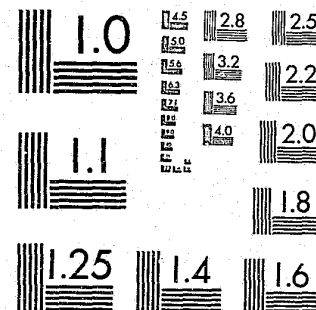


National Criminal Justice Reference Service

**ncjrs**

This microfiche was produced from documents received for inclusion in the NCJRS data base. Since NCJRS cannot exercise control over the physical condition of the documents submitted, the individual frame quality will vary. The resolution chart on this frame may be used to evaluate the document quality.



MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS-1963-A

Microfilming procedures used to create this fiche comply with the standards set forth in 41CFR 101-11.504.

Points of view or opinions stated in this document are those of the author(s) and do not represent the official position or policies of the U. S. Department of Justice.

National Institute of Justice  
United States Department of Justice  
Washington, D. C. 20531

6/26/85

U.S. Department of Justice  
National Institute of Justice  
Office of Development, Testing and Dissemination

90969

NII

National Institute  
of Justice

*Issues and Practices*

# Correctional Facility Design and Construction Management

96969

96969

U.S. Department of Justice  
National Institute of Justice  
Office of Development, Testing and Dissemination

## About the National Institute of Justice

The National Institute of Justice is a research branch of the U.S. Department of Justice. The Institute's mission is to develop knowledge about crime, its causes and control. Priority is given to policy-relevant research that can yield approaches and information State and local agencies can use in preventing and reducing crime. Established in 1979 by the Justice System Improvement Act, NIJ builds upon the foundation laid by the former National Institute of Law Enforcement and Criminal Justice, the first major Federal research program on crime and justice.

Carrying out the mandate assigned by Congress, the National Institute of Justice:

- Sponsors research and development to improve and strengthen the criminal justice system and related civil aspects, with a balanced program of basic and applied research.
- Evaluates the effectiveness of federally funded justice improvement programs and identifies programs that promise to be successful if continued or repeated.
- Tests and demonstrates new and improved approaches to strengthen the justice system, and recommends actions that can be taken by Federal, State, and local governments and private organizations and individuals to achieve this goal.
- Disseminates information from research, demonstrations, evaluations, and special programs to Federal, State and local governments; and serves as an international clearinghouse of justice information.
- Trains criminal justice practitioners in research and evaluation findings, and assists the research community through fellowships and special seminars.

Authority for administering the Institute and awarding grants, contracts, and cooperative agreements is vested in the NIJ Director. An Advisory Board, appointed by the President, assists the Director by recommending policies and priorities and advising on peer review procedures.

Reports of NIJ-sponsored studies are reviewed by Institute officials and staff. The views of outside experts knowledgeable in the report's subject area are also obtained. Publication indicates that the report meets the Institute's standards of technical quality, but it signifies no endorsement of conclusions or recommendations.

James K. Stewart  
Director

U.S. Department of Justice  
National Institute of Justice

This document has been reproduced exactly as received from the person or organization originating it. Points of view or opinions stated in this document are those of the authors and do not necessarily represent the official position or policies of the National Institute of Justice.

Permission to reproduce this copyrighted material has been granted by  
Public Domain/NIJ/ODTD  
U.S. Department of Justice  
to the National Criminal Justice Reference Service (NCJRS).

Further reproduction outside of the NCJRS system requires permission of the copyright owner.

96969

# Correctional Facility Design and Construction Management

by  
Dale K. Sechrest  
Shelley J. Price

Commission on Accreditation for Corrections

February 1985

NCJRS

MAR 22 1985

ACQUISITIONS

*Issues and Practices in Criminal Justice* is a publication series of the National Institute of Justice. Designed for the criminal justice professional, each *Issues and Practices* report presents the program options and management issues in a topic area, based on a review of research and evaluation findings, operational experience, and expert opinion in the subject. The intent is to provide criminal justice managers and administrators with the information to make informed choices in planning, implementing and improving programs and practice.

Prepared for the National Institute of Justice, U.S. Department of Justice by the Commission on Accreditation for Corrections under subcontract to Abt Associates Inc., contract number J-LEAA-011-81. Points of view or opinions stated in this document are those of the authors and do not necessarily represent the official position or policies of the U.S. Department of Justice.

*Project National Advisory Committee*

Sigmund Fine, Minnesota  
Gail D. Hughes, Missouri  
Frank Kaufman, Maryland  
Gerald Kaufman, Pennsylvania  
John W. McGough, Washington  
Norval Morris, Illinois  
Anthony P. Travisono, Maryland  
Frank C. Robey, Jr., Maryland  
Robert J. Watson, Oregon

*Project Steering Committee*

American Institute of Architects  
Committee on Architecture for Justice  
George F. Klein, Jr., AIA, Chairman, Minnesota  
Bruce C. Ream, AIA, Vice-Chairman, Illinois  
Allen L. Patrick, AIA, Ohio  
C. Kenneth Spriggs, AIA, Georgia  
W. Gene Williams, AIA, Texas  
Joseph N. Ladd, AIA, Past-Chairman, Virginia

*Consultants*

Nick Pappas, Virginia  
Dennis Kimme, Illinois  
Donald C. Maase, Illinois  
David A. Dietsch, Maryland  
David Musacchio, Kentucky  
Ernest Reimer, California

*National Institute of Justice Project Monitors*

Paul Cascarano, Washington, D.C.  
Virginia Baldau, Washington, D.C.  
Thomas F. Albrecht, Washington, D.C.

**Table of Contents**

	Page
EXECUTIVE SUMMARY .....	1
Chapter 1: INTRODUCTION .....	9
1.0 Experience in Design and Construction .....	10
1.1 Research Objectives .....	14
1.2 Data Collection: Description of Facilities and Programs Studied .....	15
1.3 Organization of the Report .....	17
Chapter 2: PLANNING AND DECISION MAKING IN FACILITY CONSTRUCTION .....	23
2.0 The Politics of New Construction .....	24
2.1 The Decisionmaking and Management Process .....	26
2.2 The Planning Process .....	31
2.2.1 Cost Estimating and the Funding Process .....	33
2.2.2 Facility Staffing .....	37
2.2.3 Facility Siting .....	37
2.2.4 Architectural/Facility Program Development .....	38
2.3 Architect/Engineer Selection .....	40
2.4 Summary .....	43
Chapter 3: DESIGN CONSIDERATIONS .....	49
3.0 Security Issues .....	50
3.1 Design Problems .....	53
3.2 Value Engineering .....	55
3.3 Security Materials, Hardware and Equipment .....	56
3.4 Summary .....	60
Chapter 4: THE FACILITY CONSTRUCTION PHASE .....	65
4.0 Bidding and Builder-Contractor Selection .....	66
4.1 Contract Administration .....	66
4.2 Site Observation/Supervision .....	67
4.3 Construction Management Services .....	69
4.4 Summary .....	71
Chapter 5: PHYSICAL PLANT OPERATION AND MAINTENANCE .....	73
5.0 The Need for Post-Occupancy Evaluation .....	75
5.1 Problem-Solving for Future Construction .....	76
5.2 Summary .....	77

## Table of Contents (continued)

	Page
Chapter 6: SPECIAL ISSUES IN CONSTRUCTION .....	81
6.0 Modular and Pre-Designed Facilities .....	81
6.1 Modular Construction .....	82
6.1.1 Prefabricated .....	82
6.1.2 Precast Concrete .....	83
6.1.3 Factory Built Construction .....	83
6.2 Pre-engineered Designs .....	83
6.3 Podular Designs .....	84
6.4 The Costs of Innovation .....	84
6.4.1 Construction Time .....	86
6.4.2 Staffing .....	87
6.4.3 Facility Life Expectancy .....	87
6.5 Prototype Facilities .....	88
6.5.1 Issues in Prototype Design .....	88
6.5.2 Use of Untested Designs .....	89
6.6 Design and Construction of Jails .....	90
6.7 Using Standards in Design and Construction .....	93
6.8 The Hidden Costs of New Construction .....	96
6.9 Summary .....	99
 APPENDICES	
Appendix A: Data Collection .....	105
Appendix B: Perspective on Facility Siting: Maryland .....	111
Appendix C: Perspective on Facility Siting: Illinois .....	117
Appendix D: Commission on Accreditation for Corrections Standards Relating to Physical Plant Requirements .....	121
 PROJECT CONTRIBUTORS .....	129
 TABLES AND FIGURES	
Figure 1.1 Planning, Design and Construction Flow Chart .....	18
Table 6.1 Correctional Facility Construction and Operating Costs .....	98

## EXECUTIVE SUMMARY

### Problem

The planning, design and construction of correctional institutions occurs in an environment of changing public values, administrations and economies. Each of these factors, in turn, translates into different realities concerning the intended purpose of correctional facilities, the manner in which they actually operate and staff roles in carrying out the correctional task. The history of correctional institution development provides ample evidence of various attempts to incorporate competing correctional needs and philosophies into correctional design.

Changing philosophies of correctional practice, often influenced by public concerns, have been reflected in the "Pennsylvania system" of penance in isolation without work, the Auburn "silent system" of inmate work to support the prison, the treatment programs of the last three decades, and the current use of "pod" or cluster designs to increase security, all with variations based on local priorities. These correctional philosophies are reflected in the diverse forms of correctional architecture.

Various institutions proclaimed as the "state-of-the-art" at the time they opened, later succumbed to problems such as changing philosophies, crowding, political interference, and lack of resources to carry out the intended mission. The outcome of such influences, in many instances, has been a failure of the institutions to meet operational expectations, the premature physical deterioration of facilities, frustration for the staff who run the institutions, and unanticipated and exorbitant maintenance and operating costs.

Despite the existence of over 600 adult long-term correctional institutions in the country, with over 150 of these built in the last ten years, there has been little effort to systematically accumulate, record and disseminate knowledge and



experience in correctional facility planning, design, construction and operation to improve upon both the process and the outcome. In the last two years, major building programs have resulted in the construction of 55 new correctional facilities throughout the country. An additional 112 institutions or additions to existing facilities are currently being built or are planned. The issues, problems and experience in planning--in moving from a definition of needs, to concept, to design and construction--still remain to be systematically addressed and documented.

### Research Objectives

An objective of this project is to document, based on a one-year study of new facility construction in 15 states, attempts to plan, design and construct correctional institutions in environments that emphasize different objectives at different times. The report is intended for use by correctional administrators and managers responsible for building new facilities, and as such it explores some of the issues, problems and trends in correctional facility construction in order to assist in the development of a greater understanding of the process and promote productive communication between the correctional community and the architects, builders and others who create correctional institutions. With the goal of defining a planning, design and construction process that will minimize costs and problems associated with the construction and operation of new institutions, the report contains:

- a description of the practices and processes found for the planning, design and construction of new correctional facilities; specific reference is to the interaction of corrections staff with the representatives of legislative, executive and administrative branches of government who play key roles in the process;
- an illustration and discussion of critical tasks and decision points in the planning, design and construction process, as identified by project participants; these were the points at which decisions and activities often were found to result in planning delays, cost overruns, or construction of facilities that failed to meet operational expectations;

- a presentation of methods and practices that states have found to be useful in building new facilities; this includes recommendations or guidelines for coordinating, controlling and monitoring planning, design and construction activities that can lead to more workable, safe and functional facilities that are less costly to build and maintain.

Several other issues related to facility planning, design and construction are included in the report, such as: considerations in the selection of materials, hardware and equipment; the use of prototype designs; considerations in use of prefabricated or modular types of construction; and, the use of standards in design and construction.

### Data Collection

Information for the study was obtained through a lengthy mail/telephone survey completed by individuals responsible for new facilities' construction in 15 states. Using a case study method, the survey contained questions about budgeted and actual costs for facility construction and operation; participants, activities and timeframes in the planning, programming and design stages of the project; processes for the selection of the architect/designer and contractors; construction of the facility; and facility operation since opening. Survey information was supplemented by visits to three states where Commission on Accreditation for Corrections project staff toured recently-opened institutions and spoke with department of corrections (DOC) project managers, representatives of state projects, project architects, contractors and facility operations staff regarding the planning, design, construction and operation of the facilities.

### Findings and Recommendations

The findings of the project focus on the following areas:

- The influence of forces outside the immediate correctional environment that impact upon and often control correctional facility construction, and methods for dealing with political/ bureaucratic influences.

- Internal systems and mechanisms for decision-making, including use of existing knowledge and resources within the department of corrections.
- Planning, design and construction problems common to many large construction projects and those unique to correctional facilities.
- Strategies for the continuing operation, maintenance and support of newly constructed facilities, and for providing staff support.
- The need for follow-up evaluation of correctional facility construction, and the need to document and disseminate information.

Recommendations are grouped into five major areas:

1. The diffusion of authority and responsibility among government agencies, including complex approval processes, turnovers in agency personnel and failure to establish and maintain effective communication between decisionmaking authorities was identified as a primary factor in project delays and difficulties.

Plans for new facility construction and operation which require large initial capital expenditures and continued funding and administrative support must be understood and endorsed by those that have decisionmaking authority for the project. This involves:

- department of corrections understanding of and involvement in the process for controlling and administering expenditures of state funds, including assumption by the chief executive officer of the DOC responsibility for managing the politics of new construction;
- provision by the DOC to the appropriate government authorities timely information about correctional policy issues and variables influencing decisions and ongoing dialogue to ensure agreed upon resolutions;
- comprehensive planning that includes cost calculations for new facility construction based on a clear definition of facility needs, operating and life cycle costs; and

- department of corrections participation in the selection of professional design services and contractors using an established review process and selection criteria based on qualifications, demonstrated competence and ability to do the job.

2. The lack of continuity in project planning and decisionmaking stands out as one of the most critical problems in correctional facility construction. Over 50 percent of the jurisdictions studied had two or more administrators during project duration. Turnover of project decisionmakers and the resultant changes in philosophy and mission for the new facility was the most frequently mentioned impediment to fluid and consistent project planning.

To maintain project stability and continuity within changing administrations, and to maintain appropriate liaison with the state general services department and other units of government required for project tracking, management and completion, there must be a project manager and the necessary support staff. This involves:

- creation of project management units within the DOCs including establishment of a permanent staff composed of persons with knowledge/experience in design and construction technologies and correctional facility operations needs; and
- use of established project management techniques, including a standard review sequence within the department of corrections in pre-bid, bidding and construction project stages and provision of adequate job site supervision.

3. A most critical issue during project planning and program development is the need for involvement of facility staff members and practitioners in order to identify critical operational and practical needs of the institution. Department of corrections project staffs identified as a problem a failure to think operationally in designing the facility, particularly about security and maintenance needs. One-half of the project managers surveyed who requested assistance from department of corrections staff reported that they were unable to get help.

- Internal systems and mechanisms for decision-making, including use of existing knowledge and resources within the department of corrections.
- Planning, design and construction problems common to many large construction projects and those unique to correctional facilities.
- Strategies for the continuing operation, maintenance and support of newly constructed facilities, and for providing staff support.
- The need for follow-up evaluation of correctional facility construction, and the need to document and disseminate information.

Recommendations are grouped into five major areas:

1. The diffusion of authority and responsibility among government agencies, including complex approval processes, turnovers in agency personnel and failure to establish and maintain effective communication between decisionmaking authorities was identified as a primary factor in project delays and difficulties.

Plans for new facility construction and operation which require large initial capital expenditures and continued funding and administrative support must be understood and endorsed by those that have decisionmaking authority for the project. This involves:

- department of corrections understanding of and involvement in the process for controlling and administering expenditures of state funds, including assumption by the chief executive officer of the DOC responsibility for managing the politics of new construction;
- provision by the DOC to the appropriate government authorities timely information about correctional policy issues and variables influencing decisions and ongoing dialogue to ensure agreed upon resolutions;
- comprehensive planning that includes cost calculations for new facility construction based on a clear definition of facility needs, operating and life cycle costs; and

- department of corrections participation in the selection of professional design services and contractors using an established review process and selection criteria based on qualifications, demonstrated competence and ability to do the job.

2. The lack of continuity in project planning and decisionmaking stands out as one of the most critical problems in correctional facility construction. Over 50 percent of the jurisdictions studied had two or more administrators during project duration. Turnover of project decisionmakers and the resultant changes in philosophy and mission for the new facility was the most frequently mentioned impediment to fluid and consistent project planning.

To maintain project stability and continuity within changing administrations, and to maintain appropriate liaison with the state general services department and other units of government required for project tracking, management and completion, there must be a project manager and the necessary support staff. This involves:

- creation of project management units within the DOCs including establishment of a permanent staff composed of persons with knowledge/experience in design and construction technologies and correctional facility operations needs; and
- use of established project management techniques, including a standard review sequence within the department of corrections in pre-bid, bidding and construction project stages and provision of adequate job site supervision.

3. A most critical issue during project planning and program development is the need for involvement of facility staff members and practitioners in order to identify critical operational and practical needs of the institution. Department of corrections project staffs identified as a problem a failure to think operationally in designing the facility, particularly about security and maintenance needs. One-half of the project managers surveyed who requested assistance from department of corrections staff reported that they were unable to get help.

Ensuring use of in-house knowledge and experience critical to the project involves:

- providing the time and encouragement for the involvement of correctional staffs in new facilities' planning, which may entail establishing task forces of correctional facility staffs to contribute to programming and design plans; and
- developing formal information exchange channels and a system for documenting and retrieving information about new facility operation based on the experience of line staffs.

4. Many of the problems in facility operation can be traced to institutional use and operation different from the purpose for which it was originally designed. In the facilities studied many of the design problems associated with layout, adjacencies and space allocations frequently arose from having to deal with inmate population characteristics, crowding and staffing arrangements unplanned for at the time of design. These problems should have been addressed in the architectural program, which tells the designer exactly what is expected of the facility in functional and operational terms. Two-thirds of the facilities surveyed had insufficient numbers of skilled staff and lacked a budget sufficient to maintain the physical plant and operate the facility as intended. One-half of the institutions at the time of the survey were filled beyond their designed capacity; one-third of the survey respondents felt that the institution was housing an offender population type that the facility had not been designed and equipped to handle.

Once completed, the facility must be maintained and supported to operate as intended. This involves:

- establishing administrative policy and operating procedures consistent with the design philosophy of the facility and its intended mission;
- ensuring an adequate operating budget to staff the facility as planned, with particular attention to the resources necessary to maintain the physical plant and equipment; and

- training staff in facility operation and maintenance at the facility prior to moving inmates into the institution;

5. There is a need to evaluate what has been done in an attempt to build on past experience rather than continue to repeat past errors. This entails a post-occupancy evaluation for every facility built and a national program of post-occupancy evaluation of new prison construction to compare experience across jurisdictions and preserve vital information on the planning, design, construction and use of correctional facilities. The evaluation program would address:

- security hardware, equipment, systems and building materials, including such factors as initial cost, durability, and maintenance demands and costs; the goal is to develop standardized definitions related to explicit performance capabilities of materials;
- design features in terms of flexibility, security, effect on staffing patterns, staff and inmate safety, and space use;
- energy consumption, including heating, ventilation and air conditioning systems.

## Conclusions

A truly functional facility should achieve the following: a greater sense of safety for staff and inmates, less destructive (or "normalized") inmate behavior, minimal staff turnover through greater worker satisfaction, and a more humane and positive environment based on the implementation of design concepts consistent with the standards of good practice of the field. In accomplishing this goal, problems of detail should not be allowed to overshadow the positive features of a good design. Staff may have to learn to live with designs, hardware and equipment which create a more humane environment yet present more difficulty in their operation and maintenance, provided they do not create security problems. In this sense it is vital that operations and maintenance staff are trained in and understand the new responsibilities being given them in the operation of a new facility, and that resources be devoted to this aspect of facility design and construction.



Corrections professionals have good intentions for the effective planning, design and construction of functional correctional facilities. However, the profession lacks many of the essential elements of the planning process: better definition of goals, improved communication among planners, correctional administrators and architects, and continuity of oversight throughout the planning, design and construction process. Many of the difficulties encountered in planning for, building and operating new correctional institutions can be traced back to decisionmaking and planning processes in which departments of corrections have had limited influence and input. Many of the restrictions or impediments to successful department of corrections involvement can be linked to the structure and mechanisms for controlling and administering state funds, the political environment in which such activities occur, pressures common to the criminal justice system, and a failure on the part of the departments of corrections to commit the necessary time and expertise to actively participate in the process of building facilities for their own use. As these problems are addressed, improvements should be possible in construction of correctional facilities which will meet the needs of the users.

## Chapter 1

### INTRODUCTION

After one of the most extensive studies of correctional facilities construction and operation in the United States, the National Clearinghouse on Criminal Justice Planning and Architecture found that, "differences between concepts of operation upon which a facility is designed and the concepts of operation upon which it is run can lead to significant functional breakdowns and serious damage to the building." (1) In tracing the history of prison design and construction, Johnston clearly illustrates the manner in which society's attitude toward crime and punishment has influenced the design of prisons. (2) He points out that, as the size of prisons has increased and programming options for residents have grown to entail more than work or confinement in cells, there has evolved a need for more sophisticated designs that can cope with complicated and increased movement of inmates within the institution. In his review of prison architecture, Johnston provides insight as to the inappropriateness of facilities designed and built to accommodate treatment philosophies and practices of one era when called on to support, let alone complement, programs based upon different theses of another era. Conklin echoes these observations in referring to the majority of justice facilities in use today as inflexible and ill suited to accommodate contemporary penal philosophy and function. (3)

Prison design has always been in a state of change. Correctional architecture is well illustrated by the various institutions proclaimed as "state-of-the-art" facilities at the time they opened, which later succumbed to problems such as competing philosophies, crowding, political interference, and lack of resources to carry out the intended mission. Such model programs include the Walnut Street Jail in Philadelphia and the New York City House of Detention which was opened in 1935 and cited as the model for the nation. It was known as the "Tombs" at the time of its closing in 1975 and is now being completely renovated to become a "new generation" jail.

The history of correctional institution development provides ample evidence of various attempts to incorporate competing correctional needs and philosophies into institutional design. The life span of an institution is frequently given as 30 years, yet almost one-fifth of the correctional institutions in use today were built before 1925. The historical shift from security to emphasis on programs of rehabilitation that began in the 1940's has caused problems in the use of these facilities.

Participation in programs reduced the isolation of prisoners from one another and from staff, increased inmate mobility and placed new demands on supervision and control. New prison designs were developed to cope with treatment programs and related organizational and staffing needs. Recent trends have created a different set of problems as facilities designed for rehabilitation have been required to shift to an emphasis on security. As a consequence, some institutions are again operating contrary to their design philosophy, with the focus on control of inmate activity and decentralized services and programs for small groups of inmates. Diversion programs, coupled with increased use of the least restrictive sanctions for less serious offenders and longer sentences for serious offenders have increased the number of serious offenders in prison populations. Dealing with this more serious, longer term group of inmates has increased the problems of treatment and control. Attempting to manage such a population in an institution that is inappropriate in design has caused serious security and management problems. The need for careful planning in order to meet changing needs and competing philosophies of treatment and security for such populations is a critical problem in all areas of corrections.

An objective of this study was to document the planning, design and construction process for new institutions in 15 states. The recommendations made are intended to assist in the development of a greater understanding of the process and to promote productive communication between the correctional community and the architects, builders, and others who create correctional institutions.

### 1.0 Experience in Design and Construction

Despite the existence of over 600 adult long-term correctional institutions, with over 150 of these built in the last ten years, there has been little effort to accumulate,

record and disseminate knowledge and experience in correctional facility planning, design and construction.(4) In the 1970's the National Clearinghouse on Criminal Justice Planning and Architecture (NCCJPA) conducted the most comprehensive work on this topic to date, developing information and guidelines for correctional facility architecture. The Clearinghouse, under the auspices of the Law Enforcement Assistance Administration, introduced the "advanced practices" model for institutions, advocating a "normalized" living environment for inmates.(5) Over ten years have passed with no systematic evaluation of these institutions and the process for their planning and construction. The issues, problems and experiences in moving from a definition of needs, to concept, to design and construction, as well as operational problems, have not been systematically addressed and documented.

During this same period, Nagel and Johnston reported on a study of the correctional institution and prison architecture after touring 100 institutions across the country.(6) While the research did result in a number of recommendations for prison construction, Nagel's conclusion was somewhat disheartening:

When we first started this study we had in mind producing a very precise guidebook for architects ... If we could, in our book describe the better jails, prisons, and training schools that we saw, we could then help correctional people and architects replicate that which is good and avoid that which is not good ... This we have not done for two reasons.

Such handbooks tend to freeze architectural and correctional concepts ... But the urbanization of the nation, the explosion of behavioral knowledge, the evolving drug culture, the politicizing of our prison population, the new consciousness about legal and civil rights, and many other dramatic changes all have produced a new set of correctional problems and concepts to which even the new institutions are ill equipped to handle ...

We did not produce a new handbook of contemporary correctional design for a second reason. Most of the institutions which we visited have seemed to us to be grossly ineffective, grossly dehumanizing, and grossly misleading in their

appearances. We conclude that they are mostly failures--programmatically and architecturally.

... We have no desire, therefore, to contribute to their replication. (7)

Aside from such efforts, few resources have been available to assist in the planning, design and construction of new correctional facilities. A number of recent events, however, have sparked renewed study of prison construction in the United States.

The early 1980's have witnessed epidemic prison overcrowding in the wake of an offender incarceration rate unprecedented in correctional history. In 1982 approximately three-fourths of the states showed deficits in bed space compared to rated capacities, with an average of 15 percent fewer beds than prisoners. (9) With a swing toward tougher public attitudes about crime and limited use of community treatment alternatives, many states have adopted more stringent sentencing practices, and several have abolished parole. These occurrences may further increase the number of incarcerated offenders.

Court intervention into correctional practices has resulted in challenges to conditions of confinement as measured against constitutional minima. (11) Currently 30 states and the District of Columbia are under court order to improve conditions in correctional facilities. (12) While judicial directives do not provide blueprints for prison construction, their demands can be translated into requirements for institutional design, construction and operation. (13)

For many of the reasons cited in the Abt report, American Prisons and Jails, prison populations are increasing at a rapid rate, having doubled in the years from 1971 to 1982. The study of conditions and costs of confinement indicates that 52,843 new beds were planned for federal and state systems between March 31, 1978, and December 31, 1982. The report shows capital outlays for federal, state, and local correctional facilities of \$416 million dollars for fiscal 1977. According to the report, estimated capital outlays for federal and state prison construction, renovation, or acquisition between March 31, 1978, and December 31, 1982, range from a low of \$692.1 million to a high of \$1,593.3 million, with a middle estimate of \$1,393.8 million. Jail construction figures are equally dramatic. (14)

The Criminal Justice Institute, based on questionnaire responses from directors of corrections for 1981, reports that 26 new facilities were opened in 21 states in 1981 along with one new federal facility. The total construction cost is reported as \$348 million dollars for 25 of these institutions, an average cost per institution of just under \$14 million. The total costs appear to exceed the national estimates. In the 27 new facilities 11,033 beds were built, at an average cost of \$32,494; 9,607 beds were added through additions or renovations to existing facilities at an average cost of \$10,807 per bed. A total of 20,640 beds were added to existing correctional bed space in 1981. (15)

The pace has not slowed. At the start of 1982, prison construction estimated to require \$1.5 billion dollars in funding was under consideration or slated for consideration by state legislatures. (16) A 1982 Gallup Poll indicated that the public, by a 2 to 1 margin believes their own states need more prisons and are willing to pay more taxes to get them. (17) In California seven new "prison complexes" are planned, including a major expansion of community facilities at an estimated cost of \$945 million dollars. Voters approved \$495 million in new prison construction bonds in June of 1982, which will provide about half the funds needed. (18) Projections are based on the 1983 Facilities Master Plan, which indicates more of the same:

Even this mammoth program will not really ease prison overcrowding, the plan warns, but merely enable the Department to "keep pace". Conservative population projections predict that the prison population will nearly double in the next five years. (19)

New York State defeated a \$500 million bond initiative for prison construction in 1982. But the urgency of increased population pressures has led to expansion and additional capital expenditures:

Governor Mario Cuomo...is proposing to find nearly 7,000 new cells over the next three years in order to close down prisons at two locations and reduce crowding at others. Population in the state's nearly 40 prisons has been running at 112% of capacity this winter...The three-year plan, which will cost between \$200 and \$300 million, is to be financed in part by the sale of bonds by the state's Urban Development Corporation. [The governor's 1983-84 budget] request

includes \$66.7 million for new capital projects, ...an additional \$3.6 million in new appropriations to supplement the cost of expansion projects already under way and \$22.1 million for repairs and renovations at existing prisons. (20)

Fiscal support for the construction of correctional facilities was recommended by the United States Attorney General's Task Force on Violent Crime in 1981. However, it is difficult to predict what will happen with recommendations of this type.

Several organizations are now responding to the need for information to assist in the construction of new facilities. The American Correctional Association, with the National Institute of Corrections developed design criteria for correctional facilities. (23) Also, a complementary monograph series on correctional facility design has been prepared by the NIC. Training programs for correctional staffs responsible for new facilities construction have been developed and implemented at the National Corrections Academy, sponsored by the National Institute of Corrections. The Committee on Architecture for Justice of the American Institute of Architects, initiated in 1972, has grown in membership and continues to work for the development of standards, research programs and policy for prison and local detention facility construction. (24)

### 1.1 Research Objectives

This report presents the results of a one-year study of the planning, design and construction process for a limited number of adult correctional institutions. The publication is intended for use by correctional administrators and managers responsible for building new facilities, and as such it explores the issues, problems and trends in correctional facility construction. With the goal of defining a planning, design and construction process that will minimize costs and problems associated with the construction and operation of new institutions, the report contains:

- a description of existing practices and processes for the planning, design and construction of new correctional facilities;
- a description of the interaction between representatives of departments of corrections' and legislative, executive and administrative branches of the government that play key roles in the process;

- illustrations and discussion of critical tasks and decision points in the planning, design and construction process where decisions and activities were found to result in planning delays, cost overruns, or construction of facilities that fail to meet operational expectations;
- a description of methods and practices that states have found to be useful in building new facilities, including recommendations for coordinating, controlling and monitoring planning, design and construction activities.

A number of related topics are addressed, such as issues to consider in selection of materials, hardware and equipment, including security components, the use of prototype designs, considerations in use of prefabricated or modular types of construction, and the use of standards in design and construction.

This is not a planning document. The steps involved in planning and programming, design techniques and construction methods are well documented in other sources, which will be referenced where applicable. All too often, faith has been placed in recipes or models with the expectation of an assured outcome without full consideration of external issues and situational realities. It is these dynamics--the human and political factors, the competing philosophies, and the design trends as they relate to correctional thinking--that will be examined and reviewed in this report. The goal is the development of a common ground on which both corrections and architecture can meet and communicate, to the benefit of both.

### 1.2 Data Collection: Description of Facilities and Programs Studied

Information for the study was obtained through a lengthy mail/telephone survey completed by individuals responsible for new facilities' construction in 15 states. Survey information was supplemented by visits to three states where Commission on Accreditation for Corrections project staff toured recently-opened institutions and spoke with department of corrections (DOC) project managers, representatives of state agencies involved in the administration of correctional building projects, project architects, contractors and facility operations



staff regarding the planning, design, construction and operation of the facility. (Additional information on data collection and research methodology can be found in Appendix A of the report).

All of the facilities described in the survey were occupied after 1977, most having been opened in 1981. In terms of operating mission, designed capacities, physical plant and staff complements, facilities surveyed were quite diverse. Many of the institutions reported the capability to house inmates of all security levels, containing a mix of rooms/cells designed for maximum, medium and minimum security inmates, with a few facilities having dormitories. Reported designed capacities ranged from 180 to 1,335 inmates (the latter, a facility with several satellite units). One-half of the facilities surveyed were designed to house fewer than 500 residents. Slightly over one-half of the respondents indicated that the institution was filled beyond its designed capacity, and others foresaw increasing resident populations that would exceed the rated capacity.

An overall look at the surveyed institutions reveals the largest group of respondents describing a facility exhibiting characteristics common to the "advanced practices" model. These facilities are characterized by cluster housing units or modules with accessible dayroom space; use of doors, windows and walls (versus bars) representing attempts to provide a "normalized" environment; single room occupancy (although one-third of the facilities had begun to double bunk in the rooms), with most rooms providing 70-80 square feet of floor-space. Reported gross square feet of space per inmate ranged from 352 to 833. Three-quarters of the institutions considered the American Correctional Association (ACA/CAC) standards in their design. As previously noted, in terms of mission, use and physical plant, the facilities surveyed varied considerably to include a high-security or special offender unit, a renovated mental health facility and two diagnostic-reception units. About one-half of the institutions included medical/hospital units.

Costs for construction (or in one case, renovation) of the facilities ranged from three and one-half million to thirty-one million dollars. The cost differential in most cases was explained by factors such as facility size, security level, hardware needs, and special units or design characteristics. In half of the surveys, reported final costs exceeded the initial budget allocation for construction.

The average length of time reported from the start of planning until occupation of the facilities was four to five years, excluding those cases where the length of planning phases was reduced by use of existing prototype plans and specifications, or fairly extensive system master plans. In general, one-half of the project duration was spent in planning and the other half in construction.

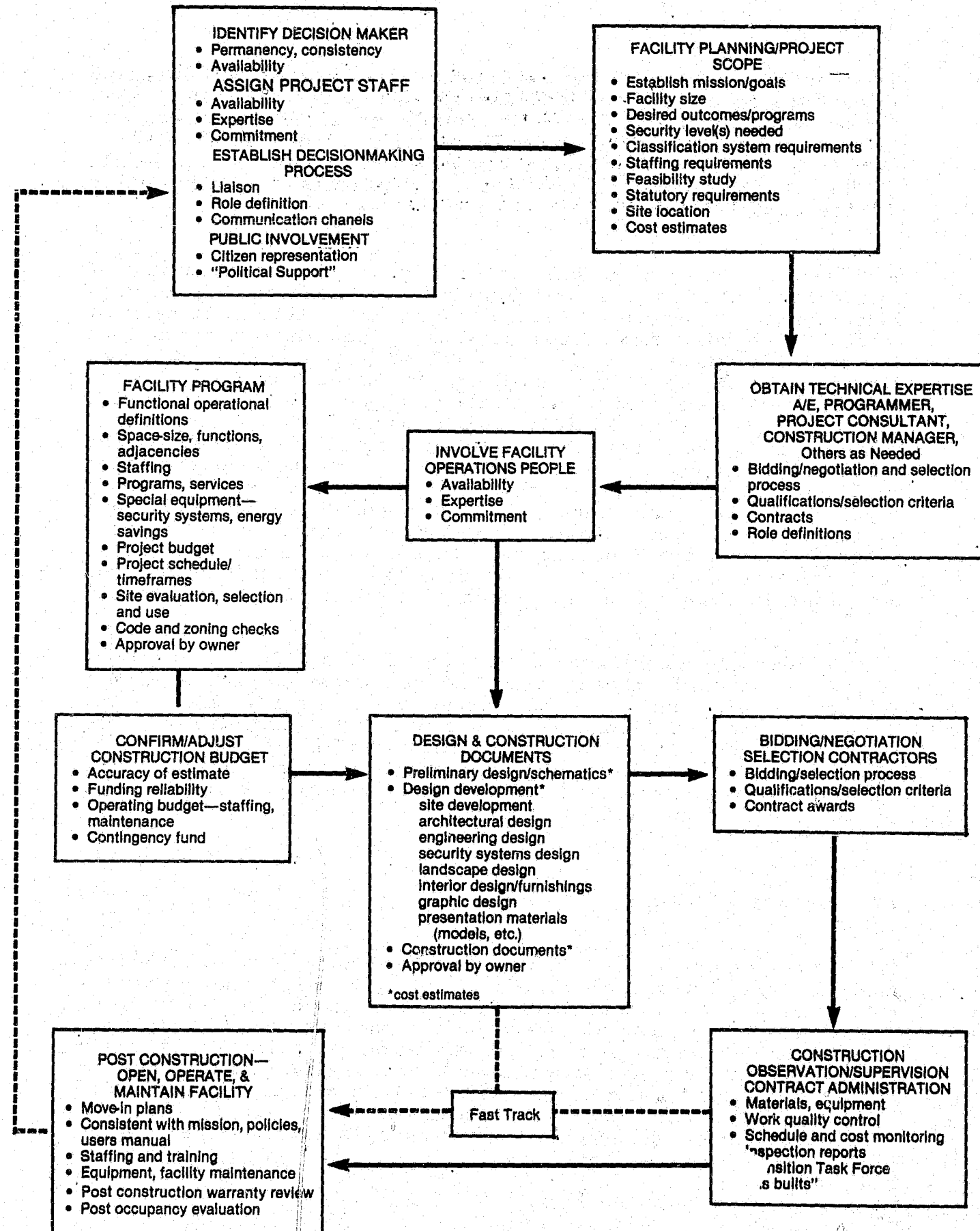
Most respondent states had units within the departments of corrections that had responsibility for managing facilities construction projects. Generally found within offices of capital programs, facilities services, planning or operations and administered at the deputy director level in the DOC, the divisions were usually comprised of three to ten people. Staffing included individuals with backgrounds in engineering and a staff member familiar with operations of the state corrections system and its individual facilities. Some of the units also supported an architect. For new construction projects, these staff worked closely with state agency representatives (the department of general services, state building commission, capital development unit, etc.) project architects, and other DOC staff. In addition to new facilities construction, the units usually had responsibility for maintenance, repair and renovation of existing DOC facilities.

Of considerable significance was the finding that in most of the DOC's studied, these units did not exist at the time the facilities discussed in the survey were planned and built. Many of the difficulties described by respondents were recognized and dealt with through the creation of them. In most cases these units were making good progress in the planning for new facilities and renovations and in the tracking and coordination of current construction.

### 1.3 Organization of the Report

The organization of the report, for the most part, will follow the flow chart of steps in the planning, design and construction process for new institutions, illustrated in Figure 1.1. The model is intended to establish a common reference point for discussion; it assumes that the decision to build has already been made and does not suggest that the process always does or should occur as illustrated. Chapter 2 describes processes for new facility planning and decisionmaking, including the facility program and special issues such as architect/engineer

**Figure 1.1 Planning, Design and Construction Flow Chart**



selection, facility site selection, staffing for the institution and cost and funding considerations. Chapter 3 addresses facility design and hardware selection concerns. Contract administration and construction are discussed in Chapter 4. Considerations in opening and maintaining the new facility are presented in Chapter 5. Chapter 6 considers special topics, including prototype designs and modular/prefabricated units.

### Chapter 1 Notes

1. Law Enforcement Assistance Administration, Advanced Design Criteria for Secure Juvenile and Adult Detention and Correctional Facilities LEAA Program Brief DRAFT, March 1981, p. 28.
2. Norman Johnston, The Human Cage: A Brief History of Prison Architecture (New York: Walker & Company, 1973).
3. Richard G. Conklin, "In Support of the Criminal Justice Reform Act," Statement presented to the Committee on the Judiciary Criminal Law Subcommittee, United States Senate, June 8, 1981. Copies available from the American Institute of Architects, Washington, D. C.
4. Joan Mullen and Bradford Smith (Principal Authors), American Prisons and Jails, Volume III: Conditions and Costs of Confinement (Washington, D. C.: U. S. Department of Justice, National Institute of Justice, October 1980), p. 23; Jerrold K. Footlick, "Lock 'Em Up-- But Where?" Newsweek, March 23, 1981, p. 54.
5. For information on clearinghouse work, see John Blackmore, "Prison Architecture: Are 'Advanced Practices' Dead?" Corrections Magazine, September 1978, pp. 42-47; Law Enforcement Assistance Administration, op. cit., note 1; and National Clearinghouse for Criminal Justice Planning and Architecture, Architectural Standards for Adult Detention and Corrections Facilities (Champaign, Illinois: University of Illinois, 1978). Additional writings on prison style and architecture include those by John Blackmore, "An Architect's Sampler of U. S. Prisons," Corrections Magazine, September 1978, pp. 48-53; The Institute for Study of Crime and Delinquency, The Non-Prison: A Rational Correctional Program (Sacramento: ISCD, 1970); and Buddy Mear, Max E. Williams, J. Tom Brakefield and Barbara Gray, Prisons: An Architectural Notebook (Los Angeles: Pereira Associates and Benham-Blair & Affiliates, Inc., Circa 1978).
6. Norman Johnston, op. cit., note 2; William G. Nagel, The New Red Barn: A Critical Look at the Modern American Prison (New York: Walker & Company, 1973).
7. Ibid., Nagel, pp. 176-178.
8. U. S. Department of Justice, Bureau of Justice

- Statistics, Bulletin, "Prisoners 1925-1981", December 1982; Aric Press, et al, "The Plague of Violent Crime," Newsweek, March 23, 1981, pp. 23, 47-54.
9. George and Camille Camp and Virginia Krieger, The Corrections Yearbook, 1983 (Pound Ridge, New York: Criminal Justice Institute, Inc. 1982).
  10. John P. Conrad, "The Dim View at the Crossroads," Address presented at a Kansas Conference, Prisons Politics, and Fiscal Pressures, Topeka, September 29-30, 1977, printed by the National Clearinghouse for Criminal Justice Planning and Architecture, Champaign, Illinois; U. S. Department of Justice, National Institute of Corrections, The Impact of Determinate Sentencing on Corrections, (Washington, D. C.: U. S. Government Printing Office, July 1980).
  11. Joan Mullen, Kenneth Carlson and Bradford Smith (Principal Authors) American Prisons and Jails, Volume I: Summary and Policy Implications of a National Survey (Washington, D. C.: U. S. Department of Justice, National Institute of Justice, October, 1980). Also see Charles M. Friel, Harriet J. Allie, Barbara A. Hart and James B. Moore, Correctional Data Systems Analysis (Washington, D. C.: U. S. Department of Justice, 1980); Rod Miller and Ralph Nichols, Small Jail Resource Manual, (Kents Hill, Maine: Community Resource Service, Inc., July, 1981) for a synopsis of case law pertaining to correctional practices.
  12. Corrections Digest, February 23, 1983, Annandale, Virginia: Washington Crime News Services.
  13. National Clearinghouse for Criminal Justice Planning and Architecture, The High Cost of Building Unconstitutional Jails (Champaign, Illinois: University of Illinois, 1977).
  14. Joan Mullen and Bradford Smith, op. cit., note 4, pp. 79-80, 120, 136.
  15. George and Camille Camp, The Corrections Yearbook, 1982 (Pound Ridge, New York: Criminal Justice Institute, Inc. 1982).
  16. National Institute of Corrections Information Center, Telephone Survey, October 1981.
  17. Corrections Digest, April 9, 1982, Annandale, Virginia: Washington Crime News Services.

18. Newscom, March 1983, Sacramento: California Department of Corrections.
19. Ibid., p. 4
20. Update 2, February 1983, Albany: New York State Coalition for Criminal Justice, Inc.
21. U. S. Department of Justice, Attorney General's Task Force on Violent Crime Final Report (Washington, D. C.: U. S. Government Printing Office, August 17, 1981).
22. Congressional Record, 97th Congress of the United States, Senate Bill S. 186 introduced by Senator Dole, Vol. 27, No. 11 (Wednesday, January 21, 1981).
23. American Correctional Association, Design Guide for Secure Adult Correctional Facilities (College Park, Maryland: ACA, 1983).
24. See The American Institute of Architects, Architecture for Justice Committee, 1980 Design Resource File: Planning Justice Facilities (Washington, D. C.: AIA, September 1980).

## Chapter 2

### PLANNING AND DECISIONMAKING IN FACILITY CONSTRUCTION

The planning, design and construction of a correctional institution which will be in use for 30 to 100 years requires a sound planning and decisionmaking process. It cannot be done on a part-time or intermittent basis or by people unfamiliar with the operation of correctional institutions. To the extent possible it must be free of political influence and bureaucratic gamesmanship. Cost cutting at the expense of future operational concerns, siting tug-of-wars and rejection of humane design features that may appear as frills have all posed impediments to good prison planning and construction. Problems and major delays due to these problems have resulted in considerable dollar losses and in both frustration and demoralization for those who must operate substandard or nonfunctional facilities.

Good planning and decisionmaking does not guarantee success in the design and construction of new facilities or the renovation of existing ones; however, it can increase the chances of building functional institutions.\* Failures in planning and decisionmaking are related to the fact that there is no perfect design, model or prototype facility. There are also limits to the ability to amicably or successfully resolve competing objectives without compromise. And often the attempt to meet competing objectives through sound planning and decisionmaking processes is thwarted by political or bureaucratic influences beyond the control of the participants.

---

\*A functional facility operates consistent with its mission statement and provides the following: a greater sense of safety for staff and inmates, less destructive (or "normalized") inmate behavior, minimal staff turnover through greater worker satisfaction, a physical plant which operates efficiently with minimal maintenance problems, and a more humane and positive environment based on the implementation of design concepts consistent with the standards of good practice of the field.



## 2.0 The Politics of New Construction

The diffusion of power and responsibility among government agencies, including complex approval processes and turnovers in agency personnel, have often contributed to costly project delays. (1) One of the most difficult problems encountered in the course of the study was the effect of the political process on the planning, design and construction of correctional institutions. As a part of the executive branch of government, the department of corrections must work through the governor and the governor's staff to present acceptable programs to the legislature. Without the understanding and support of the legislature, programs will not be funded. A common complaint of legislators is that their concerns are not addressed by department of corrections officials.

There is a critical need for correctional officials and staff considering new construction to understand the working steps in government---the legislative process, the system for approval of expenditures, and the avenues of approach to the governor or staff, local citizen's groups, and others who influence the governmental process. An understanding of the process is of special importance during the initial approval and funding stages to ensure adequate funds for construction and for continued staffing, operation and maintenance of the institution. Such support is also vital to endorsement of the design and operating philosophy, and for support during site selection, selection of professional services, bidding on construction, and in implementing opening and start-up plans.

The construction of new facilities is a particularly sensitive issue due to the large initial expenditures involved and the public reaction to the location of these facilities. For these reasons department of corrections leadership must be in a position to evaluate legislative and public concerns and propose solutions that will meet a wide range of needs. In a public climate stressing offender punishment, for example, corrections officials must emphasize public safety and deemphasize offender rehabilitation while continuing to provide basic programs, such as work and education.

In one jurisdiction included in the study, an administrator who had been with the department of corrections for several years spoke candidly about past failures in working with executive and legislative branches of government. In the mid-1970's several facilities had been constructed based on a prototype design for minimum to medium security units that emphasized

treatment and rehabilitation programs. The planning for the facilities had been done without consultation with appropriate representatives of the executive or legislative branches of government. The plan was presented to the public without full support of key state fiscal and personnel officials, nor the leadership of legislative committees. Thus, while planning for the new correctional facilities was not integrated with other state planning, department of corrections officials proceeded with the project based on three assumptions: that the treatment philosophy which was in place at the time of the prototype design (mid-1970's) would not change; that the facilities would be located in urban areas to allow hiring of needed educational/vocational staff; and that the treatment plan would be adopted in all its particulars. The architect, following the guidelines of the treatment concept, developed the prototype institution.

At this time only one of the facilities operates as intended. All but one of the facilities are located in rural settings, and the one placed in an urban area is being used as a reception/classification center. Also, as the public/legislative climate changed to emphasize greater security, the facilities were found wanting. The program and design concept used in building the facilities now requires greater staffing than originally budgeted. Increased security levels have been difficult to achieve due to budget restrictions, and programs have been difficult to implement due to the rural settings of the facilities. It is now recognized that the facilities were designed for too singular a purpose and that the treatment plan should not have preceded both security considerations and the politics of site selection. Neither the goals of the department nor the legislature have been met.

In the state in question, the current corrections plan does involve key executive and legislative representatives. It is being presented informally to these persons prior to public discussion. As part of the process the governor has been urged to state a public corrections policy consistent with the new plan. Most important, however, has been the desire and ability of corrections staff to "test" the plan and present alternatives to it. This is particularly important with respect to costs. For example, the new plan presents the cost differentials between prefabricated modular construction and traditional cast-in-place concrete construction for a medium security facility. (See the discussion of modular units in Chapter 6.) The new plan also addresses the need for flexibility in meeting security needs across the system. The experience in building the prototype minimum-medium facilities

has, therefore, led to an understanding of the political structure and resulted in a pattern of new facility construction that will meet a variety of correctional needs.

Based on this type of experience, suggestions for working within the political environment entail providing government officials with timely information about correctional policy issues and variables. Plans that require funding and continued support should present well thought-out options backed by recommendations that support department of corrections' preferences. Failure to do so has invariably led to difficulties down the road, particularly in obtaining the support and resources required to open and operate facilities as planned. Responsibility for managing the politics of new construction rests with the chief executive officer of the department of corrections.

## 2.1 The Decisionmaking and Management Process

The lack of continuity in project planning and decisionmaking stands out as one of the most critical problems in correctional facility construction. Specifically, this is related to changes in philosophy, project plans and design by key decisionmakers and the turnover of project administrators, usually the director of the department of corrections. The resulting failure to proceed with projects as planned has resulted in elevated project costs, extended schedules, and the use and operation of facilities in ways which differ considerably from the original intent.

The average tenure of under two years for department of corrections' administrators, leading to the high turnover of project decisionmakers, and the resulting changes in philosophy and mission for the new facility rank highest among problems in the planning, design and construction of correctional institutions. (2, 3) The extension of project timelines for planning, delays in obtaining approvals, and the inability to find someone to make project decisions have been linked to decisionmaker turnover. The most costly design changes clearly reveal changes in philosophy and the function of the facility and are often preceded by a change in the department of corrections administrator.

In order to maintain project continuity, the project manager should not be affected by changes in department administrators. It is essential that the project manager have the appropriate authority and responsibility to provide the necessary continuity during administrative changes. The manager must provide the new administrator with the history of the planning, and provide advice and counsel concerning the problems and solutions to the construction as it has been experienced. The manager is the vital link between changing administrations, and the knowledge and experience gained are invaluable in making certain that the prior planning, and current experiences and knowledge, are used to see that prior planning and current experience are not lost, and that the construction is not delayed.

The role of project manager may be delegated by the director of the department of corrections to a qualified individual, or if the project is managed by a state administrative agency (department of general services, capital development board, etc.) the responsibility may rest with an individual who deals with correctional construction projects. The outcome of correctional facility construction projects illustrates how planning and design decisions necessary to the creation of a functional facility have not been made by the persons who will have to live with and work in correctional institutions. When consultation with experienced personnel does occur, communication of information to the programmer/ designer is often hampered by poorly defined channels of communication or by lack of timely and consistent decisionmaking. For this reason, it is suggested that a project manager be located in the department of corrections to maintain appropriate liaison with the state general services department and other units of government required for project completion. When project management occurs outside of the department, a strong liaison must be maintained.

A related concern involves project planning and design stages in which the knowledge and experience of correctional facility staff may be used minimally or not at all. In particular, when planning and design call for a thorough analysis of facility operations, those who work in institutions can be a valuable resource for obtaining information on problems and successful applications in facility design that influence day-to-day operations. For example, security staff can make significant contributions to design where it may affect lines of sight, population traffic control, control room equipment use and placement, and elimination of dead space. Security staff and maintenance personnel will be acutely aware of details, such as

the placement of fire alarms and thermostat controls, or the use of particular locking systems, door handles and lighting fixtures in terms of maintenance, complexity of operations and vulnerability to inmate tampering. The need to consult facility staffs in institutional planning and to ensure communication of their concerns to the designer was a recurring theme in the study and will be emphasized throughout the report.

Many states have made considerable progress in stabilizing project administration and decisionmaking through the creation of "project management units" within the departments of correction. This has involved establishment of a permanent staff knowledgeable about operating channels and capable of keeping records on new construction, renovation and repairs to all facilities in the system. These units have been shown to provide continuity in project decisionmaking, improve coordination with others working on the project, allow input from corrections practitioners and represent the interests and experience of the department of corrections to all project principals.

These multi-disciplinary units should be staffed by individuals with experience in construction contract administration, architectural or engineering backgrounds and a knowledge of the operations and maintenance requirements of correctional facilities. The size of the unit should be allowed to fluctuate depending on the size of the building program at a given time. For large departments with continuing construction needs, or for periods of maximum construction in small departments, the following staff are recommended, at a minimum: an architect, engineers, to include electrical, mechanical, structural, and civil engineering specialties, an individual with construction experience and/or project management skills, and a department of corrections administrator/practitioner. Additional services will also be required from individuals with expertise in budget/fiscal matters, personnel, and security requirements. Correctional staff with experience in facility operations can be part of the unit or incorporated into the unit as a "team" when needed. The temporary use of personnel is most important in specialty areas such as medical services, education, industries, and food service; due to the importance of security operations, the long-term use of a person with such expertise is preferable.

Recommendations for stabilizing decisionmaking and project management include:

1. From the start of the project, the key decisionmaker or project administrator is known to staff and principals involved in the planning, design, and construction for the new facility. The project administrator is the director of the user agency--the department of corrections--or an individual with the authority to make final decisions (e.g., mission statement, funding commitments, staff assignments, etc.) for the DOC concerning the project.
2. The project administrator initiates and maintains contact with key government officials to obtain support for project goals and activities.
3. Through continuous involvement in planning for the project, the project administrator ensures that planning and objectives for the facility are consistent with the philosophy and goals of the corrections system of which it is a part.
4. The project administrator participates in planning and budget preparation to ensure availability of staff and resources to support the continued operation and maintenance of the completed facility.
5. The project administrator or qualified designee has final approval power over project plans and ensuing project work, after consultation with the owner and/or appropriate funding officials and project staff.
6. The project administrator appoints or contracts with a full-time project manager who has specialized knowledge or experience in managing the correctional facility planning, design and construction process; this person has access to staff or consultants familiar with the following:

- project management skills and techniques;
  - organization of the owner and user agencies;
  - budget preparation and maintenance;
  - staffing, operating and maintenance requirements of a correctional facility;
  - construction contracting, bidding and negotiations;
  - architectural programming;
  - correctional facility construction; and
  - architecture/engineering.
7. Selection criteria for the project manager includes consideration of the individual's commitment to remain with the project for its duration (approximately 5 years).
  8. The project manager, staff and principals develop and maintain a written plan that is approved by the project administrator which:
    - delineates project staff and principals;
    - designates roles/tasks to be performed by each;
    - contains a task/time schedule; and
    - includes an organizational chart that clearly establishes communication channels.
  9. The project manager is authorized to make decisions in the absence of the project administrator, consistent with project plans.
  10. The project manager possesses and implements management skills and knowledge of techniques for planning, controlling and scheduling project activities:

- Maintains channels of communication between project staff and principals, assuring at all times that principals are informed of department of corrections needs and decisions.
  - Coordinates project activities and schedules and conducts meetings on a weekly, monthly, or as needed basis, with project staff and principals. Written minutes of project meetings that reflect decisions about project work are kept by the project manager and made available to project principals.
  - Organizes and coordinates facility personnel to participate in the formulation of the architectural program and design, selection of hardware and equipment, and development of policy, procedure and programs for the facility. Facility staff members, such as the facility administrator, chief of institutional security, maintenance supervisor and program directors are involved in facility design and programming.
  - Attends to the schedule of activities to assure timely delivery of products for which the owner/user is given responsibility in the contract and supplementary agreements.
  - Monitors and controls budget expenditures.
11. The department of corrections assures continuing training of replacement staff for the project management unit.

## 2.2 The Planning Process

In this report planning refers to all activities that occur following the decision to build through the completion of construction documents. Several basic elements of the planning



process will be discussed in this chapter: the use of studies and information defining needs of the correctional system and the new facility; the preliminary budget request or scope statement; and the architectural program. Design issues are addressed in the following chapter. It is not suggested that planning always follows this sequence, although these divisions of activity represent tasks that incorporate increasing detail in establishing facility needs and the response to them. Included in the discussion of the planning process and responsibilities of those involved, several issues will be raised in examining planning for new facilities:

- The process and problems in cost estimating, obtaining project funds and budget control;
- Consideration of facility costs and staffing in planning for the new facility;
- Siting for the new facility; and
- Selection of professional design services.

For reasons that have been stated in relation to the decision-making process, planning for a new correctional facility often exceeds several years time. Poor planning can cause delays that extend project schedules, prematurely exhaust budgets, cause confusion about institutional mission and result in a facility designed to meet needs defined five or more years before its completion. The average length of time given for the planning phase of projects studied was two to three years, with a range of ten months to four years. Planning time was shortest when plans and specifications were based on a model or prototype and when existing master plans or systems studies defined needs and expectations for the new facility.

Ideally, facility planning begins with the use of studies or plans that address the needs of the correctional system. Sometimes the basis for new facility planning is part of state systems studies or master plans, but often the need for an institution is established with the governor or legislature solely through use of population projections that fail to consider alternatives, or the relationship of the proposed institution to a carefully thought out plan that considers the total system. Proposals for new construction often have not included feasibility studies that contain analysis of life cycle costs or expectations for future use of the institution. Rather, factors such as political considerations, economic limits and perceptions of public opinion may be the key determinants in prison planning. The description of proposals to build a new institution in Maryland, illustrated in the

articles contained in Appendix B captures the elements of planning that relies primarily on limited population studies, political considerations and public reaction.

While a state master plan may not necessarily be required, basic information on correctional populations, future trends and alternatives must be considered in planning for new institutions. Specific planning for a new facility should incorporate information from those efforts which led to the decision to build. Data should be current and plans must be endorsed by those that have decisionmaking authority for the project. Presumably the type of institution to be built will be derived from these types of data. Such information is often generated by a research and development unit within the department of corrections or by independent consultants brought in for this purpose. It frequently occurs that the basic rationale for the facility is lost in transmittal of information to the programmer and/or designer, contributing considerably to confusion about the mission of the institution or duplication of efforts. The need for continuity and communication in institutional planning starts from day one, particularly in bringing departmental expertise to the process.

## 2.2.1 Cost Estimating and the Funding Process

Cost overruns and cost constraints are major problems in correctional facility construction, and are usually due to inaccurate cost estimates.<sup>(5)</sup> The correctional planner is placed at a disadvantage at the beginning of the process because all too often the question of cost precedes the question of need. Although it is reasonable to begin with a general figure of projected cost that answers the question of how much money is available or what it will cost for a new institution, the arbitrary constraints imposed by a "ball park" figure should not be the controlling factors at the beginning of the planning process. The basic questions should be: what is needed? What purpose(s) will it serve? What kinds of programs and security requirements should be addressed? Cost is a factor that needs to be examined at each step in the development of the architectural program, and revisions to the program should be made after final costs are computed. The final architectural program may be a compromise between what is wanted or needed and what is affordable. However, it should be an intelligent compromise, based on an examination of alternative solutions and consequences. Budget overruns may be related to delays in project funding, planning and bid stages that result in inflationary costs. In particular, time lags

between requesting and obtaining funds or delays between funding allocation and the start of work after completing planning have resulted from problems in working through the legislative process. In one instance, six years elapsed between allocation of funds and start of work.

To a certain extent, difficulties with cost and funding estimates result from the scarcity of information on costs of correctional construction and the many variables which may effect costs.(6) Cost estimates can be divided into three categories:

- first costs, or construction costs, to include "the cost of constructing the building, including land, professional fees, permit fees, and other associated costs of construction--the amount of money you pay to open the door of your facility";
- operating costs to include "the costs of staff, utilities, on-going plant maintenance, providing services such as food and medical care, or other recurrent costs associated with running the facility"; and
- life cycle costs, to include "all of the costs incurred by a building owner during the various stages of a project . . . from the capital investment in land, construction and financing to the eventual costs of salvage and disposal of the building." (7)

The primary concern of this chapter is first costs; operating costs are addressed in Chapter 6. Formulas are available for estimating first costs, although the most difficult step is determining a realistic unit cost to use in making the calculation.(8) This must be done by surveying other recent local projects and then adjusting for inflation to a current cost or by consulting an estimating publication or service. Some data is available which provides average cost information for correctional facility construction, although these data vary widely. Figures may represent average facility costs, such as those contained in this report, or average unit costs--cost per square foot or cost per bed. Even when available, these figures alone do not allow for accurate estimates without additional information on factors such as materials and labor costs per region, type or security level and program of the facility, project duration and inflation rate, and activities

and products included in the cost estimate. (Does the total budget include planning costs, professional design fees, administrative services, site acquisition and development, equipment, furnishings, etc.?)

The process for requesting funds for correctional facility construction often does not include mechanisms to ensure that the appropriate skills and techniques are applied in developing cost estimates and that the project has been well enough defined to identify true costs. The preliminary budget request is often part of a project "scope" statement that contains the minimum amount of information necessary to justify the budget expenditure to the legislature and other approving bodies. While far more detail will be provided in developing the facility architectural program, the initial budget request should be comprehensive enough to establish accurate funding needs based on requirements for the facility. The incorporation of previous systemwide planning is essential to this process because of the need to establish philosophy and priorities for the proposed facility as well as expectations for facility size, security levels, classification system requirements, programs, special features and site proposals. These issues and others will affect the design, functions, appearance, operation, and specifically the cost of the institution.

Initial budget estimates for the facilities surveyed were most often developed by the project architect or the state administrative agency in conjunction with the governor's staff. Many were done as part of "scope" statements designed to begin the funding process. While working in departments familiar with construction budget estimating methods, often the persons developing these statements operated with limited knowledge of corrections and would miss key factors affecting costs. On the other hand, in several cases preparation of the facility budget request was performed by department of corrections personnel who had never worked on a construction project.

If the budget for construction is to be developed based solely on the information provided in a project scope statement prior to architectural program development, the following concerns should be observed:

1. The preliminary planning or scope statement should be comprehensive enough in defining needs and desires (in terms of space, size, functions, programs, security requirements) that a funding request can

be developed that accurately reflects the costs of what is truly wanted.

2. Cost estimating, for purposes of funding requests must be done using the appropriate expertise, time, and attention. A number of sources such as digests and engineering periodicals contain current figures and formulas for estimating conventional construction costs based on materials and labor costs by region. Information on correctional facility construction should also be researched through contacts and information sources within the correctional community.
3. Contingencies for error or changes in project scope must be built into the budget request. Uncertainty or a lack of well-defined needs may warrant an increase in budgetary provisions for change. Allowing for variance with project size, generous rule of thumb contingencies are: 15-20% of the planning budget, 10-15% of the design budget, and 3-7% of the construction budget.
4. All cost calculations for new facility construction must consider operating and life cycle costs.

Even when estimates and funding requests have been reasonably accurate, delays in funding, planning and bid stages can lead to increased costs at the time of construction, often necessitating deletions or modifications which can affect the usefulness of the facility (less storage space; poorer quality equipment; often less recreation, vocational, industrial or educational program space). Or a request for additional funds is necessary. Such requests are difficult to obtain, and the usual result has been design changes in the hope that they will lead to cost savings.

Rather than risk construction of a less than adequate facility based on a fixed appropriation, separate funding for facility planning and programming is recommended, followed by funding for design and construction based on planning decisions and results that clearly establish what is needed. This procedure will avoid cost overruns based on off-target estimates and time lags between the planning and construction process. However,

when several years elapse between planning and construction, and construction is based on an older cost estimate, overruns will still occur, as was the case in two facilities surveyed.

## 2.2.2 Facility Staffing

A major problem in planning for new facility construction was estimating facility staffing, particularly the numbers of correctional officers needed.<sup>(9)</sup> Similarly, costs of maintenance and daily operations often had not been adequately addressed prior to completion of the facility. Two-thirds of the facilities surveyed had insufficient numbers of staff. There have been recent instances of institutions, particularly jails, that have not been able to open due to errors in the original estimates of staff needs. Both program and design will influence staffing needs. The architectural program is a first cut at staff estimates. It is here that the determination will be made as to staffing ratios. However, the design, with its specific location of posts, related control points, and traffic control features, must be used to further refine the original staff estimates. Staffing for correctional officers is particularly critical, since the institution cannot operate without a method for inmate control. Program and administrative staff, while no less important, can be estimated with more certainty. Problems related to design implications for staffing are addressed in Chapter 3; staff skills and attitudes are addressed in Chapter 5.

## 2.2.3 Facility Siting

The politics of siting play a major role in facility planning, design and construction.<sup>(10)</sup> (See Appendices B and C for examples of siting issues.) Those responsible for obtaining an appropriate location for the facility face opposition in many communities. And even with communities vying for placement of a facility in their locality, selection may still be based on criteria other than those established by the department of corrections. The survey revealed more than one institution placed on land lacking the terrain characteristics, proximity to highway access and public transportation, adequate space, and availability of sewage and utilities preferred for institutional operation. The implications of a mismatch between the planned program for an institution and site location was illustrated earlier in this chapter. Ironically, inappropriate siting based on the desire to keep an institution

out of a locality can also occur when there is community pressure for placing a facility in an area which may see it as economically desirable. McGee has delineated many of the practical problems of siting and discussed the political basis for these types of decisions.(11) In indicating that "fear of harm from the inmates, economic anxiety, and civic pride" are concerns, he notes that facts and logic often contribute little to political decisions.

Suggestions from the earlier discussion about working within the political environment also apply to siting:

1. Initiate contact with key community representatives to inform community leaders about the potential plan and reduce opposition based on misinformation. While the grassroots approach to educating communities may be effective, the majority of respondents strongly favored the practice of starting with the most influential members of the community.
2. Prepare to respond to the traditional reactions to a correctional institution, and anticipate the problems of selecting an inappropriate site based on community needs.
3. Present a plan to decisionmakers that includes options backed by recommendations. This might include a list of site selection criteria and weighting for each variable.

#### 2.2.4 Architectural/Facility Program Development

More explicit than the preliminary budget planning document, or scope statement, but preceding design development is the completion of the architectural or facility program. While some confusion exists regarding this phase of planning, sometimes referred to also as the "pre-architectural" phase, for purpose of discussion "architectural program" will be used. The architectural program should tell the designer exactly what is expected of the facility in terms of functional and operational requirements.(12) Every aspect of the facility must be addressed, such as movement patterns, staffing patterns, security details, programs and services, overall space needs, housing configurations, and the like. Issues

addressed in preliminary planning, such as siting, staffing and overall goals, must again be addressed in more detail to show the designer what is needed. As will be discussed in Chapter 3, expectations or possibilities for future use of the facility must be considered realistically in terms of their implications for the design. For example, how might the mission of the facility change? Will crowding be an issue?

All of the facilities surveyed reported that an architectural program had been done; however, the programs appeared to vary considerably in emphasis, focusing on either philosophy-function definitions or more technical details. This appeared to occur regardless of the source--consultant/programmer, architect/engineer or designer, or department of corrections staff. In one case, the contents of a legislative act were adopted as the program statement, which illustrates the difference in approaches to programming. A comprehensive and detailed architectural program is vital to the construction of a facility which will meet the needs of the owner. The greater the detail the less likely the possibility of poor coordination and confusion in the completion of the facility.

In retrospect, departments of corrections project staffs point to a failure to "think operationally" in designing the facility, particularly about security and maintenance needs. Often the primary consideration in design has been the types of programs offered to inmates, at the expense of addressing the safety and security of staff and inmates, developing secure traffic flow patterns and preventing disturbances and escapes. (Chapter 3 addresses the appropriate use of security zones to allow for the free movement of inmates in facilities that emphasize programs.)

The project architect/engineer (A/E) should be involved in program development as early in the process as possible. In almost every case where this did not happen the A/E rewrote the program once assigned to the project. The dangers are that the A/E may (1) rewrite the program inconsistent with departmental philosophy and objectives or (2) depend on a non-correctional person to develop the program inconsistent with needs as stated within budget limitations and/or additional funds may be needed to pay for the rewrite of the original program. The advantages appear to favor early involvement to ensure timely and consistent input from all participants.

Perhaps the most critical issue during program development is the need for involvement of facility staff members and



practitioners in order to identify critical operational and practical needs of the institution. Department of corrections personnel must not rely on the architect/engineer to define the needs stated in the architectural program. Involvement of department staff and/or consultants familiar with current practices and technical issues must be a part of the process. The ability of these individuals to contribute to the project at this stage may be questioned for any of several reasons. Their experience may be limited, some may have difficulties relating to the technical questions, and resistance to change is often encountered. There may also be problems in the availability of these individuals, since many departments of corrections are short of staff, particularly staff who supervise the operation of facilities.(13) Finally, it may be difficult to gain the commitment of staff who are not only busy with their day-to-day duties, but may not see the importance of their involvement at this stage. Despite these concerns, experience of correctional staffs in the operation of facilities, if adequately assessed, is required to ensure the construction of a facility that meets the mission for which it was designed. Acceptance of new practices, hardware and equipment may also be increased by involving staff in their selection.

Several jurisdictions surveyed developed task forces of facility personnel to assist in planning, programming and design review. The task forces were seen by respondents as very effective means for identifying facility needs through the provision of specific guidelines for information needs and organization of activities. In other states department of corrections input-expertise came primarily from one representative (usually an active or former superintendent). Involvement in pre-design planning must be coupled with controls for individual preference and bias. Project management units have been very effective in providing control over individual preferences and biases and in achieving balance between input from facility staff and department of corrections policies. When information is channelled through these units, states are able to benefit from previous knowledge and experience and maintain consistency.

### 2.3 Architect/Engineer Selection

Selection of the project architect is an aspect of the planning, design and construction process heavily influenced by political interests, although the effects on project outcome have been difficult to identify. Very few departments of corrections have total authority to select the architect

although their choices carry varying degrees of weight in the final decision. In most instances department of corrections staff have felt that they have little say in A/E selection. Most states now have systems where boards or commissions select the project architect through a system of progressive screening, ranking and elimination of applicants based first on qualifications, submitted proposals and detailed presentations, followed by fee negotiations. Two-thirds of the departments surveyed had department of corrections representation on the selection board. This was not true at the time the facilities discussed in the survey were built and is an important trend in correctional facility construction. Still, however, the composition of the boards and, even more, the criteria used for evaluation of applicants vary too widely.

The American Institute of Architects has published considerable material on the selection process for architects.(14) This material emphasizes the importance of open deliberations, public participation, and increased competition. The federal government has led the way with the Brooks Act, Public Law 92-582, which suggests an agency-based selection system which has been enacted and expanded upon by sixteen states. This system contains three basic elements:

1. public announcement of intent to award a commission,
2. review of qualifications and ranking a number of eligible firms on the basis of demonstrated competence and ability, and
3. negotiation of a fair and reasonable fee with the most qualified firm.

While no single system may be best for all jurisdictions, the AIA indicates that "experience has shown that the agency-based selection system or an architect selection board system are the most effective procedures for obtaining highly qualified firms to design public buildings".(15) Four states in the United States have adopted the architect selection board system which incorporates the three elements of the federal law. The selection committee is often comprised of public members, registered architects, and public officials in addition to the user agency representatives. The use of either the agency-based selection system or the architect selection board system is recommended for the selection of the architect in correctional facility planning, design and construction.

An equally important issue is the often underutilized capability of the architectural firm to make suggestions in the course of planning, design and construction. It is the responsibility of both department staff and the architect/engineer to identify both potential problems and problems which are evident in existing facilities, and to bring them to the attention of officials at levels high enough to ensure that action is taken. Too often it was found that architects were willing to accept the requirements of the department without pointing out possible problems. This is of particular importance in an age where court decisions mandate minimum conditions and national standards have been developed for the field (see chapter 6). When court cases and/or standards require consideration in facility design the architect should not proceed with the designated work until an authorized department representative has approved use of the standards or provided a suitable and written waiver of compliance in the area of concern.(16) This concern by the A/E should extend to design flaws which may be evident in departmental staff proposals, and in particular when an existing facility design or prototype is site-adapted to a new location. Where necessary a legal opinion should be requested.

The type of contract and payment made for professional services was governed by state law in two-thirds of the surveys and state agency representatives often handled contract activities. Most frequently, the architect/engineer was retained at the beginning of the planning stage for conventional design-bid-construct services and reimbursed on a fixed fee or lump sum type payment. At one facility, where a prototype design was used, the architect was retained to site adapt only. While there was some awareness of problems in the original design, changes were not made due to the limitations of the contract. While the initial savings for site adapt work were considerable, the failure to correct design details required facility modification in two facilities and at considerable additional cost.

The primary issue at this stage involves the need for department of corrections personnel to know and understand all of the details of the contract, its conditions and agreements. While, as noted, involvement of the state administrative agency is often maximal during this phase of the project, it is essential that department of corrections project staff have a clear knowledge of tasks and responsibilities contained in the contract.

Recommendations for increasing department of corrections influence in the selection of professional services include:

1. Establishment of departmental criteria and procedures for review of applications and selection of the architect, preferably based on the Brooks Act requirements and/or the selection board system;
2. Representation of the department of corrections on the selection board;
3. Selection criteria based on qualifications, to include investigation of information submitted by firms that may involve calls to former clients, visits to facilities and to the firm offices;
4. Formal presentations in final stages of competition made by the proposed project team leader or project architect to represent who will be performing the work;
5. Greater concern for the role of the architect in identifying critical issues in legal, professional and technical areas;
6. Increasing the awareness of departmental staff regarding legal, professional and technical issues.
7. Budgeting adequate funds for the selection process.

## 2.4 Summary

Findings of this study suggest that many of the difficulties encountered during the planning process for new institutions, and the problems in facility operations found in the decision-making and planning stages relate to inadequate involvement in the process by departments of corrections. Many of the restrictions or impediments to successful department of corrections involvement can be linked to the structure and mechanisms for controlling and administering the expenditure of state funds, the political environment in which such activities occur, and pressures common to the criminal justice system. Yet, findings often revealed a general lack of ability or effort, or the necessary commitment of time and expertise by department officials and staff to actively participate in the process of building facilities for their own use. The tendency clearly has been for the corrections profession to have

others--state agency representatives, architects, consultants--make decisions for them.

The attitude assumed by corrections personnel may have resulted from the frustrations of attempting to deal with a process characterized by bureaucratic complexities and political influences. Initially there may have been a lack of understanding of the resources required by the task. In the past five or ten years departments of corrections have become increasingly aware of and responsive to the need for their effective participation in the planning, design and construction process. There remains, however, a need for increased understanding of the systems in which these facilities must be created and, along with this knowledge, an active pursuit of the right to influence decisions affecting future correctional activities.

## Chapter 2 Notes

1. George Edensword-Breck, "Washington's Unique Jail Program," Northwest Architecture, July-August 1981, pp. 8-9; Building Design and Construction, "Teamwork Result: Better Prisons Cost Less," May 1980, pp. 62-65.
2. Edna McConnell Clark Foundation, December 13, 1982 letter, "A Pilot Program for Effective Leadership in Corrections."
3. Over 50 percent of the jurisdictions surveyed had two or more administrators during project duration. One state dealt with four different directors from start to finish of the facility discussed. Decisionmaker turnover was the most frequently mentioned impediment to fluid and consistent project planning.
4. American Institute of Architects, Architecture for Justice Committee, 1980 Design Resource File: Planning Justice Facilities (Washington, D. C.: AIA, September 1980); California Board of Corrections, Corrections Planning Handbooks, prepared by Farbstein/Williams and Associates Sacramento: State of California Youth and Adult Correctional Agency, Board of Corrections, 1981); J. J. Enomoto, "The Prison Planning Problem in California." In M. R. Montilla and N. Harlow (Eds.) Correctional Facilities Planning (Lexington, Massachusetts: Lexington Books, D. C. Heath, 1979); Buddy Mear, Max E. Williams, J. Tom Brakefield and Barbara Gray, Prisons: An Architectural Notebook (Los Angeles: Pereira Associates and Benham-Blair & Affiliates, Inc., Circa 1978); James P. O'Neil and Francis R. Ford, Guidelines for Planning a Detention Facility (Washington, D. C.: National Sheriffs' Association, 1981); and U. S. Department of Justice, National Institute of Corrections, Planning of New Institutions, Phase One-Community Meeting (Boulder, Colorado: Voorhis Associates, Inc., 1981).
5. One-half of the facilities surveyed revealed cost overruns at an average of 39 percent over the initial budget.
6. See George and Camille Camp, The Corrections Yearbook, 1982 and 1983 editions (Pound Ridge, New York: Criminal Justice Institute, Inc. 1982 and 1983) for current average

facility costs; and California Board of Corrections, op. cit. note 4, Chapters 1.4 and 4.5, for basic cost information.

7. Ibid., California Board of Corrections.
8. Ibid., California Board of Corrections; William M. Pena with William Caudill and John Focke, Problem Seeking: An Architectural Programming Primer (Boston: Canners Books International, 1977), pp. 104-105.
9. For methods of estimating facility staffing, see F. Warren Benton, Planning and Evaluating Prison and Jail Staffing, Volumes I & II (Washington, D. C.: U. S. Department of Justice, National Institute of Corrections, October, 1981); and California Corrections Board, op. cit., note 4, Chapter 5.2 and Appendix J. Brief discussions of inmate-staff ratios are also contained in Joan Mullen and Bradford Smith (Principal Authors), American Prisons and Jails, Volume III, Conditions and Costs of Confinement (Washington, D. C.: U. S. Department of Justice, National Institute of Justice, October 1980), pp. 94-97; and the President's Commission on Law Enforcement and Administration of Justice, Task Force on Corrections, Task Force Report: Corrections (Washington, D. C.: U. S. Government Printing Office, 1967), pp. 95-99.
10. Following problems in the decisionmaking process, siting was the second most frequently mentioned cause of project delay for the facilities surveyed. Respondents identified as the single most critical factor in site selection placement of the institution where citizen resistance would be minimized.
11. Richard A. McGee, Prisons and Politics (Lexington, Massachusetts: Lexington Books, 1981).
12. For approaches to architectural programming, see California Corrections Board, op. cit. note 4, Chapter 5.2; and William M. Pena, et al, op. cit., note 8.
13. One-half of the project managers surveyed who requested assistance from department of corrections staff were not able to get help.
14. See, American Institute of Architects, Selecting Architects for Public Projects, A Guide for Local, State and Federal Officials (Washington, D. C.: AIA, January 1982); American Institute of Architects, Compendium: Architect Selection Laws (Washington, D. C.: AIA, April 1982).

15. Ibid., American Institute of Architects, Compendium ... p. i.

16. These points are adapted from "Policy Statement on Compliance with Accreditation Standards," Walker McGough Foltz Lyerla, P. S. (Spokane, Washington: WMFL, January 1981).



### Chapter 3

#### DESIGN CONSIDERATIONS

One element in the construction of a durable, lasting and functional facility is thoughtful design that supports safe and efficient operation. Institutional design needs, for the most part, are defined in terms of inmate population characteristics and the philosophy for dealing with those incarcerated.(1) Both factors have proven difficult for correctional administrators to control and predict.(2,3) Furthermore, if the history of corrections is taken as a lesson, it should be clear that expectations for correctional behavior and the mission and function of correctional facilities change. Much of the difficulty, then, arises out of the need to construct a facility that not only meets demands known at the time of planning, but those needs which may arise throughout the lifespan of the institution. In the facilities studied many of the design problems associated with layout, adjacencies and space allocations frequently arose from having to deal with inmate population characteristics, crowding and staffing arrangements unplanned for at the time of design.

It is during the programming and design stage that current and future expectations for the facility are translated into required security levels, type and durability of building materials, housing accommodations such as unit size and arrangements and special purpose housing, and programs, services (and concomitant space needs) and designs that can direct and control movement patterns and associations among inmate groups. The purpose of this chapter is not to recommend a model or prototype facility, but to help avoid repeating the mistakes that have been made in the construction of new facilities. The following discussion will highlight the kinds of problems found and suggest a number of issues that must be considered in designing new correctional institutions.

Two levels of design concerns will be discussed in this chapter. The first relates to the general design of an institution,

having to do with the layout and space allocations of the facility that address functional needs defined in the program. Design flaws in this area were seen to perpetuate high long-term costs and inmate management problems stemming from the poor arrangement and allocation of space. Difficulties were reflected in an inefficient distribution of staff, ineffective sight lines and control techniques, and difficulty in moving inmates, the public and staff to and from various portions of a facility.

The second issue concerns the details of facility design and construction including the selection and use of materials and hardware and construction and installation work performed by contractors. (Chapter 4 will discuss the latter.) Difficulties in this area are specific to hardware or materials and were seen to result in continuous maintenance problems, inadequate environmental quality and inconveniences for staff, often resulting in security problems.

### 3.0 Security Issues

The most consistent and clearly defined expectation for a correctional institution by the public is security, which was revealed as one of the major shortcomings in the planning and design of new institutions. Over one-third of the respondents emphasized that correctional planners must assist designers in addressing security issues. In particular, the problem was perceived as a failure to define the security level of the institution or once done to consistently focus on its implications in design and hardware selection. A number of problems related to designs which did not adequately address the use of security zones affecting the observation and supervision of inmates. Respondent recommendations for increasing involvement of facility staff members in program development also included participation of these personnel in review of preliminary drawings and design documents. While educating the staff members to read the documents admittedly took some time, the effort was perceived as beneficial in the early identification of design features requiring reconsideration and possible change. Most respondents felt that use of three dimensional design models for this purpose would be worth the additional cost.

The concept of security zones deals primarily with varying degrees of reliance on physical barriers to regulate inmate movement within the institution and restrict access to the outside. The traditional maximum security facility attempts to provide a stronger inner core security for maximum inmate control with limited movement and contact. In minimum security institutions, where freedom of movement, staff-inmate interaction and program involvement are goals, emphasis is on a strong perimeter security with use of interior design to control inmate flow and movement.

A number of the institutions surveyed reported problems with the use of security zones as a control technique. Difficulties were related to a failure to make a decision about where the primary zone or strongest barrier will be placed within the institution. Problems arose in the use of security hardware inappropriate to the security level desired for creating zones, and inadequate staffing arrangements to complement the degree of supervision required within each zone. A common concern reported during site visits was a lack of awareness and responsiveness by the designers of the facility to these progressive levels of security. Too often the armory, or the maintenance, engineering and communications control centers were placed on the compound in areas accessible to inmates. This problem was particularly critical in conversion of institutions designed for minimum security to medium security, where internal layout and an absence of physical barriers to control inmate movement necessitated staff escorts of all inmate movement. Conversely, institutions were constructed using maximum security hardware in locations where plans called for constant staff surveillance. Three facilities were described as overbuilt for security; one medium-minimum facility included "barrier-type" control booths in each living unit when the program called for unit management.

Incongruent mixes of "supersecure" hardware and conventional building materials also compromised the zone control concept. A failure to think through security measures was revealed by use of a heavy duty security door for a room in which a drop-down particle board ceiling was conspicuous immediately above the door; in another case an inmate room combined a steel plate door, a glass/polycarbonate laminate window and unreinforced cinderblock walls.

The most prevalent security design concern in housing areas was the layout of the unit in relation to staff capability to supervise inmates. As noted in Chapter 1, the design seen most frequently during the survey included modules with single cells for approximately 15 to 40 inmates, common dayroom space in the center of the unit and an enclosed correctional officer control booth. A problem revealed in almost every case was limited observation of cells from the fixed control centers with little or no use of circulating officers ("rovers") on the units. In every facility surveyed, when personnel shortages occurred the officer permanently assigned to the unit was eliminated or fewer visits to the units were planned, having the officer in the control center call for help when needed. The need for supervision became especially critical when individual rooms were used for multiple occupancy. This is an example of how good design based on a stated philosophy can be violated when circumstances warrant.

Nelson has emphasized the need for realizing the philosophical and management implications of such designs.(4) He has pointed out that the trend toward isolating the officer from the inmate is incompatible with the professionalization of the position. In addition, as compared to detention facilities, the impact of such isolation from inmate populations in institutions intended for long-term incarceration has not been considered.

One-third of the survey respondents reported insufficient housing space for special management inmates. To some extent respondents were concerned about having too few units equipped with security hardware capable of withstanding abuse; however, the concern was related more to the separation of special categories of inmates from those in the general population. The difficulty of predicting inmate population types and numbers that will enter an institution has already been recognized. However, design development must accommodate different types of offenders should there be major population shifts over time.(5) For example, trends such as the increase in young, violent and aggressive offenders in the prison population; the overpopulation of facilities; the emergence of gangs; increasing female populations; and juveniles and minors in adult facilities have severely affected the mission of many facilities and placed new demands on them.

### 3.1 Design Problems

The National Clearinghouse on Criminal Justice Planning and Architecture cautioned that "the perceived and real success of a facility design frequently rests more on the successes of specific material applications and construction details than on larger design concepts such as single occupancy and normative design."(6) Indeed survey findings suggested that details such as the placement of equipment, the functioning of security system components, building maintenance requirements and environmental factors have a great deal to do with the staff's perception of the facility. Minor, daily functional problems in the institution can often be demoralizing. When respondents were asked to indicate those areas where they had problems or were disappointed in the performance of facility materials, hardware and equipment, a number of shared concerns consistently appeared. Some of these areas will be discussed in order that they might receive special attention in future construction projects.

Security and Safety Systems. The major concern for two-thirds of respondents was with electronic security systems. In most cases, door control systems had never operated as expected and required constant maintenance and repair. Often the problem was related to the incompatibility of components comprising the systems, for example, doors were too heavy for their hinges and mechanical opening and closing devices. Staff frequently found the systems complicated to operate. Security perimeter systems were reported to pose problems in half of the institutions surveyed. Frequent false alarms symptomized the problems with these systems; again, the overriding concern of respondents was with the complexity, difficulty of maintenance and cost of using electronic perimeter security systems.(7) Fire safety systems were seen as a problem principally where computerized systems were involved.

In an effort to capitalize on technological advances in the development of security and operational systems for correctional institutions, staff acceptance and ability to operate and maintain the equipment has not been adequately addressed. Training programs for staff to demonstrate the purpose of the systems and the provision of concomitant operation skills and techniques also have been overlooked. Consequently, in the operation of the equipment the systems may not be used properly or to their fullest capabilities. This problem is exacerbated when the required staff, skills or budget for maintenance are not available. Planning for the facilities surveyed rarely

included consideration of operation, service and maintenance needs and costs.

Environmental control. One of the most pervasive problems found in the correctional institutions surveyed was with the heating and cooling systems. When environmental control was part of a computerized system, its complexity caused operating and maintenance problems, including limited staff capabilities for servicing the equipment. Maintenance and servicing problems also occurred when access to ducts or service areas was restricted. HVAC systems sometimes appeared to be incorporated in a facility without consideration of the regional climate. In one instance, when a prototype model was used, the environmental control system was duplicated although the two institutions were located in regions with vast differences in climate. Climate control problems were also found when inmates had access to the controls, cathedral ceilings allowed heat loss, shutters on outside vents let cold air in in the winter, condensation was created on ducts which created water seepage, and the like. In too many cases the lack of concern with energy conservation in design resulted in excessive costs. In one institution surveyed, an estimated \$70,000 per year in heating costs could have been saved if proper ventilation shutters had been installed. A related concern was heating system piping, with two facilities reporting leakage and breaks in hot water pipes.

Communication Systems. Problems with communication systems were reported by one-third of the respondents. These problems involved communication by inmates with staff and staff with control center personnel. For the most part, not enough communication equipment, or no equipment, was the reported difficulty. In a few instances no speaker system into the control center was installed. Malfunctioning of equipment was also a problem, although it was observed in most field sites and pretest facilities that noise levels were most likely to defeat good electronic communications systems.

Sewage Plant Capacity. Respondents generally reported that correctional institution solid waste processing requires twice the breakdown required by civilian facilities. Several of the facilities surveyed reported less sewage capacity than required. Respondents suggested that as a general rule of thumb that equipment be capable of operating at one-third over its expected peak use. The general rule for building a

correctional facility has been to plan on a doubling of the population and hence to double the capacity for all support services, including the sewage plant. It has been observed that the capacity of the sewage plant will be the first problem to surface with increases in population, and even more capacity must be anticipated in initial planning.

Window Construction. Over half the respondents reported problems with window construction--glazing, casing, framing, etc. Problems included windows that were designed to open and did not, a serious problem when air conditioning or ventilation systems failed; cell windows which were changed in construction from security glass to safety glass that could be broken by inmates; and the general problem of selecting the correct type of glazing in relation to security requirements.(8) A major problem for two of the facilities was the construction (by design) of substandard window casings or poor installation in the frames. In the former instance two escapes from maximum security were reported as due to "cost savings" based on "value engineering" that resulted in removal of the reinforcement from window casings; all windows had to be redone at considerable cost.

### 3.2 Value Engineering

The U.S. General Services Administration uses the term "value management" rather than "value engineering." It is defined as:

...an organized effort directed at analyzing the function of systems, equipment, facilities, and supplies, for the purpose of achieving the required function at the lowest overall cost, consistent with requirements for performance, including reliability, maintainability, delivery, and human factors.

A value management study is defined as a function-oriented appraisal of all the elements of an item, system, or process to achieve essential characteristics at minimum overall cost. (8)

Value management or "value engineering" can be an asset to construction when it is used in conjunction with sound advice regarding security requirements. It can be useful in reducing costs sometimes incurred in "overbuilding," or using materials and hardware which exceed security needs. Care must be



exercised, however, when it is anticipated that a facility built using sound value management techniques might be required to exceed its security level at a later date.

### 3.3 Security Materials, Hardware and Equipment

The testing, selection, operation and maintenance of durable, efficient and cost-saving hardware and equipment for correctional facilities posed a problem for almost all of the institutions surveyed. The frequency with which seemingly minor but nagging facility difficulties plagued survey respondents was a significant problem. These included:

- No reinforcing bars ("re-bars") in critical security areas;
- Breakage and maintenance problems resulting from use of traditional building materials such as screws, door hinges, and window stops inappropriately matched with components;
- Doors too heavy for frames;
- Awkward placement of control panels, thermostats and lighting controls; and
- Lack of communication/speaker systems.

These were all noted as causes of difficulty in facility operation. Some of the deficiencies were related to problems with the drawings. For example, in one institution, the maintenance access panels in the ceiling were placed directly below ventilation ducts, obstructing access for maintenance; in three facilities the plumbing chases were too small to allow easy service access.

A particular difficulty was in the identification and selection of hardware and fixtures that will withstand inmate abuse, (mostly for lighting, temperature regulation and locks), dismantling fixtures and furnishings for use as weapons, or destruction for no reason. In part, this relates to defining needs for the materials and hardware to be used in the facilities, the testing of components to establish specifications and, perhaps the most crucial, achieving a match between facility needs and capabilities.

Along with the concern that overall security considerations had been neglected in planning and design, a number of survey respondents indicated that performance expectations for materials were not specified by the departments of corrections or a representative familiar with facility requirements and security components' capabilities. With the state oversight agency making the purchasing decisions in most cases, experience within the department of corrections often was not used.

When users aware of their needs enter into negotiations with vendors, who are aware of their materials capabilities, a common language is often lacking. A method is needed to link the corrections professional's experience and knowledge with the technical information and specifications of the materials supplier. For example, the buyer in many cases may be directed to select and obtain "maximum security" fixtures and furnishings or "detention quality" materials. Standardized definitions for such terms that tie needs in with explicit performance capabilities of materials do not exist.(10) A related difficulty arises when bid procedures require that a product "or equal" be specified. The component submitted as an equal product may not meet the needs but will be accepted for lack of sufficient information or careful review of the specifications.

This lack of common definitions and guidelines for testing and selection of hardware and equipment has contributed to the purchase and installation of equipment which does not operate correctly, which staff cannot operate and/or maintain, and which may result in functional breakdowns, staff dissatisfaction, high maintenance costs, possible escapes or injury, and potential litigation.

Finally, the best materials, hardware and equipment will not ensure facility security. Various respondents indicated that about ninety percent of their security is invested in staff trained to perform their jobs. Most materials, hardware and equipment can be overcome by inmates under conditions of poor surveillance and inspection. For this reason the failure parameters of these items must be known; i.e., their capabilities in relation to their use. Since, as stated in the standards of the American Correctional Association and Commission on Accreditation for Corrections, inmates in high and medium security in jails must be observed at least every 30 minutes by a correctional officer, the security materials, hardware and equipment must retain its integrity and function for this interval or longer, generally with a safety factor of twice the anticipated need.(11)

The continuing education of corrections practitioners in the evaluation of materials, hardware and equipment needed in their facilities is essential to solving these types of problems. When materials, hardware and equipment are evaluated the best method is to actually see them in use and to obtain valid, independent test data. The concept of seeing things in use applies to every part of facility planning and design. Architects and planners should encourage site visits by clients as part of the design process. And, most importantly, states and local jurisdictions should plan and budget for this stage of the building process.

Recommendations for the evaluation and selection of materials, hardware and equipment include:

1. Selection of materials, hardware and equipment involves identifying and contacting previous and/or existing users to obtain information on component performance, durability, maintenance, and operating needs. Vendor guarantees should be considered as well as vendor service performance.
2. Bid specifications and submittals for particular materials and components are reviewed by qualified project staff to ensure that the desired product is obtained.
3. Needs and expectations for the equipment and components are clearly defined. Definitions of needs and expectations are an integral part of the architectural program.
4. Materials, hardware and equipment in the facility meet requirements of applicable building and safety codes.
5. Facility security personnel are consulted in assessment of needs and selection of security systems and components.
6. Selection of materials considers weather and climate conditions of the locality in which the facility is located; energy conservation and efficiency of components are addressed.

7. Selection of security systems and facility equipment addresses physical and functional compatibility of each item or part. A package is included in the architectural program.
8. A system of establishing materials capabilities that includes "failure parameters" for hardware is achieved through testing and setting specifications by the manufacturer, vendor, and independent lab and/or the buyer, and whenever possible, use of the components on a trial basis. For example, testing for durability of cell/room furnishings and fixtures (lighting, desks, beds, toilet facilities) has involved use of the product on a trial basis in juvenile detention facilities and disciplinary detention/segregation units.
9. Facility materials, hardware and equipment are selected consistent with the philosophy and mission statement of the facility, and include consideration of:
  - Security levels needed;
  - Staff-inmate interaction/contact; and
  - Possible shifts in mission over time.
10. Factors in the selection of hardware and equipment are:
  - Staff capabilities for operating components;
  - Training of staff in the proper operation and use of equipment and components prior to facility opening and regularly thereafter;
  - Operating costs and servicing requirements of components;
  - Maintenance capabilities, including the size, availability and skills of the maintenance group, and the funds available for purchase of supplies, parts, tools and replacement items.

11. A "users manual" is developed by the agency, with the assistance of vendors and builders, for use in facility operation. It contains guarantee/warranty information, operational specifications for security systems, hardware, and equipment, and maintenance information. The purpose and intent of the systems are described, along with instructions for operating components as intended.
12. Prior to selection and purchase of components the availability of continued funding for the operation, maintenance, and servicing of materials, hardware and equipment is ensured. Vendors assist in estimating these costs.
13. Prior to occupying the facility, systems and components are physically checked to ensure their proper installation and operation.
14. The initial purchase of security components, hardware and equipment includes replacement items/parts.

### 3.4 Summary

A number of steps can be taken during the planning process to minimize some of the difficulties experienced by the jurisdictions studied in designing a new correctional facility and selecting the materials, equipment and hardware components to complement the design. First, it is essential to identify facility needs (anticipating future needs, to the extent possible), develop a clearly defined mission that is responsive to those needs and adhere to it throughout the planning, design and construction process. Further planning must involve carefully thinking through design needs consistent with the institutional mission with particular sensitivity to security issues and management implications of the design. Components and materials must be selected accordingly. Then, it is imperative to use the facility and its systems as intended.

Corrections professionals often lack knowledge of rapidly changing technologies and need standardized definitions and performance-based data on which to formulate selection criteria for materials, hardware and equipment. Persons who are knowledgeable about security requirements and components' capabilities should be consulted prior to selection of materials. The following questions must be addressed:

- Does an experienced project architect have the necessary technical expertise in this area?
- Should an independent expert be consulted?
- Should facilities in other agencies be visited, and if so how should they be selected?
- In the absence of "specialists," or to supplement their knowledge, are staff available who have experience working in security, engineering and maintenance in correctional institutions who can be consulted?
- Where will budget cuts in the interest of economy jeopardize design and security?
- Where must department of corrections representatives compromise in the bidding process and in the selection of components, and what are the implications of compromise?
- How can department of corrections representatives work with the appropriate funding authorities and government agencies to ensure that the necessary design features and materials to support the design are obtained?

### Chapter 3 Notes

1. Law Enforcement Assistance Administration, Advanced Practice Design Criteria for Secure Juvenile and Adult Detention and Correctional Facilities, LEAA Program Brief DRAFT, March 1981; M. Robert Montilla and Nora Harlow (Eds.), Correctional Facilities Planning (Lexington, Massachusetts: Lexington Books, D. C. Heath, 1979); National Clearinghouse for Criminal Justice Planning and Architecture, Clearinghouse Transfer, Criminal Justice Planning Process, A Total Systems Model, #14, (Champaign, Illinois: University of Illinois, 1977).
2. M. L. McConkie, The Role of Interpersonal Trust in Correctional Administration, University of Georgia, Corrections Division, Institute of Government, September 1975; Joan Mullen, Kenneth Carlson and Bradford Smith (Principal Authors) American Prisons and Jails, Volume I: Summary and Policy Implications of a National Survey (Washington, D. C.: U. S. Department of Justice, National Institute of Justice, October, 1980); P. Solomon and J. Gardiner, "Political Obstacles to Change in Criminal Justice Agencies: An Interorganizational Perspective," In: Criminal Justice Monograph: The Change Process in Criminal Justice (Washington, D. C.: U. S. Department of Justice, National Institute of Law Enforcement and Criminal Justice, June 1973).
3. See John Flanagan, "Projection of Prison Populations", University of Wisconsin, School of Social Work, July 1976; and California Board of Corrections, Corrections Planning Handbooks, prepared by Farbstein/Williams and Associates (Sacramento: State of California Youth and Adult Correctional Agency, Board of Corrections, 1981) Handbook Three, on techniques for projecting prison populations.
4. William "Ray" Nelson, "New Generation Jails," Corrections Today, April 1983, pp. 108-112.
5. For discussions of factors to consider in design flexibility, see Institute for the Study of Crime and Delinquency, The Non-Prison: A Rational Correctional Program (Sacramento: ISCD, 1970), p. 72; and Buddy Mear, Max E. Williams, J. Tom Brakefield and Barbara Gray, Prisons: An Architectural Notebook (Los Angeles: Pereira Associates and Benham-Blair & Affiliates, Inc., circa 1978), pp. 43-54.
6. Law Enforcement Assistance Administration, op. cit. note 1, p. 30.
7. See Joseph S. Coughlin, "The Use of Electronics in Perimeter Security" Corrections Today, July/August 1981, p. 28, for an analysis of various systems now in use. Also, Michael H. Frawley, "Time, Tools and the Security Perimeter," The Report, American Jail Association, 2, Spring 1982, pp. 1-6.
8. See Dennis Kimme, "Windows and Glazing: A Summary of Ten Years of Controversy," presented at the Washington Jail Symposium and Materials Fair, October 1, 1980.
9. "Architect-Engineer and Construction Manager, Value Management Services," General Services Administration, PBS P 8010.1, November 11, 1976, p. 11.
10. See Sidney J. Folse, "Issues and Problems in Jail Design," Corrections Today, March-April 1979, pp. 20-22, for one suggested method of testing to establish performance-based selection criteria.
11. American Correctional Association and Commission on Accreditation for Corrections, Standards for Adult Local Detention Facilities, Second Edition (College Park, Maryland: ACA, April 1981), Standard 2-5174; Ibid.



## Chapter 4

### THE FACILITY CONSTRUCTION PHASE

The length of the construction phase for the projects surveyed ranged from slightly over one year to six years, with an average of two years nine months. One-third of the respondents reported that they used phased construction, or fast-tracking, entailing the start of construction drawings and site activities prior to design completion. While such a technique may accelerate project completion, the requirement for strict monitoring and control of budget expenditures is increased, especially when working with a fixed budget. In two of the projects that fast-tracked, difficulties with the budget were experienced and additional project funds had to be obtained in order to complete the facilities.

In one instance working drawings and the bid phase were completed prior to legislative funding for construction and considerable project delay occurred until funds were obtained. The allocated budget was insufficient to complete the project as planned, due to an inflationary increase in costs for materials and services. In another case, project work proceeded assuming that a certain amount of funding would be forthcoming, yet the actual budget was less than expected. In both instances, adaptations to the facility designs were made, which were inconsistent with the planned use of the institutions. Today, neither facility meets the needs for which it was intended.

One respondent reported problems with long lead-times for some items, such as special security components and hardware, that defeated accelerated work schedules. An additional requirement associated with accelerated construction schedules involves the need for more intensive on-site monitoring and inspections to keep up with the fast pace of the building activities.

Seventy-five percent of the survey respondents reported delays of six months to one year in the construction phase of their respective projects. One-third attributed construction delays

to poor time management and poor work performance by the general contractor. Another third related the delays to a lack of timely and consistent decisionmaking by the department of corrections. Others identified delays associated with product availability, strikes and weather. While the fast-track method described above did not ensure project completion according to schedule, the majority of projects completed on time used this method.

#### 4.0 Bidding and Builder-Contractor Selection

The state general services agency had the primary responsibility for contract development and review, bidding, and contractor selection for half of the agencies surveyed. In the remaining cases the responsibility was shared with or delegated to the project architect. In only one case was the bid phase handled by the department of corrections. Overall, this phase of project work provided the least amount of flexibility and opportunity for input from the DOC, since it was controlled by established state regulations. All projects were bound by state law to accept the low bid following satisfaction by the contractor of prequalifications based primarily on licensure and bond requirements and financial status of the company. Refusal to use the low bidder was possible based on evidence of past difficulty with the contractor; however, the process for disqualification was felt by several respondents to be so cumbersome, vulnerable to litigation and time consuming that acceptance of the lowest bid was simply easier. One-fourth of the states had provisions for accepting the lowest responsive bidder. In these jurisdictions criteria used to eliminate unsatisfactory contractors considered previous work performance in such areas as adherence to schedules, ability to meet architectural specifications, late projects, excessive change orders, and defaults.

#### 4.1 Contract Administration

Delegation of authority for contract administration, entailing tracking timelines and expenditures, again rested with the state general services agency for half of the respondents. The departments of corrections assumed this responsibility in a remaining fourth of the surveys. Other projects relied upon the project architect or a construction manager for contract administration. As was noted above, several respondents reported considerable difficulty in keeping the contractor to

the established schedule. In half of the cases, the problem was caused by too many prime contractors. In others, the conditions of the construction contract that restricted intervention in contractor activities reportedly rendered the departments of corrections powerless. One survey participant reported success with a contract that included phased payment upon satisfactory completion of work, and bonus clauses as well as liquidated damages.

All of the construction projects that were completed on schedule were administered by the departments of corrections. Only one department of corrections administered project reported a delay--for reasons of weather conditions and materials availability. Aside from external factors (weather, strikes, contractor problems), in describing those projects administered solely by the state, respondents indicated that many of the construction delays could have been avoided if department of corrections project staff had been more actively involved in the contract administration process.

#### 4.2 Site Observation/Supervision

While there are bound to be some changes during the construction phase, the failure to carefully review drawings and specifications, which is by no means particular to corrections building programs, will exacerbate construction problems that occur when the contractor is performing in conformance with the drawings and specifications. Change orders also escalate costs. The number of change orders reflects the effectiveness of the planning process. It is essential that a rigorous review process be established by the department of corrections prior to design, after design and prior to bid. Project respondents indicated that involvement of department of corrections personnel who have responsibilities for engineering, maintenance and security in this review may reduce the number of change orders.

All of this suggests that a knowledgeable representative of the department of corrections, if not an official inspector, should be on site full time to check for work quality, design errors, and errors in the interpretation of the design. It may be possible to request changes during construction for which major change orders may not be necessary as, for example, in correcting the awkward placement of equipment or controls.

The contractor is not responsible for errors in design. Site visits revealed how an error missed in planning or design could be perpetuated in construction due to the contractor's fear of legal liability associated with performing beyond the range of contract requirements. In this case, however, it was not clear why the contractor did not point out the problem to the architect or the project manager. This is an excellent example of the need for on site supervision by corrections department personnel, and/or the lack of effective communication between the contractor and the corrections site supervisor.

Three survey respondents enthusiastically encouraged having a department of corrections representative familiar with correctional institution security needs on site to spot oversights and work closely with the contractors to negotiate and approve changes. This required authority is often vested in the state agency, although numerous survey respondents noted having informally or formally negotiated workable arrangements with state agencies. One activity highly endorsed by the two survey participants who had tried it involved having the maintenance engineer to be assigned to the facility on site from the day construction began. Such a procedure considerably reduced the pains of transition and assisted in the opening, operation and maintenance of the facility. Of particular significance was the ability of this individual in tracking equipment and hardware requirements, including warranty agreements, and knowing how to find help when needed.

The issues in observation and control of construction site activities are related to the diffusion of responsibilities for observation and representation of department of correction's interests. A mechanism to ensure a fluid approval, submittal and inspection process is imperative to maintaining construction schedules. The majority of respondents suggested the creation and implementation of clear-cut procedures for identifying one user/owner site representative capable of spotting possible problems and working within the state system to make corrections.

Differences in agency jurisdictions and responsibilities preclude identification of the best party to perform site supervision in every project. Experience with the survey indicated that the need for construction supervision varied considerably with the reliability and performance of the general contractor. Given the inability to select based on work quality, the best safeguard for increasing chances of receiving quality construction services is to have at least one full-time site supervisor. For those projects surveyed, the

state oversight agency rarely had full-time capabilities for site supervision, having responsibility for numerous public building projects. The architect conducts construction observation only if negotiated as an addition to the contract for services. In general, respondents felt that if the departments of corrections were able to provide site supervision, project continuity and representation of correctional interest would be more likely to occur. While supervision will not ensure problem-free construction, the presence of a full-time site inspector will help to ensure that the agency will get the facility for which it has contracted.

#### 4.3 Construction Management Services

The use of specialized firms offering construction management (CM) services to control costs, schedules and work quality is one method available for managing correctional building projects. Erickson defines construction management or project management as "the use of an experienced professional manager to represent the best interests of a project owner to oversee all aspects of a building project from inception to completion." (1) Serving in such a capacity (as compared to the general contractor who provides construction management as a special condition of the contract), the CM firms offer to the project "state-of-the-art building technology" and the ability to apply "sophisticated management tools," such as value engineering and the critical path method to control project costs and schedules. (2,3) In addition to expertise in construction technologies, when involved early on in the planning phase, the CM as a project manager will assist in such areas as siting, obtaining permits, bid packaging, record keeping and transition and start-up. (4) Essentially, says Davis, the CM is capable of providing coordination, control and communication--three ingredients essential to project success. (5)

Two projects reported use of a construction manager. One retained the CM as a consultant, the other hired the CM into the department of corrections for the term of the project. The first felt that while the services provided were valuable, their cost and time-saving expectations were not met; the latter recommended such an arrangement to cut down on the costs associated with such services. Both representatives felt that the use of construction management services can be warranted if the department of corrections or the state do not have an individual with project management skills, and with the time and authority to manage the project. With projects using phased construction, CM services may be especially useful for

keeping track of concurrent activities proceeding at an accelerated pace. As with other professional services, performance based criteria should be used in choosing a CM. Caution must be exercised to ensure that the individual or firm used has capabilities and qualified expertise beyond that which may be available through existing project staff. Recommendations for the project bidding and construction phases include:

1. Procedures for awarding contracts which require acceptance of the low bid should be reviewed in order to allow for acceptance of bids based on the quality of the construction team, including past performance on similar types of construction projects.
2. Whether responsibility for contract administration is placed in the department of corrections or elsewhere, this responsibility must be placed in one unit to ensure project continuity. This unit must clearly define project tasks and responsibilities and perform the necessary follow-up tasks in order to ensure proper completion of work.
3. The project includes full-time site observation and supervision. Preferably, construction oversight is conducted by department of corrections staff or with their assistance.
4. Provisions are made to have the facility maintenance engineer on site as early in the project as possible but at least during the latter stages of the construction phase in order to develop a working knowledge of equipment operation and maintenance needs.
5. The use of construction management services should be considered when the owner/user lacks the capability to properly manage the construction project. Past performance and recommendations of others are prerequisites to the use of construction managers as for all professional services. (See Chapter 2.)

#### 4.4 Summary

Many of the difficulties in the bidding and construction phases of project work for the facilities surveyed are not peculiar to correctional institution construction, but are common to any large building project, particularly one subject to regulations, bidding and approval processes that involve several different state, and perhaps, local agencies. Diffusion of authority and responsibility often prevent the timely and proper completion of project work. Invariably, persons in several agencies, each with other jobs, were assigned to track the construction project. Regardless of who ultimately was the responsible authority, the basic elements of project management were lacking. As such, suggestions for improving the process for constructing correctional facilities could pertain to any general construction project. Since the department of corrections must live with the outcome, however, it would seem reasonable that the department either demand or accept responsibility to ensure that:

- Authority and responsibility for project administration and management are clearly established;
- Project principals are selected based on ability to perform the work desired;
- Bid documents and specifications are carefully developed and reviewed with specific attention to correctional architecture needs; and
- Job site work is supervised, preferably by someone with knowledge of correctional needs.

It is critical to keep channels of communication open and current to ensure that department of corrections needs and experience continue to be represented in project activities.



## Chapter 4 Notes

1. Donald R. Erickson, "Successful Construction Management," Corrections Today, April 1983, p. 70.
2. James E. Davis, "Managing Correctional Building Programs," Corrections Today, August 1982, p. 46; Lawrence R. Veit, "The Project Manager: Source of Balance," Corrections Today, April 1983, p. 132.
3. See R. H. Clough, Construction Contracting, Fourth Edition (New York: John Wiley & Sons, Inc., 1981); this is a basic text describing construction contracting and project management techniques.
4. James E. Davis, op. cit., note 2; Donald R. Erickson, op. cit., note 1; Lawrence R. Veit, op. cit., note 2.
5. James E. Davis, op. cit., note 2.

## Chapter 5

### PHYSICAL PLANT OPERATION AND MAINTENANCE

Diligence in the planning, design and construction process with attention to consistency and detail will not ensure a functional facility if the initial purpose of the facility is not recognized in its operation. After one of the most extensive studies of correctional facility construction and operation in the United States, the National Clearinghouse on Criminal Justice Planning and Architecture reported that, "differences between the concepts of operation upon which a facility is designed and the concepts of operation upon which it is run can lead to significant functional breakdowns and serious damage to the building".(1) The following activities were identified by survey respondents as necessary to facility operation consistent with original intent:

- Continuity of plans, decisions, and actions after completion and occupancy of the facility. Creation and maintenance of a record-keeping and communications system is necessary to ensure that those operating the facility will be aware of reasons behind facility design features and selection of components and equipment. At one facility visited during the course of the study where operations and maintenance problems were especially severe, staff members exhibited confusion and frustration at what appeared to them to be excessive design flaws and ignorance in selecting equipment. In this case, staff members were totally uninformed about the purpose for which systems components were selected, how they were intended to be operated, and the purposes of specific facility design characteristics. Often, this outcome related to the fact that the philosophy used in developing the mission of the institution was not communicated to new employees.

- Staff training at the new facility prior to accepting inmates. Staff must develop an "operational mentality" as early in the construction process as possible. Prior to the acceptance of inmates there must be an orientation for staff that allows them time to become familiar with the layout of the institution and the correct procedures for operating and maintaining equipment, with special attention to new technologies. All staff, including maintenance and engineering personnel, should receive training. Having the facility resident engineer present during construction and equipment installation was suggested in the preceding chapter. Where training is a responsibility of the equipment manufacturer or vendor, department of corrections training personnel may have to work with vendors in developing training and operating manuals appropriate to the correctional employee and to assure training for staff members working all shifts.
- Provision of an operating budget to staff the facility as originally planned, including funds for purchasing supplies, parts and services needed to maintain the physical plant and equipment. Especially with an increase in the use of high-technology systems, increased salaries for engineers and facility maintenance staff may be needed to acquire qualified individuals. This concern has been emphasized throughout the report.
- Administrative policy and operating procedures consistent with the design philosophy of the facility. Facility policy and procedures should include post assignments appropriate to the layout of the institution, supervision schedules as required by the design, the control of inmate movement within and between security zones, and provision of programs and services consistent with original plans. Facility administrators with differing management and operating philosophies often change facility operations. For example, decentralized or centralized services such as dining and visiting were reported as a problem in one-third of the surveys. Even subtle changes in operations not complemented by the facility design may lead to staffing and physical plant problems.

- Realization of the implications of changes in facility mission in response to system pressures--particularly the number and type of inmates. Increased demands on facility capabilities, when unavoidable, are accompanied by demands for additional staff resources and adaptive measures to increase programs and support service capacities. One-half of the institutions at the time of the survey were filled beyond their designed capacity, others anticipated population increases and several had expansion plans underway. One-third of the respondents felt that the institution housed an offender population that it was not equipped to handle; in particular, insufficient housing for special management inmates was a problem. One survey item had respondents identify areas where the institution failed to meet needs or expectations and identify the cause for disappointment. Slightly over one-third of the time, overcrowding was identified as the key cause of operational problems. In addition to an overload on support services (storage space, kitchen and laundry facilities, in particular), increased demands on program space (education, counseling and intake areas) were reported to be problematic.

Population pressures have been a significant factor in plans for facility occupation. One respondent indicated that inmates were moved in prior to facility completion and that escapes resulted. Another was concerned that the institution was filled to capacity immediately upon opening. Insufficient preparation of staff, limited testing of equipment, and repetition of prototype design errors due to lack of time for post-occupancy evaluation are the result of population pressures and must be avoided when possible.

### 5.0 The Need for Post-Occupancy Evaluation

One method for improving physical plant design, operation and maintenance is the evaluation of newly constructed facilities. It was clear from the study that a method for systematic post-occupancy evaluation of facilities was needed. No such system was found.

Vital information on planning, design and construction is being lost both within jurisdictions and throughout the country. A national model for post-occupancy evaluation of new prison construction is needed in order to provide information which will assist in alleviating problems such as those described in the study. Such a program would provide an on-site evaluation of a new facility one to two years after occupancy. An evaluation would include, but not be limited to security hardware, equipment and systems, emergency and fire safety systems, building materials, and heating and cooling systems. Data specific to design characteristics could also be collected, such as staffing (numbers and use), availability of program space, security/observation features, and population patterns. Comprehensive and uniform information on initial facility construction costs and annual operating costs could be obtained in order to provide better comparative information. Problems specific to the institutional environment might also be considered, such as features which meet minimal requirements for human comfort, the impact of the interior atmosphere on inmates and staff, the use of furnishings, and the overall use of space.

A national program for post-occupancy evaluation of correctional facility construction which would serve as a model for local jurisdictions should be established. This could be done by existing federal or state agencies. Information would be provided to those jurisdictions based on general findings, and specific information could be provided on request. Information would be obtained from a preliminary written survey and an on-site evaluation of both positive and negative features of the new construction, conducted by an independent observer. All data collected would be stored on a computer to provide immediate and comprehensive access in the areas of concern. It is conceivable that such a system of data collection could contribute significantly to the construction of future correctional facilities which would be more functional and perhaps less expensive to build and operate.

### 5.1 Problem-solving for Future Construction

Departments of corrections conducting their first "new generation" of prison construction may focus on the larger conceptual issues at the expense of concern for the details of day-to-day operations and maintenance. Rather than make mistakes and resolve these problems in later construction, identification and resolution of potential problems should be attempted during the first generation of new construction. Methods for problem

identification include the development of checklists on the operational aspects of the facility developed by operations and maintenance staff, contact with individuals with experience in other systems, more time in planning, and the use of technical assistance resources. Completion of facilities one at a time to allow for post-occupancy evaluation can be of great value in problem identification, especially when a prototype is being used as a model. A related problem is the search for economies in construction which may result in costly operational and maintenance problems later, as well as an uncomfortable work environment for staff.

### 5.2 Summary

Operational concerns should not be allowed to overshadow the positive features of a good design. A truly functional facility should achieve the following: a greater sense of safety for staff and inmates, less destructive (or "normalized") inmate behavior, minimal staff turnover through greater worker satisfaction, and a more humane and positive environment based on the implementation of design concepts consistent with the standards of good practice of the field. Staff may have to learn to live with designs, hardware and equipment which create a more humane environment yet present more difficulty in their operation and maintenance short of creating greater security problems. In this sense it is vital that operations and maintenance staff are trained in and understand the new responsibilities being given to them in the operation of a new facility, and that resources be devoted to this aspect of new facility design and construction.

The following are recommended to enhance transition, operation and maintenance of new facilities:

1. Project management and follow-up includes creation and maintenance of a record-keeping and communications system to inform current and new staff about the facility and its operation, including hardware and equipment specifications and components.
2. Training of staff in facility operation and maintenance at the facility occurs prior to moving inmates into the institution.
3. There is provision of adequate operating budget to staff the facility as planned, with particular attention to those resources necessary to maintain the physical plant and equipment.

4. Administrative policy and operating procedures are developed consistent with the design philosophy of the facility and its intended mission. The primary consideration is security levels in relation to the physical limitations of the facility.
5. A system for post-occupancy evaluation is implemented for use with every new facility in order to provide the information necessary to improve future construction.
6. A major national program of post-occupancy evaluation is needed to compare experience across jurisdictions and preserve vital information on the planning, design and construction process for correctional facilities. This program would serve as a model for local evaluations and make data available to them relative to both general and specific needs in planning for new construction.

#### Chapter 5 Notes

1. Law Enforcement Assistance Administration, Advanced Practice Design Criteria for Secure Juvenile and Adult Detention and Correctional Facilities, LEAA Program Brief DRAFT, March 1981, p. 28.



## Chapter 6

### SPECIAL ISSUES IN CONSTRUCTION

#### 6.0 Modular and Pre-Designed Facilities

Current dramatic increases in jail and prison populations and the pressure for longer sentences have resulted in crowding, the deterioration of overused and aging structures and a building boom in correctional construction. Most states are in the process of constructing new prisons or renovating old ones. The exact number of new jails being constructed is not known, but it is substantial.

Financial constraints have had a significant effect on major capital improvements until the last few years. However, financial considerations remain a major factor in determining the size and type of prison or jail constructed, although correctional planners now have choices other than traditional construction. Recent trends have provided options that include modular design and barrier free environments, modular construction, and variations in types of construction that include factory built, prefabricated and pre-cast units, and pre-engineered designs and prototypes. These new technologies, with their related terminologies, are often confusing and seductive, promising speedy construction of needed space, decreased staffing, improved security, and finally, less cost.

The interchangeable use of terminology, such as "modular design and modular construction," and prefabricated, factory built or relocatable construction, have complicated the planning process.(1) Unsubstantiated and untested entrepreneurial claims have injected uncertainty into planning, sometimes leading planners to suspend judgment based on experience and factual data and place their faith in vendor's claims. The issues that must be considered in planning that includes these new developments are the subject of this chapter. While these issues were not a formal part of the study, they were of such concern to warrant discussion.

Most of the construction techniques and designs to be discussed are not new. They have been in use in general architecture and construction by the private sector for years. The repetitive construction used in modular design and prototypes has been used by the home building industry for mobile homes, as have precast and prefabricated units. The concept of prison environments free of physical security barriers separating staff and inmates was first used in the Norfolk, Massachusetts prison early in this century. Although the "new technology" is not new, its application in the design and construction of prisons and jails is new.

The application of new technologies to corrections is necessary. The adoption of concepts or techniques from the private sector, although healthy, needs careful examination in order to determine their relevance to corrections and their consequences for correctional practice. Certainly corrections can benefit, but only if these innovations are adapted to correctional needs. And to do so, professionals must not be misled by entrepreneurial claims of monetary savings, or fail to ignore the special problems imposed by their responsibility to the community and to staff and inmates of these facilities.

## **6.1 Modular Construction**

### **6.1.1 Prefabricated**

There are several types of "modular" construction which have been used in the private home construction sector for some time. The most common consists of prefabricated construction, or the building of standardized, predesigned and partially assembled sections of a home that are delivered to the site and assembled on a prepared foundation. The term has been used increasingly in corrections to refer to either sections of housing or entire units that are assembled at the factory and trucked to the site for final assembly. It also refers to concrete cells that are poured on or off site and set in place in foundations or shells that have been built by traditional construction methods.<sup>(2)</sup> It is recommended that for purposes of clarifying the term, modular be used only in reference to construction which has been partially assembled, or prefabricated at the factory and finally assembled at the site on a foundation. Typically this type of construction uses wood or wood sheathed with steel. Large panels can be cut at the

factory and trucked to the site where they are assembled, with support provided by steel structural units.

### **6.1.2 Precast Concrete**

Precast concrete construction is a form of prefabrication that uses standardized precast concrete units, usually entire cells, that are poured off site and placed into the building shell. The forms, which can be used repetitively, provide the appropriate spaces for windows, doors, and plumbing or wiring passages.

### **6.1.3 Factory Built Construction**

This type of construction has its counterpart in the mobile home. Like its private sector counterpart, it is constructed or assembled in the factory and trucked to the site ready to use. Usually this type of construction is used for housing units, but it can be used for larger components such as offices, corridors and other support spaces. Variations on this type of construction include a mix of factory built housing units and prefabricated support areas such as gymnasiums which are pre-cut and assembled on site. Factory built units are also referred to as relocatables, or "steel boxes." Precast concrete units are said to be relocatable, and in theory they may be. There is some question as to the feasibility of such an effort in terms of cost and logistics.

## **6.2 Pre-engineered Designs**

All of the construction methods described above use pre-engineered designs. The design is developed by the vendor based on a fixed concept of program needs, security, traffic, administrative requirements, and staffing patterns. In the case of the prefabricated units there is some latitude for the purchaser to make changes. Basically, however, the design is sold "as is," and any modifications come at a cost to the purchaser. Usually the design is developed in standardized blocks, which can be arranged in various configurations. Changes within the building blocks are not encouraged unless they coincide with the standardized sizes already available. Modifications outside of the measurements of these building blocks may have an effect on the profit margin of the

manufacturer, since there will need to be changes in the production process. The purchaser can expect to pay these costs.

### 6.3 Podular Designs

The podular design is a management concept that places inmates in housing units of a manageable size around a common area that contains a secure control booth from which a correctional officer observes inmate activity. (3) The unit can be constructed using modular, prefabricated techniques, since it can be constructed in standardized units, either through traditional methods or through the use of precast concrete sections. It also lends itself to precast concrete cells placed in a shell or framework erected by traditional construction methods.

### 6.4 The Costs of Innovation

Given the market potential for new facilities it is not surprising that products have been developed to meet new needs, particularly prefabricated and factory built modules. The increased interest in such units is reflected by advertisements describing modular units in Corrections Today, the official publication of the American Correctional Association, as follows:

Issue	No. of Ads	Total Pages	Total Prison Population*
Mar-Apr '79	none	none	314,457 (1979)
Mar-Apr '81	none	none	} 368,772 (12-31-81)
Nov-Dec '81	1	1/4	
Aug '82	3	2	394,316 (6-30-82)
Oct '82	3	2.5	405,371 (9-30-82)
Dec '82	3	2.75	412,303 (12-31-82)
Feb '83	4	5	} 425,678 (3-31-83)
Apr '83	9	7.75	

\*Source: Bureau of Justice Statistics

The February 1983 edition was devoted entirely to correctional architecture.

For a jurisdiction in which the jail or prison is seriously over capacity, with severe budget constraints, the possibility of a relatively cheap and quick solution to overpopulation and fiscal problems can be attractive. Little data exists at this time on the actual cost of prefabricated factory built units although some estimates are available. Brodeur cites the following types of predesigned, relocatable, prefabricated facilities with reference to their cost:

Costs for site-built maximum security beds vary between \$23,000 and \$60,000 per bed. The cost per maximum security bed for modular installations in Washoe County, Nevada, has been about \$16,000. A 120-bed maximum security modular jail now being built for Santa Clara County, California, worked out to \$16,250 per bed. The two facilities, which were built by different contractors, are multiple-occupancy cell block buildings. (4)

Brodeur does not give a specific time to completion but refers to builders' claims that they can halve the time of conventional construction, nor is "maximum" defined in relation to this type of unit.

An article in the Wall Street Journal cited the purchase of two modular units in Garfield County, Colorado, for \$250,000 each, to be delivered in three months with occupancy "soon." (5) Estimates were that a conventional new jail would have cost three million dollars over three years for the same space. There is no indication of the number of inmates to be held in the two facilities, although 50-foot long units of 10 inmates each are discussed. From the article it appears Garfield County paid \$25,000 per cell, far more than the \$16,000 quoted by Brodeur and considerably more than the prices quoted by other manufacturers. None of the costs quoted appear to represent siting and installation costs, although this is not clear from the information presented.

A Large department of corrections has recently leased and installed portable factory built housing and recreation units of

approximate 44,500 square feet for 300 beds. The units provide 148 sq. ft. per inmate housed in 50 man dormitories. Leased at a cost of \$665,748, the total cost to the state will be \$3,328,740 or \$11,095 per bed. The list price of the structures was \$2,861,908. Costs do not include siting or connection to utilities.

Cost comparisons between conventional and prefabricated or precast, and factory built construction can be deceptive, since generally, there is no equivalency in the square footage provided between these two types of facilities. A newly formed organization based in Chicago places the cost of precast cells poured off site and trucked and stacked in modules at one third the cost per cell of traditional construction methods.(6) Based on a comparison recognizing the total facility, including support space, program space, and space within the housing unit itself, a recent study found the total cost of premanufactured facilities to be approximately 30 percent higher than for conventionally constructed units.(7) A fair comparison can only be made if the cost per square foot for particular kinds of space and the total gross square feet per inmate are compared, with housing being the most expensive space. In a facility with 300 to 380 gross square feet per inmate housing accounts for less than 200 square feet. A facility which does not provide adequate support or program space and uses housing space for these purposes will be less expensive on a "per bed" basis, but it is not likely to be a complete facility without the additional expense of support and program space.

In the case of the Department of Corrections discussed above, the living space is given at 60 sq. ft. of bed space (dormitory) and 35 sq. ft. day room area per inmate. The addition of recreation space brings the gross total to 148, which is less than the national average of at least 200 sq. ft. Precast cells used in traditional construction when the design also includes activity areas and support space may not present a similar problem. Additional considerations for premanufactured units must also include costs for land, site development, foundations and fitting to electrical, plumbing and other services.

#### 6.4.1 Construction Time

There is little argument that when crowding is a problem and when court suits are providing the motivation for new construction, time is critical. In this regard, prefabricated

and factory built units have a distinct advantage, even if long term costs may be greater. The comparison study of premanufactured units and conventional facilities cited above found that premanufactured facilities require approximately one third less time to design and one third less time to construct than conventional facilities.(8)

#### 6.4.2 Staffing

Vendors claim staff savings with the use of premanufactured units and predesigned facilities, but there is no information available regarding savings or excessive costs, and staffing figures are not yet available. When pre-engineered designs or units which predetermine a particular design configuration are used, the level of staff is dictated by the design, over which the purchaser will have little control. Carter et. al. note that, "because of the differences in site and configuration of modules, there is generally less supervision or observation of inmates in premanufactured housing units than in conventionally constructed housing units."(9) Departments of correction need to consider staffing very carefully before any commitment to modular prefabricated or factory built construction that predetermines staffing levels. Staffing needs in excess of conventional designs must be evaluated carefully. The possibility always exists that an increase in staff may be necessary, and this additional expense can easily eliminate any potential short term savings.

#### 6.4.3 Facility Life Expectancy

Vendors often claim a life expectancy of twenty years for prefabricated and factory built structures. Respondents with some experience with this type of construction state that they do not expect more than five years habitable use. The twenty year claim by vendors includes reasonable provision that these facilities be adequately maintained. Hard use, typical of correctional housing and problems of adequate maintenance may compromise the life span of these units, although most have not been in use long enough to predict their durability.

The following recommendations address concerns in the evaluation and selection of pre-engineered, prefabricated, or factory built units. These units:



1. Should be carefully evaluated to determine the actual savings in dollars and time in relation to meeting the needs of the user.
2. Should be evaluated considering the same factors addressed in planning and programming for facilities built using conventional construction methods.
3. Must meet applicable local and state codes, including zoning, fire, health, and environmental requirements.
4. Should be evaluated considering square footage for the total facility, inclusive of support space, as is done in conventional construction.
5. Should be seen as temporary; primary use of them should be for short-term detention in the community or as temporary additions to existing long-term facilities.

## 6.5 Prototype Facilities

Recommendation 55 of the Attorney General's Task Force on Violent Crime asked that the National Institute of Corrections "develop models for maximum, medium, and minimum security facilities of 750 and 500 (or fewer) beds, from which states would choose the appropriate model(s) for construction". (10) Prototype, or model facilities are pre-designed prisons or jails which have been developed incorporating the state of the art. Theoretically, the design has been developed with the participation of persons expert in their field and who have taken into account all the factors necessary to the design of an ideal facility. The final product should be a model that can be duplicated, effectively provide the level of desired security and supervision, have the appropriate program and support space, and provide a standard level of staffing.

### 6.5.1 Issues in Prototype Design

The use of prototype design can reduce the time and costs associated with the planning and design phases preceding facility construction. Prototype use, however, suggests that there is a model that can be replicated in all climatic

conditions, adapted to any terrain or soil condition, and meet correctional program needs and philosophies. Selection of a prototype design requires an awareness of assumptions built into the model. This includes careful consideration of features related to correctional philosophies, design features included to suit regional and geographic conditions, and other factors such as the composition of the inmate population between jurisdictions, ignoring crime rates, incarceration rates, sentencing practices, release policies, and the use of alternative sanctions.

### 6.5.2 Use of Untested Designs

Any design which is based on an analysis of needs and the development of an architectural program cannot be tested until the facility is built and occupied. The prototype may claim an advantage in that the design has been rigorously reviewed prior to construction. If one facility has been built, it can serve as a test of the model and provide an opportunity to find problems and correct them. At the time of the study, one vendor of a prototype design had one facility almost completed and six others were in the early stages of construction. The problems in the design will not become known until the first facility is occupied, and unless the vendor conducts a post-occupancy evaluation the errors in the design will be repeated. A common problem found in the study was the repetition of mistakes in the prototype design. One-fourth of the states surveyed had recently completed construction of several facilities concurrently using an untested design. In one case, except for some changes made that were deemed absolutely necessary by the architect, major design errors were replicated in new construction. Time must be taken between construction of facilities, especially prototypes, in order to test the design.

The current trend in prototypes underscores the need for research and evaluation of correctional design and construction. Research is needed to test specific design features such as cells and their fixtures for resistance to vandalism, the placement and internal arrangements of electronic equipment in control centers, and the effectiveness of the podular arrangement. Post-occupancy evaluations must be conducted to determine the effectiveness of the design in meeting the needs specified in the architectural program. Construction costs, staff savings and other claims by vendors need to be evaluated so that some clear and definite figures are available to planners. As McGough points out:

We are still short of hard research in prison design. For every very positive article of why pink paint has a calming effect, there are also dozens of built environment subjects that have not been researched at all. In the absence of research, architects and planners have made their own judgments. For instance, the triangular housing units, which architects seem to be working to death, have become today's counterpart to the 19th century Auburn cellhouse. (11)

In the final analysis, there is no guarantee of success with or without a prototype. There is no ideal design, and there are no absolute answers in planning. There is a need for careful review of all variables which must be coordinated in institutional planning. The planning process must be applied with equal rigor to the selection of a prototype as it is to the development of any other design. This responsibility cannot be left to the vendor, the architect, or an agency too far removed from corrections. A prototype should it be selected only when it meets the requirements of the system. When jurisdictions are considering the development and use of prototype facilities, the first facility constructed should be evaluated prior to beginning construction of another.

## 6.6 Design and Construction of Jails

Although local detention facilities, or jails, were not part of the study, the conclusions regarding planning, design and construction are clearly relevant to them. Because of the small size of most sheriffs' departments or county departments of corrections, it is difficult, if not impossible, to retain full time planning or project management units. Local county planning boards are often not able to provide the time needed for facility planning. The construction of a detention facility is a rare occurrence, happening only once or twice in a century. Outside expertise and "one-time" assistance must be relied upon, often coordinated by a staff person with limited knowledge of the planning process. Since the planning process in a local jurisdiction may be unique to many of its participants, the architect/designer and the planning staff must be willing and able to communicate with each other about secure detention facility needs in general, and the specific needs of the local facility. Such an effort can be aided by programs such as that offered by the National Institute of Corrections through its program for planning of new institutions, or P.O.N.I.

At the local level, particularly in smaller communities, public sentiment and the influence of special interest groups can be especially intense and, therefore, planning processes more complex. Decisionmaking may also be more sensitive to budget issues. The existence of state standards and/or related inspection services for detention facilities also may require that representatives of the state be included in the local planning process.

Crowding in prisons has produced a backlog in the criminal justice system, resulting in many jails holding sentenced prisoners waiting transfer to prisons. Crowded court calendars have also increased the number of persons waiting trial. Since sentencing policies and state parole procedures have an effect on the jail population it is critical that they be included in jail planning. Some relevant questions for them to address are:

- If the jail is holding sentenced prisoners because of prison crowding, what can be done to speed up transfers? If this is not possible, will the state pay for increasing the capacity of the new facility to house this backlog?
- Has the state subsidized or is it planning to subsidize the county for alternative (diversion) programs to relieve crowding on the local and state level?
- Will other local or state agencies assume the responsibility for some classes of detainees, such as public inebriates, mental health cases, and juveniles?

The design of local detention facilities includes concerns different from those found in long term correctional facilities. The three most important, among many, are traffic, security, and supervision. Intake is a major activity which includes the responsibility for booking, medical screening, bail consideration (or other release programs), transportation to court and discharge. Medical receiving screening is critical if court suits are to be avoided. The booking area must be designed for this purpose. According to survey consultants and other detention experts, the booking area remains the most difficult problem in design. The multiple functions of that area have not been examined critically, and the traffic flow has not been dealt with adequately. The length of stay for a majority of jail admissions may be only 24 hours, usually averaging three days. For those who cannot make

bail, pre-trial detention nationally averages 3.2 months. (12) In addition to intake traffic, there is constant movement of family visitors, attorneys, other officials and bondsmen, all of whom add to the problem of security and control.

Pretrial facilities are usually maximum security, since they hold offenders about whom little is known. Any inmate may be assaultive, suicidal, or an escape risk. The design must, therefore, take into account means of achieving the needed security level without limiting the ability to supervise. While it is possible to design a secure configuration of cells this will not ensure supervision of suicide risks, or ensure safety of inmates from assaults.

Restricted land use can create design difficulties. In a metropolitan area there are limited options for the location of a jail, most are sited in a high density area or on land a great distance from the courts. The usual choice is to select land that is county owned and near the courts. If the decision is to build the jail in the suburbs, transportation costs and staff levels increase. Designing a jail for a metropolitan site poses problems of perimeter security, recreation space and all the attendant problems space limitations place on design. Many of these concerns are discussed by Folse. (13)

About 80 percent of the jails in this country have under fifty beds. (14) The reduction in scale may appear to reduce design difficulties. However, the size of the jail is not relevant in terms of the complexity of function. In fact, it may be more difficult to ensure separation of juveniles from adults, provide secure space for work releasees, and manage the public inebriate, mentally ill, extremely violent, or the suicidal. The small size of the jail places limits on flexibility.

Construction of a detention facility, whether large or small, requires as much attention to planning as does a large prison. Shortcutting the planning process by borrowing a design from another jail may reduce costs and the time to open a new jail. It will not ensure that the design will meet the immediate or long term needs imposed by local custom, court practices, community resources, or the other variables that may be unique to the jurisdiction. It is possible that one of the recent innovations in construction may meet the needs of a particular jurisdiction. Perhaps modular construction is appropriate, or a prototype exists that will meet the needs for a new jail. Nonetheless, it is recommended that realistic

planning always be completed prior to the development of the design and before selection of prototype designs or pre-engineered units. This planning must include the consideration of local and state codes and regulations, professional standards for corrections, and cost factors beyond immediate construction outlays.

## 6.7 Using Standards in Design and Construction

Standards created by professionals and practitioners in the field are perhaps the most comprehensive source of information to be called upon in planning considerations. These standards, created to provide goals and guidance for the operation of correctional services and institutions, often incorporate court decisions, codes, and regulations, and attempt to translate them into operational guidelines for correctional programs. Sechrest and Reimer point out that mandated changes in correctional services, whether instigated by the courts, legislatures, or administrators, will exist in a vacuum until implemented in an orderly manner and followed by verification of their use, as done through correctional accreditation. (15)

Among standards issued by various professional groups and agencies, the American Correctional Association in conjunction with the Commission on Accreditation for Corrections has issued the most comprehensive standards for adult correctional facilities and provides a mechanism for measuring and maintaining compliance. (16) Ten of 14 survey respondents (71%) reported use of ACA/Commission standards in planning and design. (17) For physical plant design the standards provide specific guidelines and recommendations, such as suggested housing capacity for facilities, floor space per resident, necessary sanitation and fire safety equipment, and hardware and materials for control of lighting and noise levels. The standards, along with judicial decisions, call for provision of program opportunities that translate into necessities for physical program space.

While compliance with standards does not provide exemption from legal liability, the standards can be used as a legal defense and have become part of court cases in seven states: Kansas, Kentucky, New Jersey, Nevada, Washington, New Mexico and Oklahoma. (18) Accreditation was mandated by federal courts for the entire Oklahoma Department of Corrections, the Kansas State Penitentiary and the Kentucky State Reformatory and

Penitentiary. The Oklahoma Department of Institutions, Social and Rehabilitative Services was ordered by the federal court to comply with the standards for juvenile training schools, juvenile community residential services and juvenile probation and aftercare services. Legislation in Oklahoma now also requires certification of detention services and juvenile detention centers through the process of accreditation.(19)

Other resources that support the standards and attempt to qualify recommendations for prison construction can be drawn from a growing body of research that addresses the conditions of confinement. Studies that look at the problems of overcrowding and its impact upon those within the institution provide a basis for decisions about living space for inmates.(20) Others address environmental aspects of facilities such as noise levels, lighting levels, or color that may influence tolerance, coping, and behaviors of the incarcerated.(21) On a different level, Wayson, Falkin, and Cruz have produced a users manual for estimating the costs involved in implementing American Correctional Association/Commission on Accreditation for Corrections standards.(22)

Regardless of the involvement of the courts or the varied studies of confinement practices, the ACA/Commission standards are the correctional standards accepted by the field. They have been accepted as part of a voluntary program of accreditation administered by the Commission on Accreditation for Corrections. Accreditation began in 1974 and now involves 566 agencies in 40 states, the District of Columbia, Guam, the Federal Prison System, and the Correctional Service of Canada. Of the 566, 387 agencies have received accreditation, including 138 of the 201 correctional institutions under contract. This involvement represents a significant commitment by the field to the ACA/Commission standards and to their implementation in practice. For this reason the standards must be considered in all correctional facility designs. Use of the standards, however, sometimes presents a conflict for the designer. Correctional institutions, like other residential care facilities, are subject to the conditions of jurisdictional codes, regulations, and licensing requirements that address construction, building, sanitation and fire safety conditions. These requirements are not always uniform or consistent, and selecting and integrating the appropriate guidelines and regulations may be difficult.

Conklin, for example, expresses concern that excessive federal regulations have the potential to usurp the rights and planning

preferences of local and state governments; others, however, warn that compliance with state mandated standards will not ensure constitutionality.(23) Despite the array of directives issued by the courts and regulatory bodies, the legal requirements of building, operating, and running a correctional institution still are not clear.(24)

Who, then, has the responsibility for determining which standards apply and how they relate to national or local codes and regulations? The primary responsibility belongs to the client agency. The client must be knowledgeable about the standards, codes and regulations. This should be the responsibility of the project management unit within a department of corrections, as described in Chapter 2. This unit must be able to articulate departmental needs to planners, programmers, and ultimately to the architect/designer. The architect/designer has the responsibility for having a working knowledge of the standards and national codes in order to identify problem interpretations when necessary (see Chapter 2). It is not enough for the architect/designer to know that the client is familiar with the standards and codes and has incorporated them into the program statement. The architect/designer should request that the client include a reference to relevant standards and codes in the architectural program. When the client does not wish to comply, or is unable to comply with standards or codes, this should be made clear to the architect/designer in writing.

When certain standards or other requirements appear indistinct from an architectural perspective the architect should establish, in concert with the client, a precise definition of the level of programming intended for each standard/requirement. For example, when the standard calls for a comprehensive educational program with no information on numbers of students to be educated, the courses to be taught, or the time available, the architect and client must decide what level of service is necessary to meet the standard. Such a decision will lead to a determination of the staff, space and equipment needs for that service. Work should not proceed until such agreement is reached. Decisions are delayed for many reasons, including the inability of two or more agencies to agree on a definition, lack of time to think through the problem, and waiting for anticipated legislation which will affect the decision. Extended periods of indecision can result in redesign problems with their attendant increases in capital and operational costs.



National standards for corrections and national and local codes and regulations are important considerations in the planning, design and construction of correctional institutions. The agency and the architect/designer must respond to them in order to create institutions which will not only be functional but meet constitutional minimums for the safety, security and humane care of the inmates incarcerated in them. The responsibility for conformance to national standards and codes rests with the client agency as advised by the architect/designer. When misunderstandings or misinterpretations exist regarding the standards and codes and the need for their application to new construction, the architect should clarify the client's intent before proceeding with the work. Recommendations for using standards in facility design and construction include:

1. Correctional agency personnel should become aware of all applicable national standards and codes prior to the planning and design stages of the facility construction process.
2. Planners and architects should be knowledgeable about applicable national standards and codes and make sure that the client agency is aware of them in the course of the design of new facilities.
3. Architects should inform representatives of the client agency when national standards and/or codes are not being followed.
4. When certain standards or other requirements appear unclear, the architect should attempt to establish with the client agency a precise definition of each standard/requirement.

#### 6.8 The Hidden Costs of New Construction

As crowding of correctional facilities increases due to greater population loads, the costs of new facility construction have become a significant issue across the United States. As stated in the Bulletin of the Bureau of Justice Statistics:

...in 1974 [the prison population] began a dramatic rise that added nearly 150,000

sentenced inmates to the national prison population in 8 years. The average annual increase during this period was 7.1 percent compared to 2.4 percent for the entire 1925-81 period. At the end of 1981 the incarceration rate was 153 per 100,000, the highest ever recorded. The first 9 months of 1982 further accelerated this trend, bringing the incarceration rate to 169 on September 30. (25)

The number of state and federal prisoners was 431,829 by June 30, 1983, more than double the number at that time in 1971 (198,061), with projections of over 500,000 by the end of 1984. (26) Additional prison space is costly by any measure, with one source providing cost estimates per cell ranging from \$7,500 to \$55,600 depending on the security level, size, design variations, and regional cost differences. (27)

William G. Nagel, President of the American Foundation and a former prison warden, projected the costs of operating prisons over a thirty-year life span in relation to initial capital cost:

For every dollar spent on new prison construction, the taxpayers of the several states will have to pay \$16 (exclusive of inflation) for operations over three decades. And that does not include bond costs. (28)

The percentages referenced by Nagel are shown in Table 6.1 along with estimates from other sources that present dollar ratios of 1 to 10 and 1 to 11. The Nagel estimates would require a 104 billion dollar commitment over the thirty-year projected life span of a facility; the NIC P.O.N.I. estimate would require \$65 billion and the Building Design and Construction article requires \$72 billion. The Nagel estimate would add \$3.47 billion per year to the six billion dollars in corrections operating costs for 1979 nationwide, an increase of about 58 percent per year, not including inflation. Corrections costs went up 7.7 percent from 1978 to 1979. (27)

Based on long-term costs, these estimates suggest caution in planning for new facility construction. While concern about initial design and construction costs is important, overemphasis on these costs may preclude discussion of

**Table 6.1**  
**PERCENT DISTRIBUTION OF CORRECTIONAL FACILITY**  
**CONSTRUCTION AND OPERATING COSTS - 30-YEAR BUILDING LIFE**

	P.O.N.I. Program (1) (Jails) Percent	WILLIAM Nagel (3) (State Prisons) Percent	BDC Article (3) (State Prisons) Percent	
Construction Costs	8.7	4		Construction Costs = 6-10 percent
Architectural Fees	.3	.5	9	
Furnishings, Equipment	1.0	1.5		
Maintenance, Supply	4.5	3	21	Operating Costs = 90-94 percent
Food	5.6	5		
Utilities	6.2	6		
Civilian Salaries	23.6	24		
Guard Salaries	50.1	54	70	
Other	—	2	—	
	100.0	100.0	100.0	

1. National Institute of Corrections, Planning of New Institutions (P.O.N.I.) Training (February, 1982)
2. William G. Nagel, President, American Foundation, testimony on the Dole Bill (S. 186), reported in *Jericho* 26 (Fall, 1981), p. 4.
3. *Building Design and Construction*, "Teamwork Result: Better Prisons Cost Less" (no author, May, 1980) p. 64.

long-term costs which may affect the ability of a state or local department of corrections to meet the goals of increased use of incarceration, much less any type of program goals. Recommendations for cost considerations in facility planning include:

1. In planning for new construction, a projection of long-term operating costs must be done. Cost savings in design or construction are minimal in relation to the life cycle operating costs for new facilities.
2. Planning must take into account life cycle costs as an essential element in the design. Staffing requirements are built into the design, and are the most costly variable in planning.

#### 6.9 Summary

Corrections does not suffer from a lack of desire to do good planning in the construction of new facilities or the renovation of existing plants. However, the use of pre-designed, relocatable facilities, prototype designs and codes and standards should be secondary to good planning. Sound planning should place these elements in perspective in relation to the needs of a particular agency. Planning should include a better definition of goals, improved communication among planners, correctional administrators and architects, and continuity of oversight throughout the planning, design and construction process.

Of greatest importance, however, is the need to evaluate what has been done and build on experience rather than repeat past errors. A common statement to project staff, usually by the staff person involved in new facility construction, was "I wish I knew some of these things when we began the project." Post-occupancy evaluation should be routine for all new construction or renovations.

Post-occupancy evaluation may show problems where none were anticipated in such areas as traffic flow, lines of sight for observation and supervision, placement of equipment and controls, functioning of security equipment, and the like.

Since no central source now exists for making such comparisons it is necessary for each user to evaluate what they are using and make comparisons with other jurisdictions whenever possible and on an "as needed" basis. The importance of using available experience in planning, design and construction is vital to the future of correctional facility construction. For this reason, a final recommendation is for the creation of a national program of post-occupancy evaluation of correctional facilities.

A national program of post-occupancy evaluation would include consideration of all types of construction, emphasizing long-term utility based on cost, time to occupancy, durability, the quality of materials, hardware and components, and other features of use. Significant areas for examination also include staff requirements (number and type), security, flexibility, energy consumption, and such unique features as the ease of relocation of modular units. These data would be compiled on a national scale to provide information to correctional planners, architects, vendors and others involved in the construction of correctional facilities. Without such a program the problems cited in this report will not be addressed, and correctional agencies involved in construction will continue to operate without the use of available information and guidance.

## Chapter 6 Notes

1. Pamela Kellman, "County Jails: Who are the Experts?" Corrections Today, April 1983, pp. 32-24; W. Andrew Lindelow, "Model Prisons the Modular Way," Corrections Today, April 1983, pp. 120, 130.
2. J. Oliver Stein and H. Paul Bigler, "Roanoke City Jail," PCI Journal, March-April 1981, pp. 110-111.
3. William "Ray" Nelson, "New Generation Jails," Corrections Today, April 1983, p.112.
4. John Brodeur, "The Modular Detention Building," Corrections Today, December 1982, p. 40.
5. Dean Rotbart, "Need More Space for Your Inmates? Maybe Modular Jail Is the Answer," Wall Street Journal, 1982.
6. Kathleen Myler, "Captive Market Proves Attractive to a Developer," Washington Post, September 17, 1983, p. E54.
7. Stephen A. Carter, Lowell Nordquist and Polly Peno, Evaluation of Pre-Manufactured Housing For Correctional Purposes, Draft Final Report (Columbia, South Carolina: Carter-Goble Associates, Inc., February 1984).
8. Ibid.
9. Ibid., p. 32.
10. U. S. Department of Justice, Attorney General's Task Force on Violent Crime (Final Report, August 17, 1981), p. 75.
11. John W. McGough, "Prison Design and Construction or "Why Do Prisons Cost So Much?" Corrections Today, February 1982, p. 47.
12. Kenneth E. Kerle and Francis R. Ford, The State of Our Nation's Jails, 1982 (Washington, D. C.: National Sheriffs' Association, August 1982), p. 157.
13. Sidney J. Folse, "Issues and Problems in Jail Design," Corrections Today, March-April 1979, pp. 20-22.



14. U. S. Department of Justice, Law Enforcement Assistance Administration, National Prisoner Statistics Bulletin No. SD-NPS-J-6P, Census of Jails and Survey of Jail Inmates, 1978 (Washington, D. C.: U. S. Government Printing Office, 1979).
15. Dale K. Sechrest and Ernest G. Reimer "Adopting National Standards for Correctional Reform," Federal Probation, June 1982, pp. 18-25.
16. Joan Mullen, Kenneth Carlson and Bradford Smith (Principal Authors), American Prisons and Jails, Volume I: Summary and Policy Implications of a National Survey (Washington, D. C.: U. S. Department of Justice, National Institute of Justice, October, 1980).
17. The American Correctional Association and Commission on Accreditation for Corrections publish ten manuals of standards addressing both adult and juvenile correctional services:

Standards for Adult Parole Authorities, June 1980  
Standards for Adult Community Residential Services, August 1980  
Standards for Adult Probation and Parole Field Services, March 1981  
Standards for Adult Correctional Institutions, January, 1981  
Standards for Adult Local Detention Facilities, April 1981  
Standards for Juvenile Community Residential Services, January 1983  
Standards for Juvenile Probation and Aftercare Services, January 1983  
Standards for Juvenile Detention Facilities and Services, January 1983  
Standards for Juvenile Training Schools and Services, January 1983  
Manual of Standards for the Administration of Correctional Agencies, April 1979

Standards produced by other organizations include: American Bar Association Standards for Criminal Justice, Legal Status of Prisoners, Fourth Tentative Draft (Washington, D. C.: ABA, June 1980); American Medical Association, Standards for the Accreditation of Medical Care & Health Services in Jails (Washington, D. C.: AMA, 1978); American Public Health Association, Standards for Health Services in Correctional Institutions (Washington, D. C.: APHA, 1976); National Clearinghouse for Criminal

Justice Planning and Architecture, Architectural Standards for Adult Detention and Corrections Facilities (Champaign, Illinois: University of Illinois, 1978); National Sheriffs' Association, A Handbook on Jail Architecture (Washington, D. C.: NSA, 1975); United States Department of Justice, Federal Standards for Prisons and Jails, December 16, 1980 (Washington, D. C.: U. S. Government Printing Office, 1981); as well as standards by various state agencies.

18. Dale K. Sechrest and Ernest G. Reimer, op cit., note 10.
19. Terry C., et al, v. L. E. Rader, et al, No. CIV-78-0004-T, January 11, 1982; An Act Relating to Children Amending 10 Oklahoma Statutes 1981, p. 22.
20. See Peter L. Nacci, Hugh E. Teitlebaum and Jerry Prather, "Population Density and Inmate Misconduct in the Federal Prison System," Federal Probation, June 1977, pp. 26-31.
21. See National Clearinghouse for Criminal Justice Planning and Architecture, Clearinghouse Transfer, Noise in Jails: A Constitutional Issue, #19, (Champaign, Illinois: University of Illinois, 1977); American Institute of Architects, Architectural Graphic Standards, Seventh Edition (United States: John Wiley & Sons, Inc., 1981); and Buddy Mear, Max E. Williams, J. Tom Brakefield and Barbara Gray, Prisons: An Architectural Notebook (Los Angeles: Pereira Associates and Benham-Blair & Affiliates, Inc., Circa 1978).
22. Billy L. Wayson, Gregory P. Falkin and Marie-Teresa Cruz, Users Manual for Estimating Standards Compliance Costs (Alexandria, Virginia: Institute for Economic Studies, Inc., August 1981).
23. Richard G. Conklin, "In Support of Criminal Justice Reform Act," Statement presented to the Committee on the Judiciary Criminal Law Subcommittee, United States Senate, June 8, 1981. Copies available from the American Institute of Architects, Washington, D. C.
24. Robert Dole, "Reversing Court Control of Corrections," Corrections Today, February 1982, pp. 24-28.
25. U. S. Department of Justice, Bureau of Justice Statistics Bulletin, "Prisoners 1925-1981," (December 1982)
26. U. S. Department of Justice, Bureau of Justice Statistics, Bulletin, "Prisoners at Midyear 1983," (October, 1983), p.

2.

27. Joan Mullen and Bradford Smith (Principal Authors), American Prisons and Jails, Volume III: Conditions and Costs of Confinement (Washington, D. C.: U. S. Department of Justice, National Institute of Justice, October 1980), pp. 119, 137.
28. William G. Nagel, "Nagel: States Can't Afford the Dole," Jericho, 26 (Fall 1981), p. 4.
29. Timothy J. Flanagan, David J. van Alstyne and Michael R. Gottfredson (Eds.) Sourcebook of Criminal Justice Statistics - 1981 (Albany: Criminal Justice Research Center, 1982), p. 4.; See also Joan Mullen and Bradford Smith, op. cit., note 25, pp. 127-133.

## Appendix A Data Collection

## DATA COLLECTION

### Survey Methodology

Initial Contacts: Selection of Respondents. A preliminary inquiry was distributed to all directors of state departments of correction. Forty-four (85 percent) of the preliminary inquiries were returned to the Commission, from which eighteen (18) respondents were identified for further study. Replies to the inquiry appearing to meet the following conditions were chosen for follow-up:

- Construction of two or more adult correctional institutions since 1975;
- Construction of a facility that presented problems in its planning, design, and construction; and
- The newly constructed facility had been open and operating for at least six (6) months.

Survey Development. The mail-telephone survey was designed to obtain basic information about the facility identified in the preliminary inquiry as having problems in its planning, design, and construction. A case study method was used due to the need to obtain specific information regarding these problems. This method was also selected since in each instance facility construction was unique in terms of facility characteristics, project organization and jurisdictional requirements. The survey contains sections addressing: facility description and characteristics; budgeted versus actual costs of construction and operation; participants, activities, and timeframes in the planning, programming and design stages of the project; selection of professional services and contractors; and construction of the facility. The survey also contains a number of questions about facility operations since opening, focusing on the performance of materials, hardware and equipment, and the extent to which the facility was meeting system needs.

The first draft of the survey was pretested at two local correctional facilities. Following the initial pretests, the instrument was distributed for review and comment by the Committee on Architecture for Justice (CAJ), American Institute

of Architects Steering Committee and other interested members present at a quarterly meeting of the Committee. Following revision of the questionnaire based on information received from CAJ members, the survey was again field tested at a State Department of General Services. Upon completion of the field tests, the questionnaire was finalized and readied for distribution.

The instrument turned out to be quite lengthy, containing 55 items, both closed- and open-ended. A variety of questions are included, requiring the respondent to rate items using Likert-type scales, rank order choices, or fill in the blanks.

Survey Distribution. Given the wide range of topics covered in the survey (such as budgeting, design issues, programming decisions, materials performance, etc.), identification of the appropriate individual(s) able to answer all of the questions was difficult. The decision was made to send the entire survey to an individual identified in the preliminary inquiry as the person responsible for the overall planning, design and construction for the facility.

All of the telephone survey respondents were employees of the state departments of corrections, generally holding positions in divisions with responsibility for planning, facility operations or engineering. Most of the respondents had fairly extensive knowledge or background in engineering and maintenance, or the state corrections system. Often the individual involved in the initial planning and project coordination had not remained with the department, and information provided by respondents was retrieved from many sources.

Respondents were contacted by project staff prior to receiving the survey. An initial call was made to verify information provided in the preliminary inquiry, describe the project to each person, and assess willingness to provide assistance with the study. All of the 18 individuals contacted agreed to receive the survey. Fifteen of the surveys were completed. The calls averaged two hours in length, ranging from 1½ to 3 hours to review the full survey. The two project staff members completed the survey calls. Some of the surveys were completed in the field during site visits, where additional data were also gathered.

The following states responded to the survey:

Arkansas	Kentucky	Oklahoma (site visit)
Colorado	Louisiana	Pennsylvania
Florida	Michigan	South Carolina
Illinois (site visit)	Minnesota	Tennessee (site visit)
Indiana	Nebraska	Washington

#### Site Visit Methodology

Site Selection. All survey recipients were considered for follow-up visits by project staff. Selection of the three sites visited was based on the potential quality of information to be gained, willingness of the agency to host the project team and the availability of project principals (the state representative, architect, contractor) to contribute to the study. There was also an effort to choose sites distributed geographically throughout the continental United States.

Visit Activities. Site activities entailed a two-day visit to a unit within the state department of corrections responsible for facility construction. Where applicable, project staff spoke with the state architect or project administrator, department of corrections project team members, primary architect/engineer, general contractor and facility operations staff. Interviews with site visit participants followed the structure of the mail/telephone survey, focusing on areas relevant to each individual's area of expertise and project participation. Participants were also asked to review tentative conclusions from the mail/telephone survey and respond to proposed project recommendations. Additional information on desirable procedures or alternative strategies for planning, design and construction was sought. Respondents were asked to fully explore their problems, solutions and projections for the future of prison construction.

The visit also entailed a tour of the facility described in the survey or one developed using the same prototype design. The tour was conducted by an individual(s) familiar with the daily operating and maintenance requirements of the institution, who was also present prior to and/or during the time the facility was opened. In the course of the field work, project staff reviewed construction-related documentation and materials, including for example, planning reports or documents, the architectural program for the facility, bidding and selection criteria for the



architects and contractors, and post-occupancy evaluation reports. A consultant-architect accompanied the two project staff for the first site visit.

As recommendations developed in the course of telephone surveys and site visits, preliminary recommendations were reviewed by the Steering Committee of the Committee on Architecture for Justice, of the American Institute of Architects, a Project National Advisory Committee, survey participants and other interested groups and individuals. Project work was also coordinated with current project management training conducted by the National Institute of Corrections and architectural design criteria material developed by the American Correctional Association.

## **Appendix B**

### **Perspective on Siting: Maryland**

# The Problems and Politics of a Prison Site

By John Feinstein

Washington Post Staff Writer

ANNAPOLIS—Since 1976, when Maryland Gov. Marvin Mandel authorized the purchase of an old can factory in Baltimore to be converted into a penitentiary, prisons have been a source of nonstop headaches to the state's governor and the General Assembly.

And even in this era, when much of the political rhetoric here is directed at Washington, the mention of prisons quickly diverts attention to issues closer to home.

On Tuesday, a task force appointed last year by Gov. Harry Hughes will recommend that a new 1,000-cell prison be constructed

in Somerset County, the most remote of the counties on the Eastern Shore. Hughes is likely to follow that recommendation and, if all goes well, the new prison will open sometime in 1987.

The search for this prison site has been typical in many ways: Arguments over where to put the prison, outrage from citizens where the prison was contemplated and enough changes in the unfolding plot to make a decent soap opera.

Two major factors, however, make the decision to build in Somerset unique and, in some ways, a watershed in terms of the state's future corrections policies.

First, Somerset is likely to get the prison

because its five-member county commission made a rare request—they asked the state for it. Even though they had a 3-to-2 change of heart last week, their initial request probably will be honored.

Second, building a maximum-medium security prison in a rural setting, far from the environment where most prisoners come from, goes against much of the penal philosophy of the last 10 years. That philosophy held that prisons should be built where most criminals live and where they can be expected to return: urban areas. To put prisoners in a remote, rural setting, have them work on farms perhaps, was a waste of time.

See PRISON, B7, Col. 1

## The Choosing of a Prison Site in Maryland

PRISON, From B1

Times have changed and so have those philosophies. "One of the most important things in building a prison is the kind of work force you can get to staff the prison," said Thomas W. Schmidt, the state's secretary of public safety and correctional services. "In a rural area, you're going to have much less turnover in staff than in an urban one."

"Also, you can build a bigger, more efficient prison and you can do it for less money," said Schmidt, pointing to an addition to a prison near Hagerstown that will come in for \$10 million to \$12 million less than its projected cost.

Schmidt concedes his view represents a change in prison philosophy.

In 1977, in a report to the legislature on prisons, Gov. Mandel emphasized the importance of putting prisons in urban areas. In 1980, when Del. Timothy F. Maloney (D-Prince George's), the chairman of the House subcommittee that deals with prisons, proposed building a prison in a rural location, he remembers, "the whole world came and testified against it. They said you just didn't do that."

Now, Maloney says, long-term prisoners probably will end up in the rural prisons.

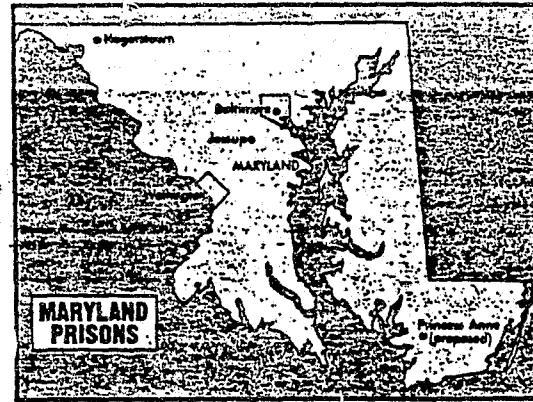
According to legislative analysts, there is another trend: Communities are not adamantly opposed to prisons. In Illinois last year, Gov. James Thompson was greeted on a tour by townspeople holding a sign asking him to locate a prison there. "A secure, maximum security prison in the neighborhood does not seem like such a big price to pay in the face of rampant unemployment."

Somerset County has been hit hard by the recession. Its unemployment rate is 17.2 percent, more than double the state average. A prison would create 500 jobs, with state-paid salaries of \$12,000 to \$20,000 a year, handsome in such an out-of-the-way area, and, the work is guaranteed.

The prison also would help local businesses with an influx of friends and relatives who would visit prisoners.

The negative side is in the housing market, which is often adversely affected by having a prison in the neighborhood because new businesses tend to shy away from such an area. But given Somerset's economy, jobs, not selling houses, are a priority.

"I think the commissioners in Somerset showed a lot of foresight with their request," said Del. R. Clayton Mitchell Jr. (D-Kent), the chairman of the House Appropriations Committee and the man looked to by Eastern Shore residents to protect their interests. "I've said all along that I won't let the prison be built in any county that doesn't want the prison. But they want it, so as far as I'm concerned, they've got it."



However, last Friday, 10 days after giving the governor's task force a tour of potential sites, the Somerset County commissioners, under pressure from public reaction, voted 2-2 against the prison. Their vote was read to a crowd of about 700 that had gathered in Princess Anne to voice opposition to the prison. But even though representatives from the county will meet with members of the Hughes task force here on Monday, a belated political change of heart is unlikely.

"It's probably too late," said Michael F. Canning, one of Hughes' chief aides and a member of the task force. "They asked for the prison, they're probably going to get it. Certainly you want local support. But if you only put a prison in a place where everyone wanted it, you'd never get one built."

Hughes himself points out, "I doubt if there's a location in this state where you could put a prison that someone isn't going to be upset about it. What's just the nature of it. You wish you didn't have to build prisons but you do. It's that simple."

The history of this prison is a long and tangled one. It dates back to the state's purchase, for \$2.9 million, in 1976 of the Continental Can Factory in Baltimore. The site was to be converted into a new prison. But even while the bulldozing work went on, city officials screamed that they didn't want another penal institution in the city, in addition to the state penitentiary and the city jail already there.

In 1978, Acting Gov. Blair Lee III, facing a tough election fight and needing support in the city, gave up on the site and sold the factory back to the city for \$2 million, after having invested another \$1.6 million in the site. Net loss to the state: \$2.5 million.

"Blair made a political decision," said former Sen. Victor L. Crawford, who until this month was chairman of the legislative committee that eventually recommended the Eastern Shore site. "We desperately needed a prison. But he desperately needed support in the city and

Mayor William Donald Schaefer and those guys were screaming. Lee's political move did him no good, he lost the Democratic primary to darkhorse Hughes."

When Hughes was inaugurated in 1979, one of his appointments was Gordon Kamka, warden of the Baltimore City Jail, as secretary of Public Safety and Correctional Services. Kamka's policies were liberal. He believed in working at rehabilitation and in early parole, so he declared there was no immediate need for a new prison.

"That really set us back," Crawford remembered. "I don't care how liberal you are. We needed a prison."

Under fire, Hughes removed Kamka as corrections chief in March 1981, and began looking actively for a new prison site. Last winter, he asked the legislature to fund a 750-bed addition to a facility outside Hagerstown. Washington County was not thrilled, so the funding was done with a caveat: Hughes agreed to appoint a task force to examine whether the proposed prison was needed.

"Doing those projections was easy," said Schmidt, who succeeded Kamka and brought order to a system where there had been chaos. "You look at figures and make some assumptions. It was obvious we needed another prison. Then, as always, the problem was the site."

Hughes' task force and Crawford's committee reached the same conclusion: A new 1,000-bed facility was needed. Projections showed that the prison population, which stood at 11,058 this week in a system designed for a maximum of 7,500, would peak at about 12,500 in 1990. Then came the \$64 question: Where would the new facility be put?

There was some sentiment to build in Prince George's County. The boys' village site in Cheltenham seemed to be a natural spot. But two factors blocked that idea, according to Crawford. "Prince George's has seven senators and 21 delegates, that's sizable political strength. Also, construction costs in the Washington area would have been incredible."

Others, notably then-senator Ed-

ward J. Mason, a member of Crawford's committee, suggested his home county, Allegany in western Maryland. But the terrain there is mountainous and, again, costs would have been prohibitive.

So attention turned to the Eastern Shore. Cecil County in the north seemed like the place for a while. There were two potential sites. But the best one, at Bainbridge, was on federally owned land that might be difficult to purchase. And the Cecil County commissioners were opposed to the prison. Still, the task force was ready to recommend Cecil when suddenly, officials from both Caroline and Somerset counties came forth and said, "How about us?"

The task force deferred its decision to hear out the two counties. Caroline's commissioners pulled out within a week though and Somerset emerged as the logical choice since the five commissioners were unanimous (then) in their desire to get the prison.

Now Somerset's politicians say they will ask Hughes to back off and go elsewhere. That request probably will be refused, but the battle is still a long way from being over.

"You have to just DO it at some point," Mitchell said. "The fact is, anywhere you go, Somerset, Cecil, pick a place, the same people screaming they don't want a prison are the same people screaming that all these people should be locked up. But they want it both ways. 'Lock 'em up,' they say, 'but not at my door.' That way of thinking will never change."

The Washington Post  
Monday, January 31, 1983

# House Panel Urges That Hughes Reconsider Choice of Prison Site

By John Feinstein  
Washington Post Staff Writer

ANNAPOLIS, March 24—A House of Delegates subcommittee recommended today that the legislature instruct Gov. Harry Hughes to reconsider his selection of Somerset County for a new Maryland prison.

The appropriations subcommittee on prisons and transportation asked that the final decision on a site be delayed at least until Nov. 1 so Hughes can reconsider his decision. If the subcommittee proposal is upheld by the full House of Delegates, as expected, and the Senate, it could delay construction, due to start by the end of this year, for six months.

This afternoon, at his weekly press conference, Hughes was adamant about not changing sites at this late date. "We've made a site selection and we should go ahead as rapidly as possible," Hughes said. "I would hope that the legislature, which has complained about delays in this project, would not bring about any further delays."

The subcommittee's action took the form of a budget amendment that said the governor may not spend any money on a new prison until Nov. 1. The amendment requested that the governor and the other members of the Board of Public Works examine sites in Somerset and Cecil County.

The subcommittee, headed by Del. Timothy F. Maloney (D-Prince George's), said Hughes' decision to put the prison in Somerset was based on the willingness of the county commissioners there to accept a prison and not on whether it was the best location.

"If the governor says we should build a prison on the moon, that doesn't mean we're going to do it if we think it's a bad site," Maloney said. "We think the governor acted hastily on this. The legislature is not going to do the same thing."

The subcommittee's action followed a Tuesday visit to the proposed Somerset site by Maloney and Appropriations Committee Chairman R. Clayton Mitchell Jr. (D-Kent). The two came back convinced that construction problems plus the site's location near a highway and a populated part of town, as well as the area's high water table, made it a bad choice.

Hughes and the legislature have been wrangling over the new prison for more than a year. Late last year, a gubernatorial task force was prepared to recommend that the prison be situated in Cecil County when Somerset's commissioners requested the prison. Within 10 days, the task force recommended Somerset to Hughes, who accepted their advice.

Hughes also announced today that rather than build temporary facilities during the next year to accommodate 600 more prisoners, he will recommend that construction of another prison in Hagerstown be accelerated.

Hughes' new opposition to temporary facilities comes after the governor was rebuffed Monday in an effort to get the Washington County commis-

sioners to accept them. "We came up with this idea last week, after we met with the commissioners," Hughes said, forgetting the meeting was Monday. "It's been a long week," he added when corrected.

Maloney also disagreed with Hughes on the subject of temporary facilities. "If we just accelerate, we're still going to be 600 beds short," he said. "The system is overcrowded now and this isn't going to help things any."

This afternoon, Maloney and his subcommittee presented their report on the capital budget to the full Appropriations Committee, which is expected to back the subcommittee.

And the committee has the backing of House Speaker Benjamin L. Cardin. "They have some problems with the site and they want the governor to take another look," Cardin said. "The delay involved is minor and the final decision, ultimately, will still rest with the governor."

Said Hughes: "I have made a final decision."

## IN ANNAPOLIS

# Communication Problem Snarls Funding for New Md. Prisons

ANNAPOLIS, March 18—A House Appropriations subcommittee today gave a setback to Gov. Harry Hughes and his staff by voting to cut off funding for two 250-bed prisons scheduled to be built in Baltimore, deciding instead to locate the 500 beds elsewhere in the state prison system.

The two prisons, known as BG&E 1 and 2, since the two sites were purchased from the Baltimore Gas and Electric Co., were deemed by the subcommittee to be too expensive because of high construction costs in the city. The subcommittee voted to add the 500 beds to the proposed 1,000-bed prison scheduled to be built in rural Somerset County.

Because of a breakdown in communications between House Speaker Benjamin L. Cardin, committee chairman R. Clayton Mitchell Jr. (D-Kent) and subcommittee chairman Timothy F. Maloney (D-Prince George's), the subcommittee voted to move the 500 beds to Somerset thinking Cardin approved of the move.

Cardin had spoken to Mitchell and Maloney on the speaker's podium during yesterday's session of the legislature and the two had left with the impression that Cardin had approved the move. Cardin said yesterday he did not realize exactly what they were proposing.

"I thought they were just saying they were going to take away the funding for BG&E, and that was okay with me," Cardin said. "But I didn't realize they were talking about moving them to Somerset. I think that's a mistake. That might jeopardize the 1,000 beds [planned for that site] and I don't want to do that."

Cardin told that to Maloney this afternoon and Maloney agreed to ask the subcommittee to change the

bill so that the location of the 500 beds would be left unspecified.

Hughes staffers said they were upset about the plans to cancel the prisons, especially BG&E 1, where \$2 million already has been spent in the planning process. Sources said this afternoon that Hughes would concede defeat on BG&E 2 but would probably fight for BG&E 1.

Washington Times, February 25, 1983

## NOTES FROM ANNAPOLIS



### *Somerset seeks benefits if new prison built there*

If Maryland goes ahead with plans to build a new prison in rural Somerset County, officials there want a say in how it's run and a fair share of the financial benefits the prison can bring to their impoverished county.

Members of the House Appropriations Committee were urged yesterday to approve a bill that would protect the county's interests if the prison is constructed on U.S. 13 north of Princess Anne.

But state prison officials don't like the bill and are pushing for its defeat.

One of the provisions in the bill would prohibit the state from housing more than 1,000 prisoners at the institution.

Gov. Harry Hughes said at his news conference he is opposed to that provision because caps on population at state prisons "pose a very serious problem."

In addition to allowing no more than 1,000 inmates in the 1,000-cell prison, the bill would:

- Prohibit location of work release or other minimum-security facilities at the Somerset County site.

- Require the state to give Somerset County residents first preference in the hiring for construction and staffing of the prison.

- Ensure that purchases related to the prison be from Somerset County businesses when practical.

- Require the state to get written approval from the county commissioners before purchasing land for the prison.

## Appendix C Perspective on Siting: Illinois



# Towns in Midwest Scramble for Unlikely Saviors

## Communities Battle Unemployment

By Jay Mathews  
Washington Post Staff Writer

**MARSHALL, Ill.**—The last time Illinois built a prison, no town wanted it. But when the state announced plans for a new 750-bed medium security facility last year, more than 20 Illinois towns exploded with enthusiasm.

The citizens of Marshall even painted "Welcome Mr. Lane" on the high school football field in huge, fluorescent orange letters when the state's director of corrections paid a visit.

Like a prison, a mammoth slaughtering plant exuding the odors of 16,000 hogs a day lends little enchantment to any town. But Stanwood, Iowa, and Sheffield, Ill., are fighting tax break for tax break, environ-

mental concession for concession, to get those butchered hogs into their city limits.

Throughout the economically devastated Midwest, with factories crippled by foreign competition and farmers chilled by recession, communities are grasping for unlikely saviors—prisons, chemical plants, rendering yards—anything to keep tax dollars and children from migrating to the Sun Belt.

With some of the nation's highest unemployment rates, Midwesterners are suffering not only in big cities like Detroit, but also in little towns like Marshall, population 3,500.

Here, small components of the auto industry like the Stanadine/Supernet plant, See **MARSHALL, A10, Col. 1**

### MARSHALL, From A1

a beige brick-and-metal building where rear view mirror brackets and air conditioning parts are made, has laid off about 10 of 70 workers and helped push the town's unemployment rate to 16 percent.

Fete Kelley, 37, has been out of work since July. The little plastics factory where he worked closed, leaving him to live on the \$10,000 a year from his wife's work as an accountant and odd electrical jobs he has been able to find. He hopes the prison will come soon, which would mean \$35 million to \$50 million in construction work followed by a \$9 million annual payroll for at least 400 local people expected to be hired.

Freckled and sandy haired, Kelley now babysits his son Eric, 9 months, and thinks about the good job he used to have at a prison in Indiana. "The last couple years have been real bad," he said. "The prison would help."

Mayor Ted Trefz, 60, a solid man arriving at his office in casual clothes and baseball cap decorated with his feed company's logo-type, has been to the state capitol at Springfield twice to lobby for the prison.

Marshall has intense competition from 21 other Illinois locations, such as Brown County, which last week sent a 100-car "caravan to the capital" to impress Gov. James R. Thompson, who must make the decision. The county has offered an 80-acre site—worth \$150,000 or one-third of the annual county budget—for free.

Half the county's 5,000 residents turned up at a public hearing to support the project and on Valentine's Day Thompson and Department of Corrections Director Michael Lane each received a dozen red roses and a poem:

When you make your decision  
On a medium security prison,  
You'll find not a frown  
In the County of Brown.

"In 1977, when we had to locate a couple of new prisons, we had to go around hat in hand and cajole people into letting us even talk to them," said Nic Howell, public information officer for the corrections department.

The reason for the change of attitude, he said, "is the economy." Only two of the 22 communities competing for the facility have unemployment rates below 10 percent, "and most are in the 16- to 20-percent range," Howell said.

In Stanwood, Iowa, the unemployment rate is at least 16 percent, according to the calculations of mayor and carpenter Mike Rouse and his artist-insurance agent wife Karen, who know every one of the 700 town residents.

"I do not want it to end up like a ghost town," said Karen Rouse, explaining the effort they have put into attracting a huge and potentially smelly pork processing plant.

Already 17 houses are for sale in the little community with no buyers in sight. Without the plant, she said, "The town is going to dry up and all we are going to have is retired people."

One of the young people the Rouses worry about is Donald Doser, 27, who was laid off as a painter at the Harnischfeger crane plant in Cedar Rapids a month ago. Doser's wife, Lynn, lost her job a year ago in cutbacks at a small factory eight miles from Stanwood.

The plant, which makes battery chargers and automobile parts, is one of hundreds of little automobile-related factories scattered through the Midwest feeling the auto industry chill.

In October, Doser's unemployment benefits will run out and it will be time to think of packing up 2-year-old son Anthony and moving elsewhere. "I have been to Cedar Rapids looking for other work, but the situation is futile; it really isn't worth it," he said.

Similar to Marshall, Stanwood sits just off the main thoroughfare like a small patch of history on the flat, rich farmland. It has short streets with big, two-story gabled houses on acre plots, large trees and small shops, gas stations and little factories slipped in here and there.

Many people engage in some part-time work. Karen Rouse has painted soft-colored Iowa woodland scenes on her living room walls and sells some paintings at fairs. Doser occasionally finds a farm equipment repair job.

But each family needs at least one steady source of employment, so many have depended on jobs at factories in nearby cities (Stanwood is 30 miles from Cedar Rapids and Marshall is 15 miles from Terre Haute, Ind.) where layoffs have become rife.

The hog processing plant, which would be the country's largest, would provide 600 new jobs, not counting construction work for the multimillion-dollar facility. Iowa Beef Processors Inc. of Dakota City, Neb.—a subsidiary of Occidental Petroleum—has narrowed the search to Stanwood and Sheffield, Ill.

Iowa has arranged a big tax break on Stanwood's behalf, as has Illinois for Sheffield, and the Iowa legislature is moving to ease environmental restrictions on treatment of water for the facility, which the company says would consume 3.5 million gallons a day.

A few local farmers, backed by environmentalists, have gone to the state capitol to oppose these concessions. Many Stanwood merchants think such opposition is suicidal.

Deborah Butler, 30, mother of two children and owner of the Hi-Way Gardens roadside bar, said if the town's economy does not improve soon, "I don't think I can stay in business." The beauty shop owner also is in trouble. "She hasn't paid her water bill in a year," said Rouse, the frugal mayor. "She's working on it," said his wife, the loyal customer.

The Rouses have three tall, handsome sons—Todd, 19; Tim, 16, and Tyler, 13—the central reason why they and parents in hundreds of other small towns throughout the Midwest are fighting for projects that would increase the number of jobs close to home.

In Marshall, city meter reader Jim Phillips' 19-year-old son, Jimmy, was laid off at Stanadine/Supernet and left for Houston where he quickly found construction work.

According to Phillips, Jimmy "was tickled to death" but Phillips' wife, Patricia, was not. "She's down there right now, seeing how he is," Phillips said.

In Kankakee, Ill., a much larger community with 102,000 people and a well established industrial base, the unemployment rate is just as high—16.3 percent—and the determination to do something about it just as fierce as it is in Marshall.

Roper Corp., the stove manufacturer that had been the county's largest employer, has laid off 680 workers and is scheduled to let go 600 more.

# Smaller Midwest Towns Seek Unlikely Saviors for Unemployed

In response to that threat to Roper and other large factories that depend on the crippled housing and automobile markets, banker and Chamber of Commerce Board Chairman Donald V. McCann and Chamber of Commerce President Les L. Horrell Jr. are trying to interview every major employer in the county and, with the help of local officials, tend to their slightest need.

"If they need a stoplight to make the traffic flow smoother, we get them a stoplight," Horrell said.

They also aggressively have promoted Kankakee, 50 miles south of Chicago, throughout the state and the world. A 13-minute videotape on the city's advantages, kicked off with the brief mention of Kankakee in the Arlo Guthrie song "City of New Orleans," has been sent to dozens of companies and copies have been dubbed in Japanese and German.

Their efforts have paid off.

General Foods created more jobs by consolidating its coupon redemption center in the county. Connecticut General opened new offices in the county town of Bourbonnais and Kroger Corp. is opening a new supermarket in an abandoned Montgomery Ward building, creating 114 new jobs.

Some Japanese officials, entranced by the videotape, landed their helicopter on the sixth hole of the Kankakee country club recently and got in some golf and a good look around.

Other Midwest cities are pursuing businesses unwelcome elsewhere.

Austin, Minn., issued \$350,000 tax exempt bonds to entice Northway Products Inc. to move its animal products processing plant into town after court ordered it moved out of Mason, Iowa, because of complaints about its odors and truck-traffic noise.

But in some places, the protests about unpopular projects have stymied even the most energetic city promoters.

Fury outcry over a proposal for a new hazardous waste treatment plant in Kankakee led the Chamber of Commerce to waste hands of efforts to promote the idea. In anwood, energetic lobbying by a few families persuaded the state House of Representatives to restore protections against large quantities of sulfur in water charged by the hoped for pork-processing pit.

Our biggest gripe is how one company can come into Iowa and try to change our way," said Tom Fagan, one of the protesting tanwood farmers. "Why can't they come into the community clean?"

Donald Doser supports the plant because it would improve the job situation and perhaps make it unnecessary for him to move to Oklahoma City, where he could get an oil field job but has mixed feelings about working with flammable materials 150 feet up in the air.

But, he cautions, if the plant comes in, "I don't want to give up the environmental protections."

In Marshall, only a few people—Mayor Trefz says he can name all three—turned out at the public hearing on the second floor of the American Legion Hall to oppose the new prison.

But some may have stayed away thinking any opposition is futile. Georgia Rease, an older woman who owns the East Marshall Motel, explains this attitude as a discomfort with any change in what has been a pleasant existence.

"Marshall won't ever set the world on fire, but it does have one thing going for it. It is a nice place to live," she said. "A lot of people who have lived here a long time aren't too crazy about the prison."



Mayor Ted Trefz has been to the state capitol at Springfield twice to lobby for the new Illinois prison.

## Appendix D Commission on Accreditation for Corrections Standards Relating to Physical Plant Requirements

**STANDARDS RELATING TO PHYSICAL PLANT REQUIREMENTS**  
**Standards for Adult Correctional Institutions**  
**Second Edition**  
**and**

**Standards for Adult Local Detention Facilities**  
**Second Edition**

The following standards indicate facility planning and design requirements for adult correctional institutions and adult local detention facilities. The list is not necessarily comprehensive in that variations in the mission of an institution may require consideration of other standards; e.g., space for a medical facility, educational program area, a barber shop, etc. The following, therefore, is intended for use as a guide to accompany the standards manuals and should not be viewed as a complete listing of design needs. The standards with an asterisk (\*) represent security design considerations. Bracketed [] standards have been revised or deleted in the 1983 Standards Supplement.

**Standard Numbers**

ACI	ALDF	
2-4076	2-5073	- Personnel/inmate records (storage space)
[2-4116]	2-5110	
2-4086		- Staff training space
2-4127		- Units of 500
2-4128		- Rated bed capacity
*2-4129		- Single occupancy cell
	*2-5110	- Single occupancy cell (floorspace)
	2-5111	
	*2-5137	- Single occupancy cell/new facilities
	*2-5138	
*2-4130	2-5112	- Room furnishings
	2-5113	
	*2-5139	- Room furnishings/new facilities
*2-4131	2-5114	- Dormitories
*2-4132		- Minimum security rooms

# Standard Numbers

ACI	ALDF	
[*2-4133]	2-5118	- Male/female separation
*2-4134	2-5119 2-5120	- Emergency evacuation routes
*2-4135	2-5115	- Segregation housing units
*2-4136	2-5116	- Segregation observation
	*2-5117	- Special purpose room
2-4137	2-5124	- Day room space/existing facilities
2-4138	2-5125	- Space for exercise
2-4139		- Classroom size
*2-4140	2-5339 2-5342	- Visiting area
2-4141	2-5045	- Commissary space
*2-4142		- Watchtowers
2-4143	2-5126	- Food preparation area
2-4144	2-5127	- Staff space
*2-4145		- Handicapped inmates
	*2-5142	- Handicapped inmates/new facilities
2-4146		- Public/handicapped access
	2-5143	- Public/handicapped access/new facilities
2-4147	2-5131	- Janitor space
2-4148	2-5131	- Storage space
2-4149 2-4393	2-5132 2-5255 2-5350	- Personal property storage
2-4150		- Mechanical equipment
	2-5148	- Mechanical equipment/new facilities
2-4151	2-5133	- Preventive maintenance

# Standard Numbers

ACI	ALDF	
*2-4152		- Dormitories precluded/new facilities
2-4153		- Code applicability/new facilities
	2-5134	- Code applicability/existing facilities
2-4154	[2-5135]	- Ventilation, light, heating/new facilities
2-4155	2-5136	- Interior finishing material/new facilities
2-4156	2-5145 2-5146	- Indoor recreation space/new facilities
2-4157	2-5145 2-5146	- Outdoor recreation space/new facilities
2-4158	2-5144	- Day room space/new facilities
*2-4159		- Administrative segregation units/new facilities (recreation space)
*2-4160		- 500 inmate maximum/new facilities
2-4161	2-5140	- Institution location/new facilities
*2-4162	2-5149	- Fire safety code compliance
2-4163	2-5150	- Fire and safety inspection
*2-4164	2-5151	- Fire prevention regulations and practices
*2-4165	2-5152	- Fire alarm and smoke detection systems
*2-4166	2-5153	- Materials fire safety
*2-4167	2-5154	- Receptacles for flammables
2-4168	2-5155	- Marked exits
2-4169	2-5156	- Travel distance to exits
*2-4170	2-5157	- Back-up power and lighting
*2-4173	2-5160	- Emergency release (doors)
*2-4175	2-5162	- Storage of flammables, caustics



Standard Numbers

ACI	ALDF	
*2-4177	2-5121	- Institution perimeter
*2-4178	2-5167	- Perimeter surveillance
[*2-4179]	2-5123	- Sally ports/safety vestibules
[*2-4180]	2-5204	- Vehicular entrances/exits
*2-4181	2-5164 2-5165	- Control centers
2-4181-1		- Control center communication
2-4181-2		- Correctional officer posts
2-4181-3		- Observation of special management inmates
2-4182	2-5170	- Regulation of inmate movement
2-4186 2-4187	2-5185	- Firearms control
*2-4189	2-5184	- Arsenal
2-4196	2-5190	- Key control
*2-4197		- Tool control
*2-4213		- Communications system to outside facility
[*2-4214]	2-5206	- Segregation units
*2-4224	2-5215	- Showering/segregation
*2-4227	2-5218	- Visiting/segregation
2-4228 2-4229	2-5219 2-5220	- Telephone privileges/segregation
*2-4232	2-5223	- Exercise/segregation
2-4233	2-5224	- Programs/segregation
2-4245	2-5235	- Toilets/wash basins in food service
2-4246	2-5242	- Food service facilities/equipment
*2-4249 *2-4250	2-5236	- Dining area

Standard Numbers

ACI	ALDF	
[2-4255]	[2-5243]	- Sanitation inspections/code compliance
2-4256	2-5244	- Water supply
2-4258	2-5247	- Vermin control
2-4259	2-5248	- Waste disposal
*2-4268	2-5257	- Bathing facilities
*2-4269	2-5258	- Water temperature control
2-4275		- Medical facility
2-4276		- Infirmary/code compliance
*2-4277	2-5264	- Medical space requirements
2-4285	2-5266 2-5271	- Emergency response time
*2-4297	2-5117	- Special treatment facilities
*2-4317	2-5288	- Storage of controlled substances/pharmacy
[2-4324] [2-4325]	2-5294	- Attorney access
[2-4326]	2-5295	- Law library access
[*2-4328]		- Healthful environment
[2-4330]		- Recreation areas/equipment
*2-4331	[2-5129] 2-5370	- Male/female separation
[*2-4332]	[2-5129] 2-5370	- Male/female living conditions
[*2-4337]	2-5299	- Visiting
2-4376	2-5333	- Inspection of mail
2-4379	2-5335	- Public telephone access
*2-4382	2-5338	- Visitor entry/search
*2-4383 2-4384	2-5339	- Visiting facilities

# Standard Numbers

ACI	ALDF	
2-4389	2-5345	- Admissions/orientation programs
2-4396	2-5346	
2-4401	2-5352	
	2-5354	- Degrees of custody, classification
	2-5355	
	2-5383	
	2-5141	- Degree of custody, classification/ new facilities
[2-4416]	[2-5365]	- Compliance with work space codes
2-4431	2-5375	- Educational program space/equipment
2-4442	[2-5376]	- Library space (if provided)
2-4458	2-5373	- Recreation facilities and equipment
	2-5374	
2-4470	2-5128	- Religious program space
2-4486	2-5351	- Release preparation
	2-5383	
	2-5108	- Conditions in activity area
	*2-5122	- Storage of security equipment
	*2-5109	- Intake area
	[*2-5147]	- Water control/new facilities
	*2-5166	- Alarm system
	*2-5168	- Electronic surveillance
	*2-5171	- Supervision/observation
	[2-5174]	
	*2-5173	- Location of posts
	*2-5196	- Maximum capacity overload
	2-5378	- Pretrial program space

# Project Contributors

Ronald J. Angelone, Oklahoma	Mark A. Levine, Maryland
Daniel C. Bosse, Illinois	Luther Lockett, Kentucky
J. S. Cauley, Canada	Thomas F. Lynch, Minnesota
Michael Cohn, Washington, D. C.	James M. Matarelli, Illinois
Howard Cook, Tennessee	James E. McCart, Indiana
Merry Coplin, Maryland	Kenneth L. McGinnis, Jr., Illinois
Ken Davis, Oklahoma	Larry Meachum, Oklahoma
Vernon K. Davis, Oklahoma	Nelson W. Meek, South Carolina
Peter Douglas, Oklahoma	David Melton, Florida
Larry Fields, Oklahoma	Charles Meyer, Louisiana
Michael A. Fitts, Tennessee	Eugene C. Molitoris, Illinois
Tom Giese, Tennessee	Don R. Moreland, Florida
Paula Goodall, Oklahoma	Robert V. Morford, Tennessee
John Grider, Oklahoma	Charles Oraffik, California
Robert B. Groenleer, Michigan	Tom O'Rourke, Washington
Patricia H. Hardison, Tennessee	Jerry W. Preston, Tennessee
Rudy I. Harvey, Oklahoma	Hardy Rauch, Maryland
Dennis Hayes, Tennessee	Robert K. Rhodes, Pennsylvania
Dale Headrick, Oklahoma	Henry N. Shadid, Maryland
Fred Hicks, Tennessee	Larry Spanberger, Illinois
Richard C. Hill, Maryland	Samuel Sublett, Illinois
Glen Hodgson, Illinois	Ira Steinberg, Maryland
Norman Holzhauer, Illinois	Dennis S. Summers, Nebraska
A. E. House, Illinois	Eric Swinn, Maryland
Ralph Igo, Illinois	James H. Thieret, Illinois
Jerry Joplin, Illinois	Catherine Walton, Tennessee
Ralph C. Kenyon, Florida	Carl Wilkins, Louisiana
Kermit Kerley, Illinois	Don Whitehead, Illinois
James Kessler, Washington, D. C.	Joe Wortman, Oklahoma
William Kime, Michigan	Anthony Zelenak, Arizona
Billy C. Knowles, Oklahoma	James B. Zellmer, Minnesota
Robert Kula, Colorado	
Michael P. Lane, Illinois	

# American Correctional Association Correctional Architecture Committee

H. B. Bradley, Chairperson California	Gary Mote, Virginia
Paul E. Bailey, Texas	Frederic C. Moyer, Illinois
Lee Roy Black, Missouri	Sanger Powers, Wisconsin
Rae McNamara, North Carolina	James H. Webster, Virginia
Robert F. Messmer, Missouri	Norman Wirkler, Iowa

**END**