ARCHITECTURAL PROGRAM DEVELOPMENT PROCESS 600

This chapter describes how to develop a specific project program through an interaction of community input, local needs and conditions, and use of the following design patterns. It stresses broad participation of users--parents, staff, children--in the programming and design process. Topics covered, in sequence, range from establishing developmental goals and program activities to choosing patterns from the Design Guide and estimating total building, site development, and furniture costs.

It is our firm belief that facility programs should not be developed either by rote use of the following design principles and patterns, nor by community expressions of needs in isolation of these principles and patterns. Rather, innovative and responsive programs will be developed through an interaction of these two sets of forces--community needs and more general child development considerations as articulated into architectural terms in the below principles and patterns.

Matrices accompanying this chapter are at the end of the Design Guide. They show how to select patterns corresponding to users, developmental goals, and program activities; for ease of use, they can be folded out during program development and design.

601 Establishing Overall Program Objectives
602 Identifying Users and Developmental Goals
603 Choosing Activities and Functional Requirements
604 Selecting Patterns and Establishing Quantitative Requirements
605 Establishing Site Development and Building Costs
606 Establishing Furniture Needs and Costs
ISSUE

ONE OF THE MOST CRITICAL STEPS IN THE DEVELOPMENT OF A CHILD CARE PROGRAM AND RELATED FACILITIES ON MILITARY INSTALLATIONS IS TO ESTABLISH THE BROAD PURPOSES OF THE PROGRAM, WHICH WOULD IN RETURN DETERMINE THE SPECIFIC FEATURES OF THE FACILITY.

DISCUSSION

There are several types of program goals:

- One set of goals is universally applicable to all child care centers as prescribed by AR 608-1—Army Community Services Programs.

- Another set of goals is dependent on local conditions, preferences and aspirations, and deals with the scope and range of services.

- The third type of goals also deals with local choices, and consists of issues related to educational orientation.

The broad and universal objectives of the child care program on military installations are:

- To contribute to the morale and welfare of the Army personnel upon whom the children are dependent, and provide child care while parents are busy with work and other activities.

- To provide a comprehensive system of facilities for child care and aid in the positive child development: the most important function of the Child Care Program is to foster the development of the children—identity development, social development, and physical and cognitive development.

- To provide a setting which can serve as an extension of the family: for many children the center is their home for most of the day. For other children— from a single child family or a single parent family—this is an opportunity to meet and interact with significant others.

- To provide a receptive environment to the transient. Because of the frequent transfers military families face, children often do not have the opportunity to develop long-term associations of friends with whom to pursue activities. The Child Care Program must provide a context for activities into which the transient newcomer can fit easily and quickly.
The goals which are subject to local conditions, preferences and aspirations might include:

- To provide a setting for intervention, e.g., clinical and other children's health related services, counselling to parents, etc.

- To provide integration with other parent-and child-oriented community service programs and facilities.

- To be tied to career development possibilities and to a Family Learning Center.

Similarly, educational orientation and operational approach might involved locally-based goals such as:

- Selecting a particular educational approach or "going eclectic".

- Leaning on active parental involvement vs. professional and hired staff.

- Locating facilities in locus of work zones, e.g., in hospitals, etc., vs. in residential neighborhoods only.

- Outdoor play areas thought of as outdoor classrooms, thus involving heavily natural features for exploration, self-discovery, group play, etc.

PROCESS

Establish a check list of your goals. They should be established collectively by all interested parties. First review the mandatory goals as defined by AR 608-1 and relevant documents such as TM 5-803-11. Then generate a long list of possible goals such as discussed above, and select the ones which are preferred and compatible with your circumstances. These goals should then be transferred to the worksheet in pattern # 1301, SUMMARY OF CRITERIA.
THE FIRST ISSUE TO BE ADDRESSED IN DEVELOPING A PROJECT PROGRAM IS TO DETERMINE THE ELIGIBLE USER GROUP, AND WHO THE USERS ARE TO BE SERVED, I.E., WHAT AGE GROUPS AND HOW MANY OF EACH AGE GROUP. FOLLOWING THAT, THE CHILD CARE COORDINATOR, DIRECTOR FOR THE PARTICULAR FACILITY UNDER CONSIDERATION (IF A DIFFERENT PERSON), THE CHILD CARE STAFF, AND REPRESENTATIVE PARENTS SHOULD DETERMINE WHICH DEVELOPMENTAL GOALS ARE TO GUIDE THE OPERATION OF THE PROGRAM FOR EACH AGE GROUP. APPROPRIATE DESIGN PATTERNS CAN THEN BE SELECTED WHICH WILL FACILITATE THOSE DEVELOPMENTAL GOALS.

Selection of Design Criteria by User Age Groups

Consideration must be given to the relative numbers of children in the different functional age groupings and special factors such as physical and mental handicaps among the eligible population.

The residential location of eligible children on-post or off-post will also affect the type of program offered. Off-post residents are less likely to come to the Center except for special events and unique programs unavailable elsewhere. Nearby on-post children are more likely to take regular advantage of a drop-in facility. An understanding of the locational distribution and activity interest of these user populations should inform the decisions as to the service orientation of the Child Care Center.

One way to select principles and patterns is to determine the demographic composition of children in an area to be served, and to insure that sufficient patterns have been selected that pertain to that group. If insufficient patterns have been selected, it may be necessary either to review developmental goals and to select additional patterns, or to select patterns directly related to the age group in question. An example would be if a community has a large number of infants or very young toddlers (6 weeks to 2-1/2 years), such a situation may require a specially designed facility which will facilitate their developmental needs and accommodate their numbers.
Selection of Patterns by Developmental Objectives

The most valuable way to select patterns for a particular facility is to determine the most pressing developmental needs of children in the community in question, and then select those patterns which will lead to those developmental objectives.

In this process, you can review the list of developmental goals, skills, and objectives, and select the ones which are appropriate for your situation. This approach assumes that you will be developing an architectural program based on a set of goals to be accomplished by children's play, learning and other experiences in the child care setting. The eventual selection of proper solutions will be dictated by these goals. These goals include the development of physical abilities, intellectual-perceptual abilities, and social-emotional abilities.
ISSUE


FOLLOWING THE SELECTION OF DESIRED ACTIVITIES AND RELATED FUNCTIONS, THE QUANTITATIVE REQUIREMENTS FOR THE FACILITY CAN BE ESTABLISHED.

PROCESS

Selection of Program Criteria by Activity

One way to select design patterns to establish the building program is to choose those patterns which interrelate with activities selected beforehand as desirable and needed in the child care facility.

Typical classifications of children's activities are: physical, intellectual, and social activities.

The following are the main domains of activities:

* Activities which develop physical and manual skills.
* Activities to develop intellectual skills.
* Activities to develop sense of self or identity.
* Activities which foster relating to other children, to adults, or to a larger group.

The following list of specific items is an example for the range and types of activities the programmer might choose from. Clearly, this is not an exhaustive list. One can add, modify, and refine the list further. However, the activities listed are basic, and allow entry into this Design Guide—with the aid of the ACTIVITY X DESIGN PATTERNS MATRIX (at the end of the Guide).

Activity Types

* Physical
  - Climbing, running, etc.
  - Crawling
  - Napping
• Physical-Intellectual
  - Sand and water play
  - Quiet, fine-motor play

• Intellectual
  - Arts and crafts
  - Watching A/V and films
  - Nature study

• Intellectual-Social
  - Fantasy-drama
  - Story telling
  - Animal play
  - Building activities

• Social
  - Food preparation
  - Talking-listening
  - Club house play

• Social-Physical
  - Ballgames
  - Wheel-toy play
  - Eating
  - Toileting

RELATED ITEMS
SELECTING DEVELOPMENTAL NEEDS
ESTABLISHING A PROGRAM
ISSUE
A GOOD FACILITY PROGRAM FOR A CHILD-CARE CENTER SHOULD BE GUIDED BY A STRONG AND COHERENT APPROACH TO THE SELECTION OF DESIGN RESPONSES APPROPRIATE FOR THAT FACILITY.

PROCESS
Selecting the Appropriate Design Principles and Patterns

In using this Design Guide, there are three major approaches to the selection of design patterns which will guide the programming and design of any specific child-care center.

- selection by user age groups to be served
- selection by developmental goals and objectives to be achieved
- selection by activities and functions to be accommodated

How to Use This Book to Establish a Program

The matrix with the information classified in the three categories discussed above is located in the last section of this book. Simply open the fold-out chart and use it as a reference guide to any appropriate planning or design pattern.

The matrix is not contained in later editions of this design guide. The remainder of the suggestions for how to use this design guide to establish an architectural program for a particular facility still apply.
A format for a program checklist is also enclosed at the end of the Guide. The purpose of the checklist is the following:

- To document your own set of design goals and the appropriate design patterns
- To monitor application of design patterns in the design process.

The filled checklist is only the first stage in several cycles of the programming process. The input and participation of others (see USER PARTICIPATION IN THE PLANNING PROCESS) is critical to the success of both the programming and the design processes. The filled checklist will serve, then, as an outline for the first of several iterations of the program, to be tuned up by user participation.

Establishing Quantitative Requirements

In order to facilitate cost estimates and begin space allocation and schematic design, quantitative requirements have to be established.

After establishing the basic program, each pattern pertaining to specific activity areas should be consulted for recommendations or directives related to space and area requirements (optimal or minimum square footage). These figures for areas will serve as the basis for an initial "bubble diagram." Their total multiplied by the proper cost factor will establish the estimated cost for the construction of the building (see the tables of square footages recommended for each activity and function in BUILDING GROSS SQUARE FOOTAGE).

RELATED ITEMS

- ESTABLISHING DEVELOPMENTAL GOALS
- CHOOSING ACTIVITIES AND FUNCTIONAL REQUIREMENTS
- USER PARTICIPATION IN THE PLANNING AND DESIGN PROCESS
- BUILDING GROSS SQUARE FOOTAGE
- SITE SIZE
- ESTIMATED SITE DEVELOPMENT AND BUILDING COSTS
ISSUE

COST ESTIMATES FOR SITE DEVELOPMENT AND BUILDING CONSTRUCTION ARE ONE OF THE MOST CRITICAL STEPS IN THE PROGRAMMING PROCESS; GROSSLY OVER OR UNDERESTIMATING THE COST CAN BE EQUALLY DISASTROUS TO THE PROJECT AND ITS QUALITY.

PROCESS

Cost estimates for the site development should be done with the aid of a site layout plan and in consultation with mechanical and electrical engineers. Approximate empirical cost estimates are provided in AR 415-17 and should be listed on a check list itemizing the supporting facilities and activities required in site development, including:

- Site preparation
- Demolition if necessary
- Grading and excavation
- Water supply
- Sanitary sewer
- Gas
- Exterior electric service
- Paving (drives, parking, and walks)
- Fencing
- Landscaping
- Signage
- Site work related to outdoor play area
- Other, as appropriate to the site

The building cost estimates will be prepared in accordance with AR 415-17 which provides empirical SF cost figures for all types of facilities. Cost estimates must provide for complete and usable facilities with consideration having been given to life cycle costs as required by DOD 4270.1-M. The cost data in AR 415-17 are relevant to the building proper including those equipment items which are permanently built into or attached to the building. The following items are typical:

- Built-in counters, sinks and shelving
- Central PA and speaker system
- Telephone, fire alarm and intercom systems
- Built-in furniture, cabinets, hoods and vents
- Built-in movable partitions and platforms
- Built-in projection screens
- Waste disposers and built-in kitchen appliances
• Floor and window coverings
• Chalk boards, bulletin boards and display cases
• Fixed seating and tables
• Mirrors
• Signage and graphics
• Special features for the handicapped
• Other items identified as "CF-CI" (contractor furnished-contractor installed).

A very rough estimate of military construction cost for a building type similar to day care center in 1977 dollars is approximately $48 per square foot (correct for April 1977; see AR 415-17).

To summarize, the steps in the process are:

• List individual items of site development work under "supporting facilities" on DD Form 1391. Base the list on the site plan.

• Estimate the total square footage of the building.

• Use AR 417-17 to estimate the total cost for the site and the building, excluding unattached equipment and furnishings.
PROPER FURNISHINGS AND EQUIPMENT ARE ABSOLUTELY VITAL TO THE SUCCESS OF ANY CHILD CARE OPERATION (CENTER OR HOME). THEY SHOULD NOT BE LEFT AS AN AFTERTHOUGHT, BUT SHOULD BE INCLUDED IN THE SAME CAPITAL EXPENDITURE AS BUILDING AND SITE COSTS. FURNITURE AND EQUIPMENT THAT IS PORTABLE AND DETACHED FROM THE STRUCTURE MUST BE FUR-NISHED BY THE USING SERVICE. THESE ITEMS SHOULD BE IDENTIFIED IN CONJUNCTION WITH PLAN-NING THE BUILDING, IN ORDER TO ANTICIPATE A REALISTIC BUDGET AND DEVELOP A TOTALLY INTEGRATED AND USEFUL FACILITY.

The two ways to estimate the cost of furnishings are:

- To use a general formula (an allowance per child, or a percentage of the total construc-
tion cost). The well-known study of educa-
tional specifications (the Metropolitan Toronto School Board, 1968) suggests a single per-pupil allowance of $106 for equipment for a K-6 elementary school (in 1967).

- To list all needed items and assign costs according to catalogue information.

Often it is economically advantageous to design as much as possible of the furnishings as built-in and attached components of the building. This will make the cost of these furnishings part of the building--and not furnishing--cost.

Yet many child care directors (see Travel Report 1978, especially Big Sisters Colleagues Infant Care Center) are extremely wary of this strategy for in the long run it severely limits program and facility flexibility.

Sources for selection of furniture and equip-
ment are provided in the GSA Federal Supply Schedules, the Federal Prison Industries Sched-
ule of Products, and the general GSA supply catalogue. These sources are mandatory insofar as they meet requirements, and cost estimates should be based on prices therein, escalated to time of actual procurement. Design factors relevant to the selection of furnishings are discussed in FLEXIBLE FURNISHINGS. The following list indicates typical items that should be considered:
- Kitchen utensils
- Infant cribs
- Cots
- Infant changing tables
- Bookshelves
- Rugs
- Cushions, bean bags, stuffed chairs
- Task-oriented lighting
- Sand and water tables
- Animal cages and settings
- Cubbies
- Coat lockers
- Low, movable dividers
- Movable storage units
- Desks, chairs, tables
- Lounge furniture
- Storage and filing cabinets
- Audio-visual equipment, TV set, record players
- Wall clocks; plug in
- Outdoor play furnishings (for specifics, see RECOMMENDATIONS FOR PLAY AREAS)
- Other items

Other sources for selection of furnishings are suggested in this report as well as in books addressing custom made children's furniture, etc. In these cases, rough estimates will have to be made where prices are not quoted.

RELATED ITEM ESTIMATING SITE DEVELOPMENT AND BUILDING COSTS

Total project costs also include professional fees.