inmate (exclusive of lavatories, showers, and toilets) for the maximum number of inmates who use the dayroom at one time, and no dayroom encompasses less than 100 square feet of space (exclusive of lavatories, showers, and toilets).						
3-4136	All cells/rooms in segregation provide a minimum of 80 square feet, of which 35 square feet is unencumbered space.						
3-4146	Temperatures in indoor living and work areas are appropriate to the summer and winter comfort zones.						
3-4151	Dining space is sufficient to serve all inmates in four or fewer shifts per meal while giving each inmate the opportunity to have at least 20 minutes of dining time for each meal.						

(continued)

Appendix I
Examples of Standards of the American
Correctional Association

3-4164	The institution's perimeter is controlled by appropriate means to provide that inmates remain within the perimeter and to prevent access by the general public without proper authorization.
3-4410	Written policy, procedure, and practice provide for a comprehensive education program, available to all inmates who are eligible, that includes the following: -educational philosophy and goals -communications skills -general education -basic academic skills -GED preparation -special education -vocational education -postsecondary education -other education programs as dictated by the needs of the institutional population
3-4447	The institution maintains and/or provides access to comprehensive library services that include, but are not limited to, a reference collection containing general and specialized materials, and planned and continuous acquisition of materials to meet the needs of the institutional staff and inmates.

Source: Standards for Adult Correctional Institutions, 3rd Edition, American Correctional Association/Commission on Accreditation.

The 32 State Prisons Submitting Questionnaires Used in Analysis of Construction Costs

State	Prison
Arkansas	Varner Unit, Grady
Arizona	Arizona State Prison Complex - Winslow, Winslow
California	California State Prison, Corcoran Chuckawalla Valley State Prison, Blythe Mule Creek State Prison, Ione
Colorado	Arkansas Valley Correctional Facility, Crowley
District of Columbia	Modular Facility, Lorton, Virginia
Florida	Calhoun Correctional Institution, Blountstown
Illinois	Danville Correctional Center, Danville Hill Correctional Center, Galesburg Illinois River Correctional Center, Canton Western Illinois Correctional Center, Mt. Sterling
Indiana	Correctional Industrial Complex, Pendleton
Kentucky	Eastern Kentucky Correctional Complex, West Liberty
Louisiana	Avoyelles Correctional Center, Cottenport
Massachusetts	Old Colony Correctional Center, Bridgewater
Michigan	E. C. Brooks Regional Facility, Muskegon Carson City Regional Facility, Carson City Chippewa Temporary Correctional Facility, Kincheloe
Nevada	Ely State Prison, Ely
New Jersey	Northern State Prison, Newark Riverfront Correctional Facility, Camden
New York	Cayuga Correctional Facility, Moravia
North Carolina	Craggy Correctional Center, Asheville
Ohio	Dayton Correctional Institution, Dayton Ross Correctional Institution, Chillicothe
Pennsylvania	State Correctional Institution at Frackville, Frackville State Correctional Institution at Smithfield, Huntingdon
South Carolina	McCormick Correctional Institution, McCormick Allendale Correctional Institution, Fairfax Evans Correctional Institution, Bennettsville
Wisconsin	Oshkosh Correctional Institution, Oshkosh

The 21 State Prisons Submitting Questionnaires Used in Analysis of Operations Costs

State	Prison
California	California State Prison, Corcoran Mule Creek State Prison, Ione
Colorado	Arkansas Valley Correctional Facility, Crowley
Florida	Calhoun Correctional Institution, Blountstown
Georgia	Al Burruss Correctional Training Center, Forsyth
Illinois	Danville Correctional Center, Danville Hill Correctional Center, Galesburg
Kansas	Hutchinson Correctional Work Facility, Hutchinsor.
Maryland	Eastern Correctional Institution, Westover
Massachusetts	Old Colony Correctional Center, Bridgewater
Michigan	Chippewa Temporary Correctional Facility, Kincheloe
New Jersey	Northern State Prison, Newark Riverfront Correctional Facility, Camden
New York	Cayuga Correctional Facility, Moravia
North Carolina	Craggy Correctional Center, Asheville
Ohio	Dayton Correctional Institution, Dayton Ross Correctional Institution, Chillicothe
Pennsylvania	State Correctional Institution at Frackville, Frackville State Correctional Institution at Smithfield, Huntingdon
South Carolina	McCormick Correctional Institution, McCormick
Wisconsin	Oshkosh Correctional Institution, Oshkosh

Comments From the U.S. Department of Justice

Note: GAO comments supplementing those in the report text appear at the end of this appendix.



U.S. Department of Justice

JUL 29 1991

Washington, D.C. 20530

Richard L. Fogel
Assistant Comptroller General
U. S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Fogel:

This letter responds to your request for comments on the draft report entitled "PRISON COSTS: Opportunities Exist to Lower the Cost of Building Federal Prisons." Before discussing the Department's specific concerns with the draft report we would like to make some general observations and discuss the framework of the Bureau of Prisons (BOP) operating philosophy.

The Department is pleased with the GAO finding that the operating costs of BOP facilities in the study are much lower than the average costs of the state prisons involved. Since operating costs are many times the cost of construction over the long life of a typical prison, we can conclude that the overall cost of imprisoning federal offenders is very economical when compared to state systems. Most notably, GAO finds that BOP uses 27 percent fewer staff to operate its medium security prisons than the states use. This fact reflects very positively on the BOP's emphasis on prudent use of resources. The Department believes this finding should have received greater attention in the report, and the possible reasons for the success of the Bureau's resource utilization examined in more detail. In fact, BOP's design considerations, in part, permit the Bureau's frugal staffing pattern. The increased space enhances security by increasing internal visibility. BOP's institutional designs also promote positive interaction between staff and inmates, and inmate participation in programs, thereby keeping inmates productively occupied and improving their post-release chances for successful reintegration into community life. Further, BOP strives to construct institutions conducive to hiring and retaining professional staff.

The Department is cognizant of the high cost of imprisonment and shares GAO's concerns about decreasing costs. However, prison design standard decisions must be considered in the context of providing a safe, secure, and constitutional prison environment for offenders in our custody. If the need to minimize construction costs is not balanced with the requirements of federal law and good security, we risk serious incidents or disturbances which could result in considerable human suffering, very high costs, disruption to federal law enforcement efforts, and harm to the public interest.

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BOP has concluded its review of the extent to which capacity of current institutions should be rated for double occupancy (placing two inmates in a room or cell, also known as "double-bunking"). As of July 1, 1991, BOP implemented policy changes which increased the rated capacity of low and medium security institutions (with housing space comparable to the institutions in this study) by substantially expanding the use of double occupancy. BOP was stimulated in its review by the issues raised by GAO, especially with regard to the use of double occupancy.

Within the above context, we believe BOP's activities will alleviate GAO's basic concerns. With its new policy in effect, the cost per inmate and space per inmate for the BOP institutions analyzed in this study will be reduced by 33 percent. This meets GAO's key recommendation that standards be substantially changed to reduce building costs. The report's second recommendation, to consider reducing multi-purpose space, becomes inconsequential from a cost perspective. While GAO's third recommendation would cut costs, it reflects current BOP practice. At present, BOP has some 30 sites for building long-term prisons in various stages of development; none of these sites are in locality pay areas. If future Federal Detention Centers (for pre-trial offenders) are located in higher pay areas it will be unavoidable.

While the Department generally agrees with GAO's recommendations, some aspects of the analysis to reassess design standards are disappointing. Many important issues were either not addressed or inadequately integrated into findings. In this study, GAO analyzes four BOP facilities built from 1985 to 1989 and makes recommendations to change "current prison design standards." As noted, the Department agrees that it should plan to provide less space per inmate than it did when these four institutions were designed and constructed. Present design standards for future prison construction have been changed significantly already.

BOP decision to increase rated capacity by expanding use of double occupancy. Based on an extensive staff review, BOP has concluded that it would be able to effectively and securely manage the inmate population in medium security institutions by double bunking 50 percent of rooms having over 75 square feet of space. Reserving rooms for single occupancy will improve security and provide an important incentive for positive inmate behavior. In addition, BOP will need flexibility to handle the surges in the inmate population the Department expects are very likely to occur.

For the institutions in this study, the effect of this policy change is to reduce the construction cost per bed from \$70,000 to \$46,667. Significantly, this figure is 15 percent below the average state cost of \$55,000. Space per inmate will decrease from 643 square feet per inmate to 429 square feet per inmate;

See comment 3.

See comment 4.

See p. 52.

See comment 5.

See comment 3.

See comment 4.

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however, it will remain 7 percent higher than the average 401 square feet per inmate for state facilities. This is the result of the much lower cost per square foot of BOP construction.

Life cycle costs need to be addressed more fully. A more thorough examination of life cycle costs should reflect favorably upon BOP's design policies. Though the report indicates that overall BOP institution operating costs are 13 percent lower than those of comparable states, the significance of this finding is ignored in the report. If one projects the "current dollar" savings of \$5.45 per inmate per day over 40 years for a typical institution of 750 inmates, then "lifetime" savings for a BOP institution would be almost \$60 million dollars over the average state institution. Even if the current difference in BOP salary levels and those of the states is reduced, the savings would still be in the neighborhood of \$50 million dollars over the life of the facility.

Although far fewer resources are involved, GAO's dismissal of the issue of durability of prison construction is a flaw in its analysis. Though a broad inquiry into construction durability might have been beyond the scope of the study, it should have been discussed more thoroughly. One of the design principles of BOP is to build durable institutions which will last for many years with a minimum of maintenance. We think BOP compares very favorably with most states in this regard. In addition, BOP facility designs are much more likely to allow for secondary use (such as a home for the elderly), should any be eventually closed as prisons. Certainly, this fact may eventually make these structures even more valuable to society.

GAO's basis for construction cost comparisons is inappropriate. In the draft report GAO uses the original design capacity to determine "cost per bed".² This position is problematic, for

¹ Additional construction or renovation at the four facilities in the study will not be planned as a result of this policy change. Therefore, computing cost figures in this retrospective manner is appropriate, because in no instance does BOP anticipate or plan that future population levels will be less than the revised rated capacity levels.

² BOP's "acceptable level of crowding" position was a defensible and appropriate one. Of course, the issue is now moot because of the change in rated capacity policy. However, it is puzzling that GAO explicitly rejected BOP's position in this study, since GAO had previously accepted just such a rationale in their 1989 report entitled "PRISON CROWDING: Issues Facing the Nation's Prison Systems" (see page 17).

See comment 6.

See pp. 54-56

See comment 7.

See comment 8.

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See comment 7.

reasons that are evident from information to be found in the report itself. The cost figures which should be used for comparison ought to be those which will most accurately estimate the actual costs to be incurred by the governments involved. While determining these cost figures may be as difficult as predicting future inmate populations, it is preferable to using figures that are irrelevant to the actual number of inmates incarcerated. As GAO indicated, the study prisons were operating well above capacity, but at rates that varied considerably. Therefore, the comparisons that GAO made do not reflect actual differences.

See comment 2.

GAO's cost comparisons do not address crucial "output" variables.

Although the Department agrees with the primary theme of this report, we disagree with the analysis by which GAO reached its conclusions. For its comparison to be considered complete, GAO should discuss system output variables and integrate them into the analysis of design and construction cost issues. For example, the study does not address how design changes or construction cost reductions might affect BOP's capability to perform its statutory mission. BOP is required to "provide suitable quarters and provide for the safekeeping, care, and subsistence of all (prisoners) . . . provide for the protection, instruction, and discipline of all (prisoners)." (See 18 U.S.C. §4042). Design changes might affect the security of a prison or its capability to deliver educational programs. GAO should review these crucial issues in its evaluation of BOP's position and policies. GAO's failure to discuss these issues limits its analysis and its data. All of the comparisons of cost data are questionable without reference to output or product variables.

See comment 9.

An important indicator of the impact of design standards on the ability of a prison system to carry out its responsibilities is the nature and number of lawsuits brought in federal courts. Currently, over 40 state correctional systems have one or more consent decrees or court judgments concerning conditions of confinement pending against them. BOP has none. Litigation is not only disruptive, it is expensive, especially if the government agency is on the losing side. If BOP has been able to avoid losing important lawsuits, it may in large measure be due to the design and operational philosophies of the organization. Surely, these important policies should not be changed simply because there are prison design differences with state facilities; however, this is precisely what GAO is suggesting. The Calhoun, Florida, facility that GAO relied on heavily as a comparison in this study, is under an extensive court order (Costello v. Dugger) involving overcrowding, medical, food services, and mental health issues.

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See comment 10.

Other concerns. The GAO assertion that the BOP population is "more tractable" is an example of the danger of using only one piece of data to make a general conclusion. Since the nature of federal criminal jurisdiction differs from that of the states, one would expect fewer medium security inmates to have been imprisoned in the BOP for a violent offense. However, a large percentage of federal medium security inmates have a history of violence, and their offenses are much more criminally sophisticated. Federal inmates at this level spend much more time imprisoned than state inmates do, surely a measure of the seriousness of the population. For example, inmates at the Calhoun, Florida, facility spend on the average only 10 to 12 months there. Over half of the inmates at the BOP facility in Marianna, by contrast, have an expected length of incarceration in excess of 5 years. While there are clearly differences between the federal and state inmates, those differences most definitely are not indicative of a need for fewer staff. BOP's operating philosophy is the principal factor in the need for fewer staff.

See comment 5.

GAO's analysis on the issue of locating prisons close to inmate homes is also lacking. GAO suggests that BOP deemphasize this factor (it is only one of many currently used) and reports that many BOP inmates are a considerable distance from home already. The implication, never stated or analyzed, is that it is acceptable for inmates to be even farther from their homes. The Department does not accept this proposition. GAO does not mention, much less discuss, the possible effects of such a policy.

The Department believes that the BOP has taken the actions necessary to respond to GAO concerns. BOP will continue to review its design plans for the future to ensure that prison construction and operating costs are as low as is in the interest of the organization and the federal criminal justice system.

I very much appreciate the opportunity to comment on this important draft report.

Sincerely,


Harry H. Flickinger
Assistant Attorney General
for Administration

The following are GAO's comments on the Department of Justice's letter dated July 29, 1991.

GAO Comments

1. Justice was pleased with our finding that the operations costs for the federal prisons in our sample were lower than the average costs for the state prisons. The lower costs can be explained by our finding that the federal prisons used 27 percent fewer staff members, on average, than the state prisons. Justice said they were able to use fewer staff because the federal prisons were larger (i.e., more square feet per inmate) and the increased space enhanced security by increasing internal visibility and allowing for inmate programs and positive interaction with staff.

We agree that our finding on the Bureau of Prisons (BOP) staffing patterns reflects positively on BOP and believe the states could benefit from BOP's experiences in this area. However, we were unable to support Justice's assertion that design considerations, in part, helped to permit the more favorable staffing pattern. At the facilities in our review, we analyzed the inmate-to-staff ratios and compared them to the amount of space provided to inmates and found no statistical relationship for either the federal or state prisons. In fact, the two federal prisons we reviewed operated with the same inmate-to-staff ratios even though one prison had about 10 percent less space than the other. Similarly, BOP could not provide empirical evidence to support Justice's assertion. With regard to enhancing security, internal visibility is addressed by prison designers by eliminating architectural barriers and providing guard observation posts rather than by adding more interior space. Inmate programs and positive interaction with staff are important considerations, but BOP and the states have shown that they can be promoted using less space than provided in most of the federal prisons we reviewed.

2. Justice said that the desire to reduce construction costs needs to be balanced with BOP's statutory mission to provide suitable and safe quarters and the need for good security. Justice asserts that our study fails to address how design changes or cost reductions might affect BOP's capability to perform its mission. We share Justice's concern that design standards must be considered within the context of providing a safe and secure prison environment. These concerns presumably are shared by the states that designed their prisons to provide, on average, 55 percent less space per inmate than the federal prisons we reviewed. We searched for evidence that the overall reductions in housing and support space

provided to inmates resulting from widespread double-bunking in federal prisons caused unmanageable problems but found none. In fact, in a letter to the American Bar Association urging its support of an American Correctional Association (ACA) proposal for a limited double-bunking standard, BOP's Director said that BOP has found it could successfully and lawfully manage double-bunking. BOP's new double-bunking policy brings federal prisons closer to state prisons with regard to the average amount of space provided to inmates. BOP did not raise concerns about safety and statutory objectives as barriers to its new double-bunking policy.

3. Justice said that BOP had determined that substantially expanding the use of double-bunking was feasible. As of July 1, 1991, BOP revised its policy on design standards to permit some double-bunking in existing medium security facilities, which include the prisons reviewed in this report. While we are encouraged by the revision, we are concerned that the revision and BOP's design standards for newly constructed medium security facilities are inconsistent. Last year, BOP adopted a design standard for new medium security facilities that calls for double-bunking in 50 percent of the cells and rooms having 90 or more square feet. The recently announced policy for existing medium-security facilities calls for double-bunking in 50 percent of the cells and rooms having 75 or more square feet. In practice, BOP has used double-bunking on a wider scale and in cells and rooms having less than 75 square feet. We believe that BOP's design standards for comparable facilities should be consistent. Further, as we stated previously, we believe BOP's standards should provide for double-bunking where feasible and limit single-bunking to situations in which double-bunking is clearly not feasible. Thus, in our opinion, BOP has not resolved all of the issues surrounding the use of double-bunking in the federal system. We believe BOP needs to reconsider or better explain the differences it created in its facility design standards.

4. Justice believes that as a result of BOP's policy change, the construction costs reported should be changed from \$70,000 per bed to \$46,667 per bed, and the average square feet per inmate should be changed from 643 to 429. We do not believe that our cost per bed and space per inmate analyses should be adjusted retroactively to reflect this unilateral change in policy. The federal and state prisons we reviewed were constructed in accordance with existing design standards, and the costs and space allocations were the outcome of those standards. Further, ACA is now considering adopting a double-bunking policy similar to the one recently adopted by BOP. If adopted, states are likely to revise their own

design standards. We believe the savings resulting from BOP's new policy and revised ACA standards will come from the reduced need for additional facilities.

5. Justice said that while our third recommendation—to consider geographical differences in labor and materials costs when siting prisons—would cut costs, it reflects current BOP practice. Justice said that BOP presently has about 30 sites for building long-term prisons in various states of development and that none of these sites are in locality pay areas. Further, Justice said that our analysis of BOP's policy to locate prisons near inmates' homes is lacking in that we had not analyzed the possible effects of a policy that would permit inmates to be incarcerated farther from their homes. Our position is that geographic differences in labor and materials costs, which directly affect prison construction and operations costs, should be considered along with other factors when siting prisons. Such differences are not currently among BOP's site selection criteria. By considering these factors, we believe BOP can reduce construction and operations costs in the future.

6. Justice said we should have examined more fully the differences in the life-cycle costs of federal and state prisons. Life-cycle costing considers a facility's lifetime operations costs as well as its initial construction and future capital costs, discounted to present value. With BOP's lower operations costs, Justice believes that BOP prisons would compare favorably to those of the states if such an analysis were performed.

We agree that life-cycle costing might have provided interesting data. In fact, we requested life-cycle costing information for the federal and state prisons we reviewed. However, they did not provide the detailed responses necessary for us to do that analysis. BOP and the states said they did not always do life-cycle costing analysis themselves, and when they did it was with the aim of achieving facility durability, not reducing the number of staff. Our work showed that the federal prisons used fewer staff relative to inmate populations and that this category of operations costs was the only one in which the federal prisons cost less than the state prisons. However, the inmate-to-staff ratio was not affected by the difference in space provided to inmates at the federal versus the state prisons. Thus, while a life-cycle costing analysis would have added to our report, it would not have affected our recommendation to reduce the amount of space provided to inmates. We added a section to the final report (see pp. 58-59) describing life-cycle costing and our rationale for not including it in our analysis.

7. Justice said that the per-bed construction costs we reported should have been based on actual inmate populations. We believe this approach would have been inappropriate because the calculations would change significantly with normal fluctuations in population or when additional prison construction increases systemwide capacity and lowers the crowding rate of particular facilities. In our opinion, the most appropriate cost measurement standard is the one that measures costs in terms of the number of inmates the facility was designed, funded, and constructed to house. This measure is the one commonly used in the corrections community to calculate cost per bed.

8. Justice said they believe BOP's use of the "acceptable level of crowding" as a basis for computing cost per bed was defensible and appropriate. Justice said that we explicitly rejected BOP's position in this study, but that we had previously accepted just such a rationale in our 1989 report, Prison Crowding: Issues Facing the Nation's Prison System (GAO/GGD-90-1BR, Nov. 2, 1989).

We believe it would be inappropriate to use acceptable crowding rates in a cross-jurisdictional analysis because (1) these rates are systemwide planning factors that are not based on the size or capacity of any particular prison; (2) the percentages used as the acceptable crowding rates have been subject to change, and any change significantly affects the cost calculations; (3) many states operated their prisons above the rated capacity but have not officially stated an acceptable crowding rate; and (4) some states that did not specify an acceptable crowding rate planned to accommodate some overcrowding by oversizing some elements of the facilities (e.g., dining room, sewer lines) and incurring additional construction costs in doing so. Moreover, cost per bed on the basis of planned capacity is the measure commonly used in the corrections community to compare construction costs. With respect to our earlier report, we showed per-bed construction costs from the perspectives of both rated capacity and the 30 percent acceptable crowding rate. We did not accept or endorse the latter rate. Further, that report did not attempt to compare and contrast BOP's construction costs with those of the states.

9. Justice noted that the Calhoun Florida facility that we used in our comparison of construction costs is "under an extensive court order." Justice implied that the court order resulted from Calhoun's low cost design. However, information furnished us by the State of Florida indicates that this is not the case. The court order in question was issued in Costello v. Dugger, a lawsuit filed in 1972 by Florida state prisoners alleging the denial of medical treatment and other unsuitable conditions

of confinement. The Calhoun facility is subject to the court order outstanding in the Costello case only because it is part of the Florida state prison system. However, Calhoun, which opened 2 years ago, was built as part of Florida's recent prison construction program aimed at alleviating overcrowding—one of the conditions at issue in Costello. We have no reason to believe that Calhoun's design in any way contributed to overcrowding or the other prison conditions at issue in the lawsuit.

10. Justice took exception with a phrase in the draft report that characterized the BOP population as "more tractable." We did not mean to imply that there are no violent inmates in medium security federal prisons. However, available evidence showed that state prisons contained a much higher percentage of inmates serving sentences for violent crimes than federal prisons. Also, state prison inmates, on average, are much younger than federal inmates. It seems reasonable to conclude that younger, more violent inmates would require more supervision and that this need would contribute in part to the need for relatively higher staffing levels at state prisons. Further, Justice's assertion about shorter average sentences served by state inmates in general, and inmates at the Calhoun facility in particular, does not consider differences among jurisdictions in possible sentences for similar crimes, the lack of parole for newly convicted federal inmates, and the fact that some state inmates might be released before their entire sentence is served to achieve a court-ordered cap on the prison population. Nevertheless, we deleted the phrase "more tractable" from the final report because tractability was not the main issue.

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