PART 1

INTRODUCTION
This chapter describes the purpose of the Design Guide, the methods used to develop the Guide, the roles different key actors—including users—should play in the planning, programming, and design development process, and how to use the Design Guide in the ACS Child Care Project Development Process.

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DESIGN

This guide provides criteria to govern the programming and design of military Child Care Centers, and to aid in the evaluation of such designs. This guide is directed towards improving early design decisions and towards the development of realistic, cost-effective buildings and outdoor spaces in conjunction with the relevant service's regulations and DOD criteria referenced herein.

It is intended to assist child care directors and staff, Community Service Officers and personnel, and parents to understand and provide input into the architectural programming and design process. It is also intended to aid architects in basic conceptual design and in the development of their designs from initial schematics through detailed design development. Finally, it is intended to assist facility engineers, base master planners, and the Corps of Engineers field offices in evaluating such designs.

PLANNING

This guide is also intended to provide general guidance for using service personnel and Corps of Engineers field offices in developing base-wide master plans for networks of Child Care Centers, and in programming project-specific requirements for Child Care Centers, and in planning facilities for inclusion in military construction programs.

IMPROVEMENTS

It is expected that Child Care Directors and staff, Community Service Officers and personnel, and other using service personnel will find additional use for this guide in developing improvements or in better utilizing existing facilities.
APPLICATION

This document is applicable to all construction projects for Army and other military service's Child Care Centers, whether for new construction, for adaptively reusing other facilities, or for renovating or altering existing centers. This guide also provides procedures for the project planning and programming of specific facilities.

While this is the basic criteria document for Child Care Centers, it is not intended to provide all of the information required for successful preparation of project designs. Additional information must be obtained from the unique requirements at the installation level which are associated with the general description of activities contained herein and the locational constraints and opportunities of the site. The guide outlines procedures for each of these local efforts. Additional information is also available in a variety of useful books and guides on child development, child care, staff development, and facility design. Selected references are included below, and are abstracted in an interim report, Abstracts on Child Play Areas and Child Support Facilities (1978).

CASE STUDIES

The final design guide will present four illustrative concept designs as case studies exemplifying the procedures established herein for determining project requirements, locating facilities, developing architectural programs, selecting patterns from the guide, and for developing design solutions.

These case studies will be for different sizes and types of Child Care Centers. The design will be based on realistic but hypothetical programs, and will represent applications of the patterns and criteria contained in this guide. The case studies are not intended to be used as definitive designs. Each local installation will engage in individual development of program requirements and designs responsive to the local conditions, childcare needs, and the preferences of parents, Child Care Directors and staff, and Community Service Officers and personnel, utilizing the procedures, patterns and criteria specified herein.
The planning and design criteria contained in this report are derived from a process of applied research, programming, and design based on our earlier work in this field (see Moore, 1975; Cohen and Moore, 1977; Cohen 1978; Moore, Cohen, and Team 699, 1977; Moore and Cohen, 1978; and Moore, Cohen, Oertel, and van Ryzin, 1979).

**RESEARCH PROCESS**

The process had six basic stages:

- **Evaluative case studies** at 23 child-care centers (indoor facilities and outdoor play yards) plus an additional 27 outdoor play environments at a total of 1 Air Force base, 1 Naval base, and 17 civilian sites around the country. Facility inventories, behavioral observations of children and staff, focused interviews with staff, program directors, and in a few cases children and parents were conducted at each site. The results are reported in Cohen, Moore and McGinty, *Case Studies of Child Play Areas and Child Support Facilities*, 1978. The methods used for these case studies are reported in a technical appendix, University of Wisconsin-Milwaukee (1978).

- **Systematic review of existing scientific and professional literature** together with our own previous research on child-environment relations, for all relevant findings about the relationship of children's behavior to space and to child-care centers in particular. Included in this review were articles and books in child development, early childhood education, architecture, environment-behavior studies, publicity brochures from manufacturers, and military, national, and state child-care building codes and licensing regulations. Over 800 books and papers were identified which had relevant information. All of this information, together with over 5000 slides and hundreds of black and white photographs of children's behavior and children's environments, is catalogued and stored in the Children's Environments Project Office at the University of Wisconsin-Milwaukee.
The 40 most important works are abstracted in Hill, Lane, Cohen, Moore, and McGinty, Abstracts on Child Play Areas and Child Support Facilities, 1978.

- Identification of significant design issues based on information from these two sources, plus our own professional experience and the advice of colleagues and consultants around the country including those interviewed as part of the site visits and case studies (e.g., the child's need simultaneously for exploration and security).

- Collecting and sorting all the scientific and applied information relevant to each issue into specific packets

THE CYCLE OF RESEARCH AND DESIGN IN ARCHITECTURE
- Development of a central design idea—called a "pattern"—in response to each packet of information, together with the development of more specific criteria and recommendations.

- Organization of the patterns into a sequence relevant for planning and design, and preparation of this draft design guide.

The output from this process is a set of 112 patterns for the planning, programming, and design of child-care centers, each with supporting research-based arguments and detailed criteria.
The Design Guide is organized around two major parts—PLANNING and DESIGN guidelines—preceded by this INTRODUCTION and followed by ILLUSTRATIVE CONCEPT DESIGNS (forthcoming). This organization reflects the two major sets of considerations essential to the development of a new or renovated child-care center.

### Organization of the Design Guide

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Part 1, INTRODUCTION, will give the reader a brief introduction to children, child care, the role of space in children's behavior and development, and Army Community Services (ACS) Child Care Program.

Part 1 includes:

100 Purpose, Methods, Use

200 The Nature of Child Care, Programs, and Facilities

An introduction to theories of child development, types of child-care programs, and facilities, existing regulations, and emerging trends.
The ACS Child Care Program

A brief summary of the goals of the child care program and program components.

Recommended Policies and Changes in Existing Policy

Recommendations about networks, sizes of child-care centers, and family child-care homes, including the alternative of a central, main center and a dispersed system of neighborhood centers.

Part 2, PLANNING CRITERIA AND RECOMMENDATIONS, will provide architects, engineers, base master planners, as well as Child Care Directors and Community Service personnel, with the process description for the planning and program development.

Part 2 includes:

Project Planning Criteria

This section presents criteria and standards for estimating need, establishing networks, choosing particular facilities, and determining the size of the site.

Architectural Program Development Process

This section explains how to develop a specific architectural program for an installation based on this design guide and local information. It discusses how to choose patterns by considering who the users are, what developmental goals are to be emphasized, and what activities are to be included in the child-care "educational" program.
Part 3, DESIGN PATTERNS AND RECOMMENDATIONS is the central section for architects and other design professionals. It presents them with detailed design considerations embedded in a context of larger architectural issues. Programming personnel will find detailed information to tailor a building program to installation needs; evaluation personnel will find the standards by which project proposals and design stages can be assessed.

Part 3 includes:

700 General Design Criteria

This section presents an overview of general design objectives which affect the entire design process, including behaviorally-oriented architectural design, user participation in the design process, barrier-free design, energy-conscious design, and timeliness.

800 Site Design and Development Organizing Principles

This section describes the considerations involved in siting the child-care center and developing the site in accordance with the needs of children, staff, and parents (e.g., developmentally-appropriate play yards).

900 Building Organizing Principles

This section presents the most important patterns and criteria for the conceptual design of the building as a whole, i.e., the overall principles and design concepts which organize the building and give it image and character as architecture (e.g., child-scaled environments).

1000 Individual Space Criteria

This section describes the patterns and detailed criteria for designing each individual space of a child-care center (e.g., an arts and crafts area).
Design Considerations Affecting All Activity Areas

This section presents other important design considerations which, though they are not organizing concepts, will affect the character of many or all of the individual spaces in the building (e.g., places to observe children).

Building Subsystem Criteria

This section describes all the behaviorally-oriented technical criteria for the design of building subsystems (e.g., climate control based on children's comfort needs).

Summary

This section summarizes the criteria presented, and includes both a summary check list of patterns and a set of fold-out matrices relating the key developmental issues for children and the activities most likely to be chosen by Child Care Directors for inclusion in the facility with the corresponding planning and design implications (patterns). These matrices are thus necessary for the selection of patterns to include in the architectural program, to be accountable to the design process, and by which to evaluate design proposals and steps in the design process.

Part 4, ILLUSTRATIVE CONCEPT DESIGNS (to be developed) will show case studies using the planning and design criteria to develop particular, though imaginary, projects. Four centers will be included, ranging in size, type of program emphasis, climatic region, and particular site configuration. The case studies are not definitive designs. They are, however, illustrations of possible applications of the patterns and criteria contained herein in the form of example programs and designs for different facilities involving hypothetical local needs and situations.
This section will help design personnel use the design guide in developing concept plans. It will help programming personnel demonstrate possible design alternatives. It will help families, child-care staff, and community service personnel to compare alternative images of child-care centers and layouts as a part of their participation in the programming and design process. Finally, it will demonstrate to Child Care Directors and Community Service Officers how they might use this Design Guide to rearrange or modify their own centers more effectively.

The two central sections of the guide are comprised of a series of planning or design patterns together with detailed criteria for their implementation. Each pattern describes a problem which occurs over and over again in the environment of childhood or a critical issue about the relation of children to the physical environment, and then describes the core of the solution to that problem, together with detailed technical criteria for its implementation (see Alexander, Ishikawa, and Silverstein, 1977). Each pattern is stated in general terms, so that it can be applied in varying ways depending on local conditions, climate, budget, and local child-care program objectives.

For ease of reading and using this design guide, each pattern is comprised of six parts and follows the same format:

- First there is the title of the pattern stated in general terms, but always specifying some quality or relationship which the environment should have.

- Second there is a brief statement of the issue or problem to which the pattern responds--the behavioral problem--to which the pattern is the solution.
• Third is the body of the problem and the empirical basis for the derivation of the pattern, including a summary of all of the scientific information able to be found regarding the issue in question; this section analyzes the issue, compares and contrasts different approaches to it, and leads to a justification of the pattern.

• Fourth is the pattern itself, stated in terms of an evocative title and including a summary description and one or more diagrams of the physical characteristics or relationships the environment should have in order to solve the stated issue.

• Fifth is a set of detailed criteria recommendations which elaborate on the pattern and give it specific shape and form, stated in verbal and graphic terms.

• Sixth is a list of related patterns which define the larger context into which this pattern fits and which help to give it shape by defining specific detailed parts of it, embellishing it, filling it out.
To best utilize this guide, it is important to understand the Project Development Process for Child Care Centers. The responsibilities of the many actors within that process, and how the sections of this Design Guide relate to the steps of the process.

CHILD CARE CENTER DEVELOPMENT PROCESS

The Project Development Process for construction of Child Care Centers, funded by Military Construction-Army (MCA) appropriation, is represented diagrammatically in the following figure. The sequence of bold-outlined boxes traces the primary series of actions required of the principal responsible actors. The solid-outlined boxes represent other required or mandated actions; the dotted boxes and arrows show optional actions or roles. The shaded area at the top of the diagram indicates the actors within the installation; the bottom half, those outside.
Many designed environments fail or are rejected by users because they do not respond to all real needs or seem not to belong to the community.

Recent trends in planning highly recommend resident and user participation in the planning process, especially in urban areas (Gold, 1968). Other critics of typical planning processes which exclude the prospective users of the planned space have even suggested that the popularity of settings is affected by user participation in planning as well as building. Frost and Strickland (1978) found that, given a choice between three school-yard play areas, two prebuilt and one kid- and parent-built, the latter was favored over the two former.

There are several problems which arise if children are excluded from the planning process. One, adults have forgotten what children actually like and end up superimposing their distant memory of their own childhood onto their children's active and involved imagination. Clay (1972) argued that "to over-design with inflexible materials is to steal away from children (and adults) the right and delight and developmental value of creating for themselves" (p. 39).

Clay went on to argue that the consequence of not allowing for the type of activity children like eventually depresses the spirit of the child:

As kids are more and more excluded from adult work, imprisoned in apartment towers, fenced in by dangerous traffic, forced to live where digging and building are outlawed, a small person must feel he or she is a perpetual underdog in uncontrollable surroundings. To roam safely, to fantasize, build with tools and materials, care for pets, and share (perhaps with his parents, too) creative work-play, would bring the child, as Kaff Linn says, "a sense of mastery over the place he inhabits." (p. 39)
DESIGN QUALITY
Throughout the planning, programming, and design process, emphasis shall be placed on user-oriented design as specific in the patterns and criteria of this guide since it vitally affects the quality of the child-care program and thus the experiences of children, staff, and parents, the people most affected by the facility. Emphasis shall also be placed on the longevity, economics, site appropriateness, energy-efficiency, usefulness, efficiency, and general attractiveness of the building design, including its interior and exterior spaces.

USER INFORMATION
Provisions related to needs of the various users of the facility will be paramount. Provisions related to the efficient operation and maintenance of the facility shall also be emphasized during design. Information to supplement project completion records should be prepared to instruct the using service on how to gain the most benefit from such provisions.
Criteria-Related Definitions

- **Pattern**: The core of the solution to a problem which occurs over and over again in the environment or of the resolution of a critical issue about the relation of children to the physical environment; stated in environmental terms such that there are many ways to apply it in different contexts.

- **Issue**: A statement of a problem which occurs over and over again in the environment of childhood, or an important concern about the role of the environment in child development.

- **Justification or Discussion**: An analysis of empirical evidence relation to an issue and justifying the pattern in response to the issue.

- **Criterion**: A standard of judgement; an established rule against which particulars may be evaluated.

- **Recommendation**: A planning or design suggestion which shall have the status of a criterion.

- **Related Items**: A list of patterns related to one particular pattern, some of which define the larger context into which this pattern fits, and some of which give the pattern more specific, detailed definition.

Facility-Related Definitions

- **Army Community Services (ACS) Program**: A community-oriented, social service program designed to assist the commander by identifying emerging social problems and to assist service members and their families through the development and provision of programs and services designed to meet individual and community needs.

- **Child Support Services (CSS) Program**: An organized effort within the ACS Program to coordinate and manage all activities (on property controlled by the US Army worldwide) which provide services for children.
• Child Care Services: All services necessary to maintain the physical well-being and safety of a child.

• Child Development Services: All services aimed at developing the child's physical, mental, and social capabilities.

Unless otherwise differentiated, further use in this Design Guide of the single term "Child Care Services" will be taken to imply both Child Care and Child Development Services.

• Child Care Activity: An activity primarily offering Child Care Services on an hourly, periodic, non-daily basis, or on a daily, continual, and regular basis.

• Full-Day Child Care: Child Care Services offered scheduled daily, for a full day each day (i.e., from somewhere between 7:30 and 9:00 until 3:00 to 5:30).

• Part-Day or Half-Day Child Care: Child Care Services offered scheduled daily, for a half day or some other regular part of a day, on a regular basis.

• Drop-In Child Care: Child Care Services offered on a period, non-scheduled, non-daily, hourly basis.

• After-School Care: Child Care Services offered to school-age children on a scheduled or non-scheduled, periodic or regular schedule after regular elementary school hours (e.g., 3:00 or 3:30 until 5:00 or 5:30).

• Family Child Care: Child Care Services (not part of foster care) provided in a family housing unit.

• Preschool: An activity (not part of the formal education system) that primarily provides organized learning experiences to an established enrollment of children (usually only between the ages of 3 and 5) for a specific part of the day (usually 2 to 3 hours).
• Child Care Facility: A building or part of a building used to house Child Care Services.

• Child Care Center. (formerly called nursery, drop-in center, co-op, day care center, etc.) etc.): A building or portion thereof (other than a portion of a family-housing unit which portion is still used as housing) which is used exclusively or part-time (such as a chapel) for providing Child Care Services.

• Family Child Care Home: A family housing unit in which the occupant provides Child Care Services.

• Child Care Network; or Network of Child Care Services or Facilities: A comprehensive system of Child Support Services including Child Care Services provided at one or more Child Care Centers and Family Child Care Homes.

Other definitions are covered in Section 200 and in the relevant sections of this Design Guide as needed.