INDIVIDUAL SPACE CRITERIA

The following patterns are recommendations for particular types of activities which should be included in a comprehensive child care program. They also are recommendations for the necessary architectural qualities of spaces to support these activities. The overall organization of these spaces into a well-defined building is covered above in the patterns for Building as a Whole. The below patterns detail the design considerations and criteria for the design of constituent activity spaces within the overall envelope.

The design of a child care center should be influenced simultaneously by site considerations (see Site Design and Development), by overall organizational considerations (Building Organizing Principles), and by the demands of the activities being housed (the patterns below).

This chapter includes behaviorally-based patterns and functional, dimensional, relational, and technical criteria for each individual space in a child care facility.

See the matrices at the end of the guide for assistance in selecting which activity spaces and patterns to include in a child care center program based on developmental goals and program activities.
1001 Porte Cochere
1002 Porches and Decks as Activity Spaces
1003 Friendly Faces Entry Sequence
1004 Administration in the Mainstream
1005 Parent/Staff Corner
1006 Staff Back Stage
1007 Multi-use Social Service Area
1008 Resources at the Heart
1009 A Room Which Can Be Darkened
1010 Multipurpose/Motor Activities Area
1011 A Place for Building
1012 Block Play Area
1013 Indoor Sand Play
1014 Liquid Oasis
1015 Nature Study Area
1016 Reading/Listening Area
1017 Arts and Crafts Area
1018 Music Nook
1019 Special Place for After-School Drop-Ins
1020 Infant Circle of Activity
1021 Toddler Transitional Territory
1022 Separated Infant-Toddler Napping
1023 Preschooler Napping Places
1024 Intimate Diapering Area
1025 Learning Bathrooms
1026 Children in the Kitchen
1027 Eating Clusters
1028 Sick Bay
1029 Laundry Area
1030 Maintenance and Service Spaces
1031 Non-Interfering Mechanical and Electrical Space
ISSUE

MANY PARENTS NEED TO GO TO WORK IN THE MORNING AND ONLY HAVE TIME ENOUGH TO QUICKLY DROP OFF THEIR CHILD(REN). DROP-OFF AND PICK-UP ALSO SOMETIMES HAPPEN IN INCLEMENT WEATHER.

JUSTIFICATION

Parents who must cope with strict schedules will find concern with the amount of time which is necessary to drop the child at the child-care facility and go on to work. No matter how much they may appreciate the quality and developmental relevancy of a child-care program, they will be unhappy if the design of the center makes dropping-off children complicated and inconvenient. As found from our site visits (Travel Report, 1978), parents should be easily able to approach the center, take the child in and leave, and, if possible, not even have to turn the car engine off.

The old "porte cochere" may provide a possible solution. It consisted of a roofed space where vehicles could stop for a few minutes directly in front of an entry door. Occupants were able to get from vehicle to building with minimum exposure to inclement weather. For parents and children this could work well as long as the porte cochere did not interfere with other vehicles entering or leaving the longer-term parking area.

Since parents must enter the facility with children, they must be able to leave their cars for a few minutes. This may imply that a porte cochere should actually allow 2-4 cars at a time to stay underneath it.

Further, a porte cochere cannot interfere with pedestrian access to the center since walking is intimate to the schema (see PROXIMITY TO HOME).

PORTÉ COCHÈRE

A ROOFED AREA SHOULD BE PROVIDED IN FRONT OF THE ENTRY WHERE 2-4 CARS CAN STOP FOR A FEW MINUTES WHILE PARENTS TAKE THEIR CHILDREN INTO THE FACILITY.
RECOMMENDATIONS

- The building design could include an extended roof in front of the entry which will allow both pedestrians and car passengers to reach the entry without being exposed to precipitation.

- Enough standing space should be provided under this roof for 2-4 cars.

- The car-waiting space cannot block either pedestrian access to the center or vehicular access to prolonged parking areas.

RELATED ITEMS

ACCESS AND SITE CIRCULATION
PORCHES AND ACTIVITY SPACES
OBIUS ENTRY
CONTROLLED ACCESS
1002  PORCHES AND DECKS AS ACTIVITY SPACES

ISSUE

CHILDREN WILL USE OUTDOOR SPACE AS AN EXTENSION OF INDOOR ACTIVITY SPACE YEAR-ROUND IF PROTECTION IS PROVIDED. USABLE SPACE FOR SPECIFIC ACTIVITIES MAY THUS BE DOUBLED AT VERY LOW CONSTRUCTION COST.

JUSTIFICATION

Child development experts agree that time outdoors is important to children all year round. In British preschools, children spend a significant portion of each day outdoors even during the winter. If children are dressed properly they will enjoy outdoor activity in all but the most severe weather (Pollowy, 1977).

Properly sited and protected outdoor areas must be provided. In all areas of the U.S. visited, the research team found variations of porches, decks, or steps being heavily used by child-care facilities (Travel Report, 1978). From old-fashioned railing-ringed, raised porches on converted houses to wide overhangs on post-and-beam-built new facilities, sheltered outdoor environments provided important extensions of space for indoor activity areas.

Many activities seem, prima facie, to gravitate to outdoor-related space (e.g., sand and water play, arts and crafts, building and construction, cooking and picnicking, animal and nature areas, etc.). For these activity spaces, a corresponding outdoor space would be desirable.

PATTERN

PORCHES AS ACTIVITY SPACES

SHELTERED OUTDOOR ACTIVITY SPACES, ACCESSIBLE TO RELEVANT INDOOR SPACES, WILL INCREASE USABLE ACTIVITY SPACE, EXPAND CHILD-TIME OUTDOORS, INCREASE PLAY POTENTIAL OF OUTDOOR AREA, AND MAKE POSSIBLE NEW ACTIVITIES NOT USUALLY DONE INDOORS (E.G., COOKING OVER AN OPEN FIRE).
RECOMMENDATIONS

- The "porch" or otherwise sheltered outdoor space (e.g., a deck, a well-defined area which can be partially covered by an awning or tarp, or even wide steps with a large overhang) should be integral to building design.

- Minimum width of usable porch space should be 8-9 ft. (residential requirement for a balcony is 6 ft. wide, see Alexander, Ishikawa, and Silverstein (1977), Pattern 167, P. 781).

- Porches should be planned on the most sheltered side of the building (sunny side, away from prevailing winds in colder climates).
The porch should relate directly to the appropriate indoor activity areas.

The porch may be used for rainy-day play area, therefore it should drain easily and have a quick-dry surface.

Close proximity to clean-up area (SHORT TROT TO THE POT) would be helpful.

Progression of most sheltered area next to building to most open area farthest into outdoor play would make play space most usable—children can expand or retract their use of play areas as the weather dictates. This means that surfaces which dry most quickly should be nearest the building, and those which dry most slowly should be farthest away. Activities which provide some weather protection (e.g., play structures, covered sand, etc.) will be closest to porch.

A wall-type shelter may sometimes be appropriate and may be accomplished by roll-down canvas at roof edges or other flexible-use wall system.

RELATED ITEMS
CONTROLLED ACCESS
INDOOR-OUTDOOR RELATION
ENTRY TRANSITION
 ISSUE

CHILDREN AND PARENTS COMING TO THE CENTER WILL BE PARTING FROM EACH OTHER IN WHAT COULD BE EITHER A WARM AND REASSURING SITUATION OR A FORMAL, INDIFFERENT AND POTENTIALLY UNHAPPY ATMOSPHERE.

JUSTIFICATION

Attachment behavior emerges in most children during the sixth or seventh month and increases in intensity until twenty-four months. During this period, children have difficulty tolerating separation from "mother," any separation being a major cause of anxiety. Bowlby ... reports that after their first birthday, children are more likely to be content in a familiar setting upon the departure of their "mother." ... Attachment behavior is still strongly exhibited until the age of three years. After that point, the temporary absence of "mother" is better accepted if the child is secure in being able to resume contact and if familiar people are present. (Polloway, 1977, pp. 9-15)

The key words for designers are obviously "familiar setting" and "familiar people." Entry-transition sequences between outdoors and indoors, between indoor circulation and activity spaces, and between with-parent areas and without-parent areas are thus very important design problems.

The most familiar setting to a child is, of course, home. The elements of home which may be transferable to a child-care center could be:

- "friendly entry" - first indoor space for both parent and child should complete the feeling of enclosure and protection. Use of homey elements such as carpet, warm colors, low light level, and sights of "familiar People" (administrative personnel) will help.
"threshold" - Alexander (1966b) recommends that a "natural threshold" such as a railing, a few steps, or a gate, be provided as a definite place near the entrance to a child's place where children can part from their parents. Such spaces encourage children to form a positive image of the center as a safe, friendly place to be without their parents. This parting place will also provide some protection for goodbyes which a child may wish to say privately. This will also be the place where the child is greeted and welcomed by the substitute parent--the staff person.

The whole sequence from yard to a child's own activity space should be a progressively more sheltered and pleasant experience, thus helping the child feel "at home," secure, and ready to part from the parent. During the whole experience, the child should see and be welcomed by familiar people.

**FRIENDLY FACE ENTRY SEQUENCE**

Provide a friendly face to approaching and entering children, comprised especially of entry through a small yard, and/or a semi-enclosed porch, entry highlighted by clear views of friendly staff personnel, and a friendly "door" to the child's principal activity spaces.

- Use the "front yard" and "front porch" as an integral part of the entire approach-entry sequence.

- Familiar Entry--the entry should have sight-lines to administrative people and to child-activity areas. Entry and paths to activity areas should be warm and homey in colors, surface textures, and lighting (see also PARENT INVOLVEMENT; INTERIOR VISIBILITY).
• Threshold--a distinct threshold between parent-child and child activity areas should exist where children and parents can part and staff can welcome children in a somewhat private area. This threshold should not be a closed space, but a well-defined, private, open space defined by partial partitions, changes in level, changes in light quality, provision of TOTE TRAYS, CUBBIES, etc. Just off this threshold may be a private spot for staff-parent conferences.

• Glass--extraordinarily large expanses of glass may hinder vision by creating reflections, in addition to imposing on the privacy of those inside. Osmon (1971) has suggested an open but not traversable space 10-20 ft. in depth between the approaching path and the windows. At this distance, pedestrians can see in but occupants will not be made to feel uncomfortable under their watch.
• Pleasure Passage--consider the possibilities of using level changes, colors, textures, slides, bridges, lights, windows, smells, and sounds to create a child-oriented passage from entry to activity spaces.

• Reception Station--the reception station should be at a child's scale. The tall, forbidding counter should not be the first view for the entering child. A friendly staff face or children's faces should be visible immediately upon entry. Similarly, the ever-present cash register in many current military child-care facilities will not contribute to the image of a school or home, which are the typical images directors would like to project for users and visitors.
visible activity
visible friendly door
multifunction space
entry
visible indoor activities
parents' area
semi enclosed porch
small yard

RELATED ITEMS
ACCESS AND SITE CIRCULATION
PORTE COCHERE
CONTROLLED ACCESS
OBVIOUS ENTRY
PLEASURE PASSAGE
PARENT-STAFF CORNER
ADMINISTRATION IN THE MAINSTREAM
PARENT INVOLVEMENT
CUBBIES
TOTE TRAYS
OFF-TRACK WAITING PLACES
ISSUE

Besides normal office paper work, planning, ordering, and other management activities which require quiet concentration, a center director and other administrative staff have other, potentially conflicting needs. These include the director's need to be immediately accessible to staff, children, and parents, to participate directly in child-care programs, to supervise and oversee all activities in both indoor and outdoor areas of the center, to meet with groups of staff, parents, and special consultants, and to maintain visual control of the entry area.

JUSTIFICATION

First-time parents and children will be less confused and feel more secure if they can immediately see the administrative-reception area. It is also desirable for returning parents and children to be welcomed by the center director or administrative staff as they enter.

Educators would agree that an administrator involved in programs and accessible to parents, children, and staff is much more valuable than one who is shut away from the mainstream. In smaller centers this is not only desirable, it is unavoidable.

Since the administrator is responsible for all center activities, indoor and outdoor, it would be advantageous if visual contact with activity areas could be maintained even when the director must be in an office doing paperwork or conducting a meeting.

Purely functional reasons would indicate that administrative areas should have an acoustically separate work room for noisy equipment, acoustic buffering for typing, conference, and office spaces, and should be accessible to other staff areas.

If teachers have separate offices, these have sometimes been grouped in an administrative area. In child-care centers, it would seem more reasonable to place these within child-activity spaces so they can function as parent-staff and staff-child conference areas. They can also double-function as testing spaces, resource rooms, or other functions, as needed.
ADMINISTRATION IN THE MAINSTREAM

DIRECTOR'S OFFICE AND RELATED ADMINISTRATIVE AREAS SHOULD BE VISIBLE AND ACCESSIBLE TO THE PUBLIC, SHOULD PROVIDE VISUAL ACCESS TO THE ENTRY AREA, AND SHOULD MAINTAIN VISUAL CONTACT AND ACCESS TO MAIN ACTIVITY AREAS.

- Entry and administrative spaces should be visually linked. This would help provide familiar people in ENTRY AND TRANSITION SEQUENCE, and provide additional monitoring for CONTROLLED ACCESS.

- The warm colors, textures, and light of the entry should extend into the administrative space.

- The administrative spaces should be located where staff could see both indoor and outdoor major activity spaces. Use of glass could help provide acoustic buffering without loss of visual contact.

- Adult spaces should be planned in conjunction with administrative spaces to encourage interaction between staff, parents, and the director.

- Acoustic buffering between noisy equipment (e.g., duplicating machines, typewriters, etc.) and other office functions should be maintained.

- Provide conference space where administration, special consultants, staff, and parents can meet, separated visually and acoustically from all other spaces. This space may double-function with other adult spaces.

- Space requirements will vary with size and functions of staff, but rules of thumb are:
  - 80-110 sq. ft. per secretary
  - 100-140 sq. ft. per administrator's office (e.g., Director's space)
  - 260-380 sq. ft. total
- Include private OUT-OF-REACH STAFF STORAGE as a part of the caregiver staff's space at approximately 8 sq. ft. per full-time staff member (caregivers plus administrative staff).

- As there is never too much storage space in any children's center, extra general storage for instructional materials could be provided as a part of administrative spaces.

- Provide two adult washrooms of 40 sq. ft. (total 80 sq. ft.) in proximity to the PARENT-STAFF CORNER and ADMINISTRATION IN THE MAINSTREAM.
INTERACTIONS BETWEEN PARENTS AND TEACHERS ARE BENEFICIAL TO THE PARENTS, TEACHERS, CHILDREN, AND HELP TO IMPROVE THE CENTER'S PROGRAM.

Parent-staff exchanges provide opportunities for parents to become acquainted with staff members, help parents understand the program, and heighten the parents' confidence in the center's program. It is important that areas provide a quiet and comfortable setting for both parents and teachers (Cohen, 1974).

Having a special place where conferences can be scheduled throughout the year enables staff and parents to share information and ideas which will enrich their understanding of the child. Parent-to-parent meetings give the parents a chance to exchange ideas with each other. Helping parents to get to know one another encourages them to become actively involved in the program, such as becoming volunteer aides (Cherry, 1973).

Ideally, a center would provide three separate but linked spaces to accommodate the special needs of staff members and parents. In addition to the "backstage area" for use only by staff members, another area would be provided for parent-staff use with the main focus on creating a relaxing, informal atmosphere where parents may feel free to seek out and meet with staff members and other parents, and peruse available child-development literature.

PARENT-STAFF CORNER

PROVIDE AN AREA FOR THE STAFF AND PARENTS TO HOLD CONFERENCES AND MEETINGS. IT SHOULD SEAT 5-7 ADULTS COMFORTABLY AND BE ADJACENT TO THE OFFICES AND AWAY FROM NOISY AREAS.

* The initial development of this pattern was due to John Hunter and the students of Architecture 420, University of Wisconsin-Milwaukee, Fall 1978.
RECOMMENDATIONS

- A parent-staff corner should be adjacent to staff offices and perhaps overlooking some children's activity spaces.

- Provide two adult washrooms of 40 sq. ft. (total 80 sq. ft.) in close proximity to the PARENT-STAFF CORNER and ADMINISTRATION IN THE MAINSTREAM.

- Because of the low frequency of this activity, parent-staff interaction area can be planned as a double-function space.

- Allocated area for this pattern should be 100-180 sq. ft.

RELATED ITEMS

PARENTS' PARTICIPATION
STAFF BACKSTAGE
MULTIPURPOSE-MOTOR ACTIVITIES AREA
ADMINISTRATION IN THE MAINSTREAM
MULTIUSE SOCIAL SERVICE AREA
PLACES TO OBSERVE CHILDREN
ISSUE

STAFF MEMBERS NEED SOME SPACES AND TIME AWAY FROM CHILDREN, PARENTS, AND ACTIVITY AREAS.

JUSTIFICATION

Because children are almost constantly demanding their attention, staff members seldom get the opportunity to be alone, or to conduct intimate conversation with other adults. Therefore, staff members need a "backstage area" (Goffman, 1971) which is physically, acoustically, and visually separate from the child's realm, and where they can be alone to think, plan, recuperate, and, for a moment, feel free of direct responsibility for child care.

Haase (1969) suggests that there be some overlapping of parent and staff spaces. Parents need to feel free and welcome to see and confer with staff members as well as other parents. Parents also need access to information on child development and child care. These needs suggest that parents' lounge spaces be located near staff spaces, conference rooms, and information storage areas.

A conflict area here may be parents interrupting staff members who need time alone. There may need to be some "staff only" area not accessible to parents.

In general, to encourage staff-administration-parent contact, both staff and parent areas should be located along general circulation lines, preferably between entry and child-activity spaces if possible.

STAFF BACK STAGE

A COMFORTABLE, SEPARATED BUT NOT ISOLATED AREA SHOULD BE PROVIDED FOR STAFF'S ACTIVITIES WHICH REQUIRE PRIVACY, SOLITUDE, AND/OR QUIET.

RECOMMENDATIONS

- Provide staff with a visually and acoustically separate area for lounging, eating, meeting, planning, reading and researching, previewing, napping, and materials production.
Within this staff area, separate noisy machine spaces from relaxation area and acoustically buffer phone area.

- Locate staff spaces near circulation, near administrative spaces, near parent spaces.

- Create some shared areas between staff and parent spaces (conference and resource materials area especially).

- Provide storage for supplies, equipment, books and magazines, and lockable storage for personal belongings (including outdoor clothing in colder climates).

Staff spaces may include the following:

- screened nap area for staff members working an especially long "shift"

- comfortable seating for adult socialization and relaxation

- mini-kitchen facilities for staff food preparation, coffee making, etc.

- adult-scale wash rooms—all other washrooms in the building will probably be child-scale and not private

- tack-board space for notices, pertinent new articles, etc.

- adult-height work surfaces for planning, writing, reading, note-taking, typing, etc.

- shelves and display racks for journals, catalogs, and books on child development, etc.

- work counters and storage for using duplicating equipment, creating audio-visual materials, etc.
• lockable storage for staff's personal possessions

• table-type spaces large enough for previewing films, filmstrips, records, tapes, videotapes, etc. before use with children

• telephones available to staff

• a view to the outside

• private conference space for meetings with parents and work meetings among staff

• Allocation of space for this pattern should be 150-165 sq. ft.

• As an example, for a center of 60-75 children, assume a space for a total of 12 full-time staff members (4 with 15 infants; 2 with 10 toddlers; 5 with 40 preschoolers (1 double-functioning for 10 after-school drop-ins and 1 double-functioning as Director); plus 1 full-time clerical staff member).

• Under tight constraints, STAFF BACK STAGE might have to double-function with PARENT-STAFF CORNER.

RELATED ITEMS

PARENT-STAFF CORNER
PLACES TO OBSERVE CHILDREN
ISSUE

SPECIALISTS MAY BE USED BY THE CHILD-CARE FACILITY. FREQUENTLY, THEY WILL BE ON A PART-TIME BASIS, BUT THEY WILL NEED OFFICE SPACE, FILING SPACES, AND MEETING SPACE, NONETHELESS.

JUSTIFICATION

All of these specialists can make valuable contributions to the child-care facility program. They will work with children, parents, and staff to help diagnose problems, develop individual programs for development, and help staff, parents, and children carry them through.

Since these special people usually work in a facility part-time, it will be very possible to coordinate their schedules to double- (or triple-) function the space involved.

A psychologist, social worker, and speech therapist each require two areas—an office area for paper work with lockable storage for confidential files, and a testing-observation-meeting room. Learning disability specialists may be present more often and will have many extra resources to use in testing and helping children. Learning disability specialists may spend several hours per week with individual children and will probably need a territory which can be permanently set up for them.

PATTERN

MULTIUSE SOCIAL SERVICE AREA

SPECIAL PEOPLE SUCH AS A CHILD PSYCHOLOGIST, SOCIAL WORKER, SPEECH THERAPIST, AND LEARNING DISABILITY SPECIALIST MAY BE PART OF STAFF IN A CHILD-CARE FACILITY AND SPECIAL SPACES SHOULD BE PROVIDED FOR THEM.

RECOMMENDATIONS

- Psychologists need an office area and an observation-testing area which provide the following:
  - lockable files
  - storage for test and therapy materials
  - possible closed-circuit TV
- method for unobtrusive observation
- both adult- and child-sized tables and chairs
- enclosed space, private, and away from other child spaces

• Speech therapist needs office space plus therapy room which provide the following:
  - lockable files
  - storage for test and therapy materials
  - many outlets for tape recorders (video tape possibly), and other electronic equipment
  - mirrors
  - method for unobtrusive observation
  - adult- and child-sized tables and chairs

• Social worker needs office space and a meeting room which provide the following:
  - lockable files
  - comfortable atmosphere for children and parents
  - privacy during meetings and interviews

• All three see both children and parents and should be easily accessible from child spaces and adult entry points.

• All three require privacy during meetings, interviews, therapy, and testing.

• Learning disabilities specialists require office space which may be part of a "Learning disabilities room" which would provide the following:
  - storage for many resource materials needed in training
  - many electrical outlets for electronic equipment
- mirrors
- floor mats for body training
- privacy to cut down on distractions
- very cheerful environment
- tables, chairs, carrels that are child-sized
- close proximity to child-activity areas so it is easy for children to find

• Consider that the above community service areas may also be used occasionally by ACS personnel working with parents, not just with children, e.g., a family nurse, nutrition consultant, family counselor, etc.

• Recommended space allocation for this pattern is 100-165 sq. ft.

RELATED ITEMS
INTEGRATION OF CHILD CARE IN THE COMMUNITY CENTER
STAFF BACK STAGE
SICK BAY
ISSUE

IN A LARGE CENTER, SOME RESOURCES--BOOKS, RECORDINGS, FILMSTRIPS, ETC.--WILL BE USED BY SEVERAL DIFFERENT CHILD GROUPINGS. DUPLICATION OF THESE RESOURCES IN EACH GROUPING AREA WOULD BE WASTEFUL.

JUSTIFICATION

Most child-care facilities have limited budgets for purchase of resources. Expensive items which are only used by staff members with children (rather than by children alone) can most economically be used by being stored systematically in a central "library."

In larger facilities this will also solve the problem of staff members being unaware of resources actually available within the facility. Where no central resource area exists, some materials are purchased more than once and some materials are seldom used because their existence is not generally known by the staff.

Materials which may be included in a central resource library are filmstrips, recordings, teacher resource books, expensive science equipment such as microscopes, telescopes, etc., and any other special equipment such as videotapes,calculators, systems 80, etc. Also, the equipment necessary for these special resources can be located centrally so that tape recorders, filmstrip viewers, etc., can be distributed by use rather than numerically.

PATTERN

RESOURCES AT THE HEART

PROVIDE A CENTRAL GATHERING AREA FOR RESOURCES USED BY SEVERAL CHILD GROUPINGS WHERE THE RESOURCES AND EQUIPMENT CAN BE STORED AND PREVIEWED IN A SYSTEMATIC WAY.

RECOMMENDATIONS

- Locate resource area centrally in order to increase staff use.
- Combine resource area with teacher research/journal area where it seems logical (see SEPARATE STAFF SPACES).
- Storage for various audio-visual media should be combined with book shelving and equipment storage. If combined with teacher research/journal area, include adult seating and writing space.
- Provide space for staff previewing (e.g., wired carrel-type).
- Provide darkroom and soundproof booth if staff will be making slides, tapes, etc., with children.
- Allocate 2.5-4 sq. ft. per child for this area (example: 100-140 sq. ft. per 40 preschoolers).

**RELATED ITEMS**

A ROOM WHICH CAN BE DARKENED  
STAFF BACKSTAGE  
FLEXIBLE FURNISHINGS
ISSUE

SOMETIMES CHILDREN WILL WATCH FILMS, TV, VIDEOTAPEs, ETC. INDIVIDUALLY OR AS A GROUP (10-15 CHILDREN). MOST PLACES IN A FACILITY CANNOT BE USED EASILY FOR THIS PURPOSE.

JUSTIFICATION

Small children may have short attention spans. An area darkened for film showing or TV viewing will cut down on distractions. Further, the noise from such viewing and listening should be acoustically separated from children pursuing other activities. Thus, a separate space which can be darkened is indicated.

Another use for this space is as a central gathering of special equipment for child use. Such programs as Systems 80, simple calculators, mathpuzzles, etc., may be used by some preschoolers. This equipment is expensive and will be used by children of various age groups only as they become ready. Therefore, central location would be more appropriate rather than age-specific storage.

PATTERN

A "ROOM" WHICH CAN BE DARKENED

AN ACOUSTICALLY ISOLATED AREA WHICH CAN BE EASILY DARKENED FOR GROUP (10-15 CHILDREN) VIEWING AND LISTENING MAY ALSO INCLUDE SPECIAL EQUIPMENT FOR PROGRAMMED LEARNING.

RECOMMENDATIONS

- Provide an area with acoustic buffering for 10-15 children which is easy to darken for using audio-visual aids.
- Provide electrical outlets and a screen or white wall.
- Allocated area for this pattern should be up to 3 sq. ft. per child (e.g., up to 120 sq. ft. for 40 children).
- Provide antenna or cable hook-up for TV and a video-tape player.
- This area may double-function with other moderate-sized group activity space.
Under very tight constraints, RESOURCES AT THE HEART can triple-function with a ROOM WHICH CAN BE DARKENED and a part of the READING-LISTENING AREA.
ISSUE
Sources on the psychology of play (Garvey, 1977; Miller, 1968; Cherry, 1976; etc.) agree that play is an essential factor in the development of every child no matter what other factors exist. No child can develop normally without play.

The group play area forms the nucleus of a child-care center. If organization of this space is incompatible with the many types of play and larger group activities which occur there, both the children and their caregivers will be frustrated in their attempts to use it.

JUSTIFICATION
Young children often find it difficult to play together because they have had relatively few social encounters. Actually, many children have their first experiences with play in large groups when they are enrolled in child-care centers. Group play offers opportunities for developing social skills such as sharing, cooperation, and consideration of others. Sanoff (1972) suggests that a sense of group solidarity among children evolves from these group play encounters.

Children must be able to play in ways which encourage developmental growth cognitively, socially, and physically.

Cognitive and social play are well represented in the other activity areas listed, but physical large-muscle play is equally important. Specific space where children can run, dance, climb, tumble, swing, slide, and balance are needed.

Some sources suggest both a large muscle-large group play area and another multi-purpose area, both separate from other activity spaces (e.g., Sanoff, Sanoff, and Hensley, 1972). Others, while suggesting two names for space, actually describe similar functions for each (Texas A & M University, 1969). A third approach is that a flexible space will accommodate a variety of activities (Osmon, 1971).
In a CENTER FOR 60 CHILDREN, one space for large-group activities which will adapt for large-muscle play, dance, singing, watching films and puppet shows, etc. seems most appropriate. In some facilities, this space may also be used for community-parent meetings (see PARENT-STAFF CORNER for smaller meetings of 5-7).

This space will be most usable if it is subdividable (e.g., shape of space, temporary barriers, different floor, ceiling treatments and levels, etc.).

Obviously, space which is used for some kind of climbing structure net or frame should have a soft landing surface underneath it.

Space which will be used for circle games, ball rolling, dancing, should have relatively smooth surface which can be vinyl, level carpet, etc.

Wheel toy use implies smooth, fairly hard flooring.

In all cases, noise generated in this area is likely to be greater than the general noise level in the rest of the facility and will necessitate more acoustical control.

MULTIPURPOSE-MOTOR ACTIVITIES SPACE

PROVIDE A SPACE SPECIFICALLY DESIGNED TO ENCOURAGE AND ADAPT TO A VARIETY OF LARGE-MUSCLE ACTIVITIES, WHICH CAN ALSO ACCOMMODATE GROUPS OF 12-16 CHILDREN DANCING OR PLAYING GROUP GAMES, AND WHICH WOULD (ON RARE OCCASIONS) ALLOW 40 SEATED CHILDREN TO VIEW A SPECIAL FILM OR SHOW.

- Allocated area for this pattern should be 12.5 - 15 sq. ft. per child (example: 500-600 sq. ft. for 40 preschoolers).

- In planning structures, platforms, climbing, swinging apparatus, etc., to encourage large-muscle play within the space, refer to Recommendations for Child Play Areas, 1979; DESIGNATED PLAY STRUCTURES.
- Use floor, ceiling, and walls as acoustic buffers and absorbers.
- Plan floor surfacing to fit activity expected and to help separate activities.
- Use other architectural devices to help subdivide space (e.g., ceiling height, floor levels, various finishes, column spacing, etc.). It may be useful to actually include temporary dividers.

- Proximity to other play areas, bathrooms, etc. is desirable. Some visual connection would also be desirable.
- Direct access to outdoor large-muscle play activities is appropriate.
- It is important that the large group space have a natural light source. Similarly it should be possible to darken the large group activity space.
ISSUE

Children learn spontaneously through active interaction with the environment around them, yet so many environments designed for children are static and rigid. One of the most important parts of growing up is having the opportunity to experiment on the world, to change it, to see the results of these changes, and learn from the total experience. Children therefore need to be able to manipulate the environment around them. Using tools and building materials successfully is a prime method for children to accomplish this manipulation.

JUSTIFICATION

M. J. Ellis of the Motor Performance and Play Research Laboratory of the Children's Research Center, University of Illinois, writes:

1. Children play for the stimulation they receive, not just to burn up energy.

2. Children need to indulge in activities that become increasingly complex with time.

3. As a by-product, children learn about their physical surroundings, and about their own roles in a social group.

The essential characteristic for a playground is that it should elicit new responses from the child as he plays, and that their responses increase in complexity as play proceeds. (1972, p. 4)

Simon Nicholson (1971) states:

In any environment, both the degree of inventiveness and creativity, and the possibility of discovery, are directly proportional to the number and kinds of variables in it. (p. 30)

The experience of adventure playgrounds (see Recommendations for Child Play Areas, 1979), has shown that an extremely successful way of providing these variables is to give children raw materials (junk) and tools and allow them to build their own play items and
environment. This "junk" includes items such as wood, cloth, rope, rubber, egg crates, etc.

In addition to the psychological satisfaction of creating their own playthings and play environment, building activity also meets cognitive needs (learning about materials, tools, three-dimensional concepts, etc.) and physical needs (small and large muscle development, hand-eye coordination and visual acuity). Construction will also encourage social development as cooperative projects are attempted.

Preschools are well able to handle this activity with adult supervision. The very youngest (under three) will need to use play tools (wooden mallet instead of hammer), but for 3-5's, using real tools as tools rather than playthings will not compromise safety.

A PLACE FOR BUILDING

A SMALL-GROUP AREA WITH WORK SURFACES, CONSTRUCTION MATERIALS, TOOLS, STORAGE, AND DIRECT OR REMOTE ADULT SUPERVISION ARE THE REQUIREMENTS OF A PLACE FOR BUILDING.

RECOMMENDATIONS

- Allocated area for this pattern should be 3.75 - 4.5 sq. ft. per child (example: 150-180 sq. ft. per 40 preschoolers).

- Plan for a maximum of four children and one adult in the space at a time. This will reduce competition for tools and promote safety.

- Provide a very sturdy work bench with vise and easy-to-clean, non-damageable surface, at child height.

- Provide storage for extra materials, display for materials in use, and storage for tools.

- Provide storage for extra wood and other materials inaccessible to children because too many choices may be confusing.
- Provide a display rack at child height for many sizes and shapes of materials.

- Provide hanging storage for tools. A pegboard with outlines of tools would help in replacement. Perhaps color coding would also help.

- Separate the area acoustically from quiet areas. Use sound absorbers to reduce noise.

- Separate from circulation routes for safety.

- Under tight constraints, A PLACE FOR BUILDING might not be possible, or might have to double function with BLOCK PLAY AREA.

RELATED ITEMS
ZONING
ARTS AND CRAFTS AREAS
ISSUE

CHILDREN'S ABILITY TO BUILD AND MANIPULATE THEIR OWN ENVIRONMENTS AND TO DO SO IN COOPERATION WITH OTHER CHILDREN IS IMPORTANT TO ALL AREAS OF DEVELOPMENT.

JUSTIFICATION

The value to children of block play falls into all three developmental areas:

Physical Development

Block play facilitates development of muscular coordination, balance, visual acuity, and small and large muscle activity.

Cognitive Development

Block play allows children to discover weights, balance rules, construction techniques. Blocks also facilitate exploration and dramatic play; building the scenes of imaginary environments helps the child role-play, dramatize, and explore fantasies.

Social Development

Two possibly incompatible social values are associated with block play. One: blocks are a nonthreatening physical element which may be especially conducive to quiet retreat play by children who feel overwhelmed by other social situations (Osmon, 1971). Two: block play areas may be very active, aggressive areas with a high level of conflict. Since in block play the process is more important than the product, children may assert their possession and accomplishment in a structure by aggressively destroying it. This destruction may have very positive values for the children involved, but could be disturbing to a child using blocks as quiet retreat play. Other conflicts may arise from territoriality and possession of materials. These conflicts can be healthy, and cooperative behavior through compromise can be a positive outcome. But again, these conflicts can be very disturbing to a child who is unprepared to deal with them.
These two very different social values in block play suggest that some compartmentalization, or separation between block play areas would be useful.

Further, Gump (1976) cites a study which shows that very clear boundaries for block play are necessary to keep it from sprawling into other areas (including circulation), thereby diminishing unnecessary conflicts. Two good examples of block playing areas are the Alameda Naval Air Station Child Care Center (see its dramatic and block play areas) and the Harold E. Jones Child Study Center (see Travel Report, 1978).

**BLOCK PLAY AREAS**

**PROVIDE AREAS FOR BLOCK PLAY IN TWO WAYS:**
1. IN A LARGER OPEN SPACE WITH ACOUSTIC PROTECTION FROM OTHER ACTIVITY SPACES (E.G., MULTIPURPOSE SPACE), AND 2. IN SMALLER, QUIETER AREAS WHERE ONE OR TWO CHILDREN CAN PLAY WITH SMALLER BLOCKS. BLOCK STORAGE SHOULD BE DISPERSED THROUGHOUT BLOCK AREAS RATHER THAN ALL BEING LOCATED IN ONE PLACE.

**RECOMMENDATIONS**

- Provide a large, flexible, open area. Using materials carts or storage units on wheels as dividers will help prevent conflicts over block supplies.

- Small block areas for retreat and breakaway play may be interspersed with other activity areas to protect them from large, more active block area. These could be around 50 sq. ft.

- Separation of block play from circulation and other activities may be aided by level changes, low height barriers (Osmon, 1971), raised platforms as work areas, changing floor surface materials, and other architectural indicators.

- Use of sound insulation and absorbers wherever possible in the area will help reduce noise levels.
• Easy-to-reach, dispersed block storage will help reduce conflicts.

• Block play may have natural affinities with arts and crafts areas, but should be separated from reading, library, animals, gardening, etc.

• If the MULTIPURPOSE SPACE is used for large block play, it should be adjacent to the smaller BLOCK PLAY AREA for storage of blocks.

• Allocated area for this pattern should be 5.6-6.25 sq. ft. per child (example: 225-250 sq. ft. per 40 preschoolers).

A PLACE FOR BUILDING
ZONING
NEVER-TOO-MUCH CHILD-ACCESSIBLE STORAGE
CHILDREN DEVELOP COGNITIVE AND PHYSICAL SKILLS BY BEING ABLE TO MANIPULATE PARTS OF THEIR ENVIRONMENT. FURTHER, MORE EXPERIENCES WITH NATURAL ELEMENTS HELP CHILDREN UNDERSTAND THE WORLD AS IT EXISTS BEYOND THE BUILT ENVIRONMENT.

All sources on play recommend sand-dirt play (Allen, 1968; Bengtsson, 1970; Lederman & Trachsel, 1968). The mediums of sand and dirt allow children to shape and mold an environment in any manner they choose.

The role occupied by sand-dirt in play . . . lies principally in the fact that sand and dirt resemble nothing in the world but sand and dirt. Sand and dirt denote nothing not denoted by the kids except for its single inherent and self denoted ability to foster growth. (Wood, 1976)

Therefore, sand and dirt are excellent "ambiguous props" for dramatic and imaginative play.

Sand play actually ranks very high on a list of children's preferred activities (Osmun, 1971).

Other values which may be inherent in sand play include:

- tactile experience with textures
- color experience with various mineral-rich sands and dirts
- manual dexterity experience
- creation of three-dimensional aesthetically pleasing objects
- development of mapping skills as children create a landscape of "places"
- building experience
• social development as children make imaginary environments together

• learning about erosion, wind action, etc. as other natural elements are used in conjunction with sand and dirt

Therefore, in climates which do not allow outdoor sand play year round, indoor sand play is essential. Indoor dirt play would also be acceptable to children, but probably not to staff and parents. Indoor dirt play may be accomplished as "gardening" if window areas for growing plants are planned.

INDOOR SAND PLAY

PROVIDE SAND PLAY INDOORS IN PROXIMITY TO WATER AND CLEAN-UP AREAS. PORTABLE SAND PLAY (E.G., SAND WAGONS) WILL PROBABLY BE MOST USEFUL.

RECOMMENDATIONS

• Sand areas may be messy and noisy and should be separated from circulation and from quiet areas.

• Sand play areas should be near toilet-wash areas so clean-up is easy for children and doesn't require tracking sand through other spaces. An area with an "entry grate" for sand to fall though would keep sand from being tracked around.

• Sand play should have a water source near by since dry sand is difficult to build with. This suggests close proximity between sand and water play.

• Provide a 2" minimum lip gently sloped to dump sand back in the box.

• Locate sand areas near a window with direct sunlight to dry and purify sand.

• Provide portable sand areas or sand wagons—they could be moved outdoors, pushed aside when not in use, drawn closer to water for play and demonstrations, etc., and drawn closer to door for refilling.
- Sand play areas should be high enough so children can stand or sit to play. They may need an adjustable-height table, or two or more tables of varying height.

- Shallow sand areas will be necessary if seated children are to get their knees under it (see recommendations in US (HUD), 1978). Shallow sand areas hold less sand, weigh less, and are more moveable.

- Size: provide a minimum area of one sq. ft. per child (preferably transportable)

- Design a long and narrow slope, 2 ft.-3 ft. wide maximum.

- Install surfaces in the area which are easy to clean, not susceptible to damage from sand, and as seamless as possible.

- INDOOR SAND PLAY area and LIQUID OASIS for water play should be immediately adjacent to each other (see chart in BUILDING GROSS SQUARE FOOTAGE).

- For space allocation, see LIQUID OASIS.

RELATED ITEMS
LIQUID OASIS
LEARNING BATHROOMS
CIRCULATION WHICH OVERLOOKS
WATER PLAY OFFERS CHILDREN A WIDE VARIETY OF OPPORTUNITIES FOR EXPLORATION AND EXPERIMENTATION.

Children are attracted to water as to few other elements (Lyle, 1970; Moore, 1974; Travel Report, 1978). Lady Allen (1968) states that "water is one of the joys of childhood; its endless possibilities for play should be fully exploited." Cherry (1976) suggests that water is soothing, clean, and full of surprises and should be an integral part of the play program.

Besides its undeniable play value, use of water is also important for demonstrating such concepts as wave phenomena, volume displacement, flotation, wet vs. dry air, air-water mist (bubbles), gravity flow, and prismatic action (rainbows). Water-play areas must therefore be flexible and usable in many different ways.

PROTECTED, NATURALLY-LIGHTED WATER-PLAY AREAS REQUIRE A VARIETY OF IMMERSABLE PROPS AND A GENEROUS WATER SURFACE. SURROUNDING WATER-PROOF WALL AND FLOOR MATERIALS MINIMIZE WATER CLEAN-UP AND SLIPPING.

- Children should have free access to water play year round.
- Indoor water-play areas should be easily cleaned, have floor drain, non-slip surfaces, impervious to water and dampness (e.g., wooden grid set into floor with drain below).
- Osmon (1971) recommends mobile tubs which can be pushed outdoors in warm weather.
- Water area should include a spray, flow from one height to another, pools 8" or so deep for floating objects, possibly a moveable light source (battery operated) and wind source (e.g., mounted fan out of reach of wet hands).
- Locate water play conveniently to washrooms, towels, storage for water-play objects, outdoor play areas. Locate away from circulation and quiet areas (some enclosure may be necessary to protect other areas).

- Locate surface of water at child height.

- Natural light would enhance enjoyment and learning in water play.

- LIQUID OASIS and INDOOR SAND PLAY area should be immediately adjacent to each other (see chart in BUILDING GROSS SQUARE FOOTAGE).

- Allocated area for this pattern should be 3.75-4.5 sq. ft. per child (example: 150-180 sq. ft. per 40 preschoolers).

RELATED ITEMS

INDOOR SAND PLAY
NATURE STUDY
OBJECTIVE AND NON-OBJECTIVE
STAGES AND PROPS
LEARNING BATHROOMS
ISSUE

EXPERIENCES WITH NATURAL ENVIRONMENTS WHICH ENHANCE A CHILD'S INFORMATION-GATHERING SKILLS ARE MANDATORY IN A WELL-DESIGNED CHILD-CARE CENTER.

JUSTIFICATION

Learning is enhanced by seeing the entire life cycle of plants and animals. Through plant and animal displays, children can be encouraged to develop an appreciation for the care and well being of living things. Miller (1972) and Lady Allen (1968) suggest that experiences with the natural environment provide opportunities for the development of social values, cooperation, and responsibility.

Osmon (1971) has noted however, that the interaction of plants, animals, and children is sometimes incompatible. For some children, their first exposure to animals comes in the day-care setting. Young children who have never been exposed to animals are often frightened of the movement or sounds that animals make. Animals tend to get injured when they are free to roam or when children try to catch the animal and put it in its cage.

Therefore, the nature study environment should be organized to clearly indicate to children which elements can be touched and handled and which should not be disturbed in their habitat.

PATTERN

NATURE STUDY AREAS

NATURE STUDY AREAS FOR 1-4 CHILDREN CONTAIN INDIVIDUALLY ORIENTED ACTIVITIES CONDUCIVE TO CONTEMPLATIVE AND PARTICIPATORY EXPERIENCES IN A NATURALLY LIGHTED, QUIET, PROTECTED SETTING.

RECOMMENDATIONS

- Many activities in the nature study area are individually oriented and require a quiet atmosphere. Therefore it should be separated from more active spaces.
- Materials should be easily accessible to children.
- Displays of plants and animals should have all-around viewing room. Osmon (p. 83) suggests that in addition to stand-up displays, seating areas and comfortable pillows around the displays encourage children to enjoy them with minimal disturbance.

- Osmon (p. 83) recommends placing animal cages and plant trays on 20" high counters for easy viewing by children.

- Portable screens placed on the floor can be used to contain animals so that children can pet them.

- Natural light is essential to nature study areas. To maintain a proper environment for plants and animals, the light source should be controlled by screens or shades.

- A sink and counter/work space with storage underneath should be provided to allow children to plant seeds and shoots, cultivate small indoor gardens and conduct experiments with scientific measuring equipment. Display walls and tables are useful in conjunction with this area for collections of rocks, leaves, or other elements of the natural environment.
Allocated area for this pattern should be 5-6.5 sq. ft per child (example: 200-240 sq. ft. for 40 preschoolers).

RELATED ITEMS
INDOOR SAND PLAY
LIQUID OASIS
LEARNING BATHROOMS
PORCHES AND DECKS AS ACTIVITY SPACES
DEVELOPMENTALLY APPROPRIATE PLAY YARDS
ISSUE

LANGUAGE IS THE EXTERNALIZATION OF THOUGHT. WRITTEN AND SPOKEN LANGUAGE IS THE BASIS OF COMMUNICATION AMONG ALL PEOPLES. LANGUAGE DEVELOPMENT, AND THE DEVELOPMENT OF ABILITIES TO LISTEN AND TO READ, EXPAND RAPIDLY DURING THE PRESCHOOL YEARS. ALL SUBSEQUENT COGNITIVE DEVELOPMENT AND EDUCATION ARE DEPENDENT UPON THEM.

JUSTIFICATION

Children cannot learn beyond a certain level until their listening, speaking, and reading abilities are well developed. Parents usually are the prime sources of stimulation in these areas. But two things alter this:

- In families where both parents work, and the child is therefore under the care of others for major portions of the day during the preschool years, this other form of care—child-care centers—must assume a major responsibility for language and reading development.

- In families with restricted vocabularies and highly focused areas of language usage it has been found that the language abilities of the children are likewise highly restricted, unless intervention occurs, especially during the early childhood years (Bernstein and Young, 1967).

A very important part of the function of a child-care center, therefore, is not only to nurture children's language and speaking skills, but also to introduce children to language in its written form. The child-care center must reinforce and further develop the listening, speaking, and reading abilities that children have learned from their parents, and in the case of many children, must make every effort to significantly extend the range of language usage available to the child.

Most authorities on child care agree that in order to ensure children's development of these cognitive skills, an area especially for reading must be included in all child-care centers (Sanoff, Sanoff, and Hensley, 1972; Deutsch, Ellis, Nimnitch, & Covert, n.d.; Osmor, 1971; Texas A & M University, 1969; Evans, Shub, & Weinstein, 1971).
While language and reading activities will be integral to all the RICH ACTIVITY-RESOURCE NODES, a special place which children associate specifically with reading enjoyment and being read to will be a useful focus.

**READING—LISTENING AREA**

A READING—LISTENING AREA SHOULD BE A COMFORTABLE AND INTIMATE SPACE PROVIDING SPACE FOR INDIVIDUAL ACTIVITIES IN A VARIETY OF SITTING AND RECLINING POSITIONS. THE AREA MUST ALSO BE FULLY STOCKED WITH A WIDE RANGE OF READING MATERIALS WHICH MUST ALL BE NOTICABLE AND ACCESSIBLE TO CHILDREN.

**RECOMMENDATIONS**

- Situate the area away from high activity and high-noise-producing areas, like block play areas, areas for arts and crafts, water and sand play areas, music and dance areas, and of course all gross-motor and large-group activity areas.

- Osmon (1971) has recommended a variety of configurations which work for READING—LISTENING AREAS, among them the following:
  - a quiet corner with tables, defined with storage units
  - a sunken pit or a raised area
  - a quiet alcove, defined by walls, storage units, sofas, etc.
  - a multipurpose bay, free-standing within the play environment
  - a built-in bay defined by walls on at least three sides, and with views to the outside

- Allocated area for this pattern should be 4.4 - 6.25 sq. ft. per child (example: 175 - 240 sq. ft. for 40 preschoolers).
For any of these alternatives, provide storage and display space for reading materials at child height (see CHILD-ACCESSIBLE STORAGE). For medium-sized centers (CENTERS FOR 60 CHILDREN), the reading area requires sufficient display space for showing the front covers of 20-25 books, i.e., 20-25 linear feet, plus 32 additional feet of book shelving.

Adjacent tack-up and horizontal display space will be well used.

Provide some open space for small-group reading-out-loud sessions (though larger sessions can happen in a MULTI-PURPOSE MOTOR ACTIVITIES AREA).

Provide outlets for educational technology that can be individualized with the use of earphones, cartridges, etc.

To create a quiet corner, sound insulation is necessary. Carpet in the area combined with draperies and of course the displayed books can reduce sound reverberation. Partial acoustic panels between other activity spaces and the READING-LISTENING AREA can reduce noise penetration.

Provide local, task-oriented lighting in the READING-LISTENING AREA.

For seating, use cushions, stuffed chairs, pillowed benches and window seats, raised and lowered platforms, and carpeting. Because children read in a remarkable variety of postures, and shift around from time to time, ensure that these seating-reclining facilities are loose and easily movable by the child.

RELATED ITEMS

RICH ACTIVITY POCKETS
HIDING PLACES
RETREAT AND OBSERVATION POINTS
TIME OUT AND EMOTIONAL RELEASE AREAS
CHILD-ACCESSIBLE STORAGE
ACOUSTICS
WORKING WALLS
FLOOR FUNCTIONS WITHIN THE PROGRAM
FLEXIBLE FURNISHINGS
ARTS AND CRAFTS HAVE A VARIETY OF PURPOSES FOR THE DEVELOPING CHILD INCLUDING INTELLECTUAL, SOCIAL, AND EMOTIONAL GROWTH. INDEPENDENCE AND CREATIVE EXPRESSION WILL BE BEST ENHANCED BY WELL-DESIGNED AND EXTENSIVELY IMPLEMENTED AREAS.

**JUSTIFICATION**

Shure's (1963) finding that active social interchange is relatively low in art areas, and Houseman's (1972) finding that art areas are associated with low conflict levels have definite implications for planning art areas. The resultant assumption is that art areas are places for individual expression rather than intensive social interaction. Further, art areas may be places for children who wish to retreat from the social milieu for periods of time.

Some very positive values of art areas include opportunities for self-expression, intellectual development, communication, problem solving, improving self-image, gaining technical skills, developing small muscles and hand-eye coordination. Art areas therefore should be ready for use anytime and not be dependent on caregivers.

**PRINCIPLE**

AREAS FOR ARTS AND CRAFTS

ART AREAS NEED NOT BE LARGE (FOR EXAMPLE, DOUBLE EASELS WITH A CHILD ON EACH SIDE NEED ONLY A 4 X 6 AREA). ART EXPERIENCES MAY BE ENHANCED BY AN ADJACENT OUTDOOR AREA PROTECTED FROM WIND, SUN, AND PRECIPITATION.
RECOMMENDATIONS

- Art Areas must be protected from circulation routes and other activities which will disturb individual involvement.

- Art areas should include:
  - both horizontal and vertical work surfaces for drawing and construction
  - storage for supplies, unfinished work (both 2- and 3-dimensional), and drying racks
  - floor and wall surfaces impervious to clay, paint, etc.
  - natural light
  - water source, sink, and counter space for easy clean-up
  - display space--tackboard and shelves

- Art storage should be accessible to children at all times.

- A sheltered outdoor area should be adjacent to the indoor art area to extend use.

- Allocated area for this pattern should be 6.25 - 7.75 sq. ft. per child (example: 250-275 sq. ft. for 40 preschoolers).
MUSICAL ACTIVITIES ARE AN IMPORTANT PART OF MOST CHILD-CARE PROGRAMS. MUSIC SHOULD BE ABLE TO BE BOTH A GROUP ACTIVITY AND A SPONTANEOUS EVENT INITIATED BY THE CHILD.

Hartley (1964, as cited in Osmon, 1971) noted that there seems to be little spontaneity in the music programs of most child-care centers, due perhaps to the lack of a "middle ground" between passive listening and skillful performance.

By having a special music place available to them, children can not only participate with other children in group events but can also individually utilize the area for unselfconscious musical expression. Hartley suggests that such spontaneity, or the ability to "make music" whenever the child desires, may form the basis for a continuing musical appreciation.

A music nook can also serve as a get-away place where children go to escape from more active pursuits and other children to listen quietly to recordings by themselves.

To maximize the learning potential, it is important to provide a variety of musical experiences. Activities generally include listening from individual headsets, group playing of musical and rhythm instruments, sing-alongs, and dancing to music. Music also creates a relaxing atmosphere to prepare children for nap-time.

Storage in this area is important to accommodate the wide variety of shapes and sizes of musical instruments, such as bells, drums, cymbals, tambourines, triangles, xylophones, records, cassettes, tape recorders, and phonographs.

MUSIC NOOK

PROVIDE A MUSIC NOOK, ABOUT 100-180 SQ. FT. WITH SEATING FOR 4-5 CHILDREN, SHELVES FOR MUSICAL INSTRUMENTS, AND CARPETING TO ABSORB SOUNDS GENERATED IN THE AREA.
RECOMMENDATIONS

- Locate music nooks away from major circulation paths, but close to compatible areas, such as the MULTIPURPOSE-MOTOR ACTIVITIES AREA which might be expanded to accommodate combined music-dance activities.

- Carpeting will provide a soft surface for informal seating of small groups while absorbing sounds from instruments and children's voices.

- Storage for instruments, music, and electronic equipment (phonographs, headsets) should be child accessible with a small amount of teacher-only height.

- The music area should have child-proof electrical outlets within it.

- Allocated area for this pattern should be 3.75 - 5 sq. ft. per child (example: 150 - 180 sq. ft. for 40 preschoolers).

RELATED ITEMS

FLEXIBLE DANCE AREA
MULTIPURPOSE-MOTOR ACTIVITIES AREA
OLDER CHILDREN WILL USE CHILD-CARE FACILITIES AFTER SCHOOL. BUT OLDER CHILDREN WILL NOT WANT TO COME TO A FACILITY THEY PERCEIVE AS A "BABY PLACE." FURTHER, OLDER CHILDREN WHO HAVE SPENT THE DAY IN SCHOOLS WITH STRUCTURED CURRICULUM WILL HAVE VERY DIFFERENT NEEDS AND WILL REQUIRE DIFFERENT TYPES OF ACTIVITIES THAN THE PRESCHOOL CHILDREN.

Being old enough to be in school is a very important milestone in a child's life. Children who have attended a child-care facility before reaching school age and then graduated to a "regular" school will resist returning unless great care is taken to make a special place, easily identifiable as more "grown-up" just for school-age children.

Goodman (1969) recommends that children have controlling participation in designing and running their own spaces. In the child-care facility context, this can mean an "unfinished" space which children can partition, decorate, and use as they wish. This is an indoor concept very similar to the outdoor adventure playground where children with a playleader as advisor use tools and "junk" to build their own environment (see ADVENTURE PLAY AREAS in Recommendations for Child Play Areas, 1979).

A strong connection with the outdoor space is required for older children. Their outdoor space will also be special and separate from young children's play space. They will require ball-play areas, basketball hoops, more challenging equipment, etc. It may also be appropriate to consider an adventure playground in conjunction with after-school drop-in care. Staff may then double-function as playleaders if it is appropriate.

A SPECIAL AREA SHOULD BE PROVIDED FOR AFTER-SCHOOL DROP-INS WHICH HAS A STRONG CONNECTION WITH THE OUTDOORS, HAS ITS OWN ENTRY SEQUENCE, AND WHICH IS "UNFINISHED" AND "FLEXIBLE" SO CHILDREN CAN SHAPE IT IN THEIR OWN IMAGE.
RECOMMENDATIONS

- If a common main entrance is used for both preschool and after-school children, an immediate separation should occur at the entry. If separate entries can be used, special care should be used in designing the after-school entry to make it seem "grown-up."

- After-school children should be active designers and builders of their own environment. An "unfinished" space with easily adaptable surfaces, tools, materials (junk), workspace for building, clean-up, toilet-wash area at school-child scale, all will help in this process.

- Easy access to special outdoor spaces including more sophisticated equipment, game spaces, etc. will be helpful.

- A possible connection with an adventure playground would be appropriate. This would also provide a strong image of older-child use area.

- Some visual connections between pre-school and after-school indoor and outdoor areas will help make some cross-over possible. If older children have an attitude of "helping" with younger children, they will feel more comfortable about venturing into young-child areas. Conversely, if young children can see some activities in the older-child areas, they may become interested in working toward those as goals: "Some day I will be able to . . ."

- Allocated area for this pattern should be 35-50 sq. ft. per child (assuming 10 after-school drop-in children) and regardless of how few children, a minimum of 200 sq. ft.

- Multi-story facilities may be used for children age 5 or above if special construction standards or automatic fire extinguishing systems are incorporated (see AR608-1, # 8-18; National Fire Protection Association 101 (1976); DOD 4270.1-M).

RELATED ITEMS
APPROACH AND ENTRY SEQUENCE
OUTDOOR PLAY YARDS
A PLACE TO BUILD
FLEXIBLE FURNISHINGS
ISSUE

DESPITE THE FACT THAT THERE ARE A NUMBER OF IMPORTANT DEVELOPMENTAL GOALS FOR INFANTS UNDER THE AGE OF 18 MONTHS OR 2 YEARS, THE DAILY CYCLE IS UNSTRUCTURED AND UNIQUE. INFANT ACTIVITY PATTERNS DIFFER SIGNIFICANTLY FROM THOSE OF OLDER CHILDREN.

JUSTIFICATION

The most important developmental goals for infants under the age of 18 months or 2 years are the following (Huntington, Provence, and Parker, 1971):

- encouraging language development
- stimulating and supporting cognitive development
- gross-motor development
- fine-motor development
- self-awareness
- social responsiveness and mastery

To support and stimulate these developments, a variety of activities need to be provided for infants, among them the following (Huntington, et al., 1971):

- playing with visual and geometric objects with a staff member
- singing songs and playing games
- exploring shapes, textures, smells, and colors like bricks, grass, leaves, dog fur, geometric objects, sand paper, wool, oranges, etc.
- playing hide-and-seek-type games
- crawling, reaching, pulling up, standing, falling
- playing with crib-type toys, mobiles, busy boxes, etc.
- eating, trying to eat by him or herself

* With thanks to Elizabeth Kidera, Wendy Golden, Denelle Cole, and the students of Arch. 420, University of Wisconsin-Milwaukee, Fall 1978.
- cuddling, rolling with another, identifying body parts, playing with mirrors

- observation, watching, observational learning

A structured routine of each child's daily activities, including playing, learning, napping, eating, and toileting is not appropriate for maximum development. The infant's day flows from activity to activity with his or her own timetable.

According to Chase, Williams, Welcher, Fisher, and Gfeller (1974), human infants become attached to one or more principal caregivers during the first year of life. Their explorations are facilitated by direct contact and other reinforcing behaviors of caregivers. When the attachment process occurs in a normal way, infants become increasingly bold in their explorations of the surrounding physical environment (Rheingold and Echerman, 1970, as cited in Chase et al., 1974).

The availability of objects appropriate to the exploratory behavior of infants may play an important role in the development of the organization of thinking and understanding. Chase et al further state that while exploratory and play behaviors do not have to be taught, their appearance does depend on having an appropriate supporting social environment and the availability of meaningful information.

Millar (1968) supports this notion by stating that when babies are awake and comfortable, they spend their time looking, listening, and responding as if they were "hungry" for stimuli.

Infant areas need a large, open, multi-textured space which contains a rich variety of manipulable objects which can be visually examined, thrown, dropped, and squeezed. In this area, infants can crawl about, and safely investigate their surroundings while under the watchful eye of caregivers. Furniture and other props also provide a variety of possibilities for developmental experiences.
Evans and Saia (1972) note that the beginning mastery of motor skills—sitting, standing, walking and climbing—can be encouraged by design features such as carpeted pits that form a safe, protective surrounding which toddlers can hold on to when learning to walk. Other devices such as padded steps and simple climbing structures allow infants to slide, climb, hide, and according to Evans and Saia, gain awareness of their bodies in space and the forces acting on them (p. 113).

Because infants just learning to crawl and walk can be accidentally injured by older toddlers already climbing about, it is important to provide degrees of integration and separation between infants and toddlers as well as between infants-toddlers and older children. For example, shallow pits and low platforms enable infants and toddlers to see one another yet be separated in their activities. A series of padded, low platforms of varying heights also provides developmental challenges to toddlers who must learn to coordinate their muscles and balance in order to negotiate each level.

It is particularly important that each of these activity spaces be as barrier-free as possible and flow easily from one to another so that children are exposed to the widest possible range of daily experiences and so that staff may easily see all that is happening.

**PATTERN**

**INFANT CIRCLE OF ACTIVITIES**

CREATE A SPECIAL ENVIRONMENT FOR INFANTS, PARTIALLY INSULATED BUT NOT ISOLATED FROM TODDLERS AND PRESCHOOLERS. WITHIN THE ENVIRONMENT, ALLOW FOR THE VARYING FLOW OF ACTIVITIES BY INTERRELATING ALL ACTIVITY NOOKS. INFANT ACTIVITY AREAS SHOULD PROVIDE STIMULATING SENSORY INPUT, AND CONTAIN A LARGE VARIETY OF MANIPULABLE OBJECTS AND SHOULD CONTAIN TEXTURED CRAWLING SURFACES. ALL AREAS SHOULD BE VISUALLY INTERCONNECTED THOUGH PARTIALLY RESTRICTED SO INFANTS CANNOT WANDER OFF BY THEMSELVES. MOVEMENT SHOULD BE POSSIBLE FROM THE INFANT ENVIRONMENT TO OTHER AGE GROUPS' ENVIRONMENTS WITH ADULT ASSISTANCE,
RECOMMENDATIONS

- Provide special infant activity spaces for each of the variety of major activities infants engage in, viz.: small object play; gross motor play including wheel toys and climbing area, exploration area, crawling area, quiet area for singing, cuddling, and being read to; and for caretaking activities like napping, eating, and toileting.

- Interrelate these activity spaces in an overall open plan for an infant area, with each activity being a partial nook or corner off a main multi-purpose space (see RETREAT AND OBSERVATION POINTS).

- As no child-care center should be exclusively indoors, infant areas too should have adjoining indoor and outdoor play areas.

- The designed environment and the equipment within it must be responsive to infants' changing scales and postures, which range from crawling with eye level at six inches above ground to standing at 20 inches.

- Provide a variety of manipulable objects suitable both for infants and toddlers. Play objects should provide experiences in a variety of sensory modes (touching, tasting, smelling, seeing).

- Multi-textured crawling spaces (wood, stone, bricks, carpet, tile) suggest the concepts of soft, warm, cool, hard, smooth, or rough.

- Because infants spend so much time on the floor, surfaces should be warm and without drafts. Soft, multi-textured crawling surfaces facilitate infants' graduation from crawling to walking. A tiled area provides a smooth surface for pushing toys and riding wheeled vehicles.

- Natural light creates a very pleasant environment if the light source can be controlled.

- Allocated area for this pattern should be 20-35 sq. ft. per infant (example: 300-525 sq. ft. for 15 infants) and no matter how few infants, no less than a total of 100 sq. ft.
- Infant spaces should be cheerful, homey, and child-scaled, with places where toddlers can seek stimulation or retreat to watch from a safe distance.

- Infant areas should be barrier-free to facilitate physical contact between caregivers and toddlers, and to make close visual supervision possible.

- Army Regulations (AR608-1) require at least 20 square feet of usable floor space for crawling for each infant (age 1½ and under). This will be an area segregated from the net usable play space provided for older children.

- Safe infant-toddler play areas can be created by physically separating them from those of older children, while maintaining the sounds of and views to older children's areas.

- Young children are usually fascinated with their mirror image; therefore a reflective surface which reflects the infants and their activities is an important addition to infant areas.

**RELATED ITEMS**
- Retreat and Observation Points
- Children in the Kitchen
- Eating Clusters
- Intimate Diapering Area
- Separated Infant Napping
- Textured Crawling Levels
- Toddler Transitional Territory
ISSUE

TODDLERS BETWEEN THE AGES OF ABOUT 18 MONTHS TO 3 YEARS ARE IN AN IMPORTANT TRANSITIONAL PERIOD—BETWEEN THE SECURITY NEEDS OF INFANCY AND THE EXPLORATORY AND SOCIAL DEVELOPMENTS OF PRESCHOOL.

JUSTIFICATION

Quoting from the Department of the Army Staff Development Series, Caring for Toddlers:

A toddler usually refers to a child between the ages of two and three who has learned to walk or "toddle" with ease. Two year olds, or toddlers, have gained a lot of control over their bodies. Newly learned physical skills such as walking, climbing, and running and feelings of being a rather useful individual are the spark in an increased demand for independence. Now all of that energy can be directed at anything in sight. Toddlers are always on the go and love to explore and experiment with anything that catches their eye—wastebaskets, safety pins on the floor, faucets, bottles, other children. Everything is a source of possible adventure, for both the toddler and the caregiver. *(Scavo, Liddell, Diffendal, and Lake, 1979, p. 13)*

The most important developments for the toddler are the following:

- continued motor development: walking, running, climbing, etc.

- beginning of socializing: decrease in time spent eating, sleeping, and dressing, and an increase in social experiences such as talking, trying to get attention and approval, etc.

- exploration of simple objects and tasks: qualities of things, smells, textures, etc.

* Toddlers should be determined by developmental growth rather than chronological age.
language development: understanding simple words and sentences, and speaking some, including the development of simple conversations

intellectual development: thinking, working out of ideas before acting, interests in creative activities such as drawing, block building, fantasy, pretend play, and interests in simple cause and effect chains, consequences, time


Whereas the infant is active, but constrained due to limitations of movement, the toddler is exploring the world actively and without bounds. The toddler is also beginning to move away from parents and significant others and is beginning to develop an all-important sense of individual independence, initiative, and self-confidence. But unlike the older preschooler-who is very capable with language, is totally potty-trained, and is very stable on his or her feet, the toddler is just that—toddling between independence and moments of needed security, toddling between using the bathroom like a real kid and having accidents, and toddling between mastery of the environment and times of hilarious attempts to accomplish tasks without any adult help (thank you!).

Thus the environment for a toddler must be a transitional territory between that of the infant and that of the older preschooler. Security places, observation places, little nooks and crannies are all necessary, but the multi-level crawling platforms appropriate for the infant are now architectural barriers to the freer flowing movement of the toddler.

PATTERN

TODDLER TRANSITIONAL TERRITORY

PROVIDE A SPECIAL TODDLER ENVIRONMENT COMPRISED OF SEVERAL ACTIVITY POCKETS FOR 4-5 CHILDREN EACH AROUND A CENTRAL MOTOR ACTIVITY-MULTIPURPOSE SPACE. PLACE THE TODDLER AREA BETWEEN INFANT AND PRESCHOOLER AREAS WITH VISUAL AND MOVEMENT CONNECTIONS WITH BOTH AREAS.
RECOMMENDATIONS

- Provide a series of ACTIVITY POCKETS for various toddler activities; four pockets is a minimum.

- Provide one MOTOR ACTIVITY-MULTIPURPOSE SPACE at the center of the activity pockets.

- Provide another TODDLER TRANSITIONAL TERRITORY for every 10-12 toddlers, i.e., no more than 12 toddlers should be in one overall toddler space.

- Infants and toddlers can share LEARNING BATHROOMS, which might serve as an island in space helping to define INFANT CIRCLE OF ACTIVITY from TODDLER TRANSITIONAL TERRITORY.

- Infants and toddlers can also share other service areas like EATING CLUSTERS and CHILDREN IN THE KITCHEN, though of course infants and toddlers will require use of different, though possibly adjacent, pods for eating.

- Provide other physical amenities for the toddler area in accordance with patterns for preschoolers' spaces, e.g., NEVER TOO MUCH CHILD-ACCESSIBLE STORAGE, as detailed below in RELATED ITEMS.

- Provide toddlers with their own outdoor play yards, visible, immediately accessible, and interconnected with infant and preschooler play areas.

- Allocations for space for this pattern are as follows:
  - minimum is 20 sq. ft. per toddler
  - recommended is 35 sq. ft. per toddler
  - total should be no less than 150 sq. ft.
RELATED ITEMS

INFANT CIRCLE OF ACTIVITY
THE INFANT-TODDLER-PRESCHOOL CONNECTION
DEVELOPMENTALLY-APPROPRIATE PLAY YARDS
MULTIFUNCTIONAL HOUSES
OUTGOING BUILDING INFILTRATING OUTDOOR SPACES
MULTI-PURPOSE-MOTOR ACTIVITY SPACE
LEARNING BATHROOMS
EATING CLUSTERS
CHILDREN IN THE KITCHEN
READING-LISTENING AREA
BLOCK PLAY AREAS
AREAS FOR ARTS AND CRAFTS
NATURE STUDY AREAS
OBJECTIVE AND NON-OBJECTIVE STAGES AND PROPS
NEVER TOO MUCH CHILD-ACCESSIBLE STORAGE
CUBBIES
ISSUE

INFANTS AND TODDLERS NEED MORE SLEEP THAN OLDER CHILDREN. DUE TO THEIR PARTICULAR NEEDS, INFANTS AND TODDLERS REQUIRE NAP SPACES IN A SPECIALLY SHELTERED ENVIRONMENT.

JUSTIFICATION

Because they are often sleeping while older children are playing, infant and toddler sleeping areas must be removed from the mainstream of the center's activities. Prescott and David (1976) report a frequent complaint of caregivers is that older children often disturb infants and toddlers during nap time if acoustic separation is inadequate.

For their safety, infants and toddlers also require a more secure style of sleep furniture. Although cribs provide safe, enclosed spaces where infants can maneuver without harm, toddlers often endanger themselves by trying to climb over their cribs as they learn to walk. Therefore, visual supervision of this area and accessibility which permits quick caregiver intervention are primary concerns.

In addition to providing a quiet, safe atmosphere which is conducive to sleep, it is equally important that the nap area be a warm, comforting place where caregivers can give relaxed and personal attention to each infant. In this way, young children come to develop pleasant associations with the sleep experience.

PATTERN

SEPARETED INFANT NAPPING

SHELTERED NAPPING AREAS FOR INFANTS AND TODDLERS SHOULD BE ACOUSTICALLY SEPARATED, VISUALLY CONNECTED, AND PHYSICALLY ACCESSIBLE FROM OTHER INFANT ACTIVITY AREAS. LIGHTING LEVELS SHOULD BE ADJUSTABLE AND THE SCALE OF THE SPACE SHOULD ACCOMMODATE SLEEP FURNITURE WITH ADEQUATE CIRCULATION AVAILABLE FOR THE CAREGIVER STAFF TO MOVE ABOUT EASILY.

RECOMMENDATIONS

• Acoustically isolate infant sleeping areas from the activities of older children. Visual connections with older children's activity spaces should be preserved, however.
- Unless placed against a wall, minimum spacing between cribs is 3 ft. (AR 608-1). When planning infant nap areas, estimate 12 sq. ft. per child for 50% of the children. The scale of the sleeping area should be adequate to accommodate sleep furniture and for caregiver circulation. Spaces which contain rows of cribs or cots are impersonal and discourage formation of warm, relaxed relationships between caregivers and infants. Small groups of 3-4 cribs clustered near a diapering area allow caregivers to give more personal attention to infants in their care.

- A small nook or other semi-enclosed space next to the sleep area which is large enough for a caregiver and one child, creates a pleasant place where caregivers can hold, cuddle, and sing to infants, encouraging them to sleep.

- Evans and Saia (1972) suggest that infant-toddler sleep spaces contain both cribs and cots so that infants who begin walking can be located closer to the floor. They also advocate placing windows between the sleep areas and other infant spaces to facilitate quick crib checks.

- Natural lighting creates a pleasant atmosphere only if it is easily controlled. Darkening the sleep space is both comforting and suggestive of sleep.

- Provide adequate ventilation to the sleep area so that each space receives fresh air.

- Sleeping areas in centers housing children under 3 years of age shall be compartmented with partitions having a 3/4-hour fire resistance rating so there are not more than 6 children in each compartment. (National Fire Protection Association, 1976; 9-5.3.3.6.2; stronger than recommendation in AR 608-1)

- Allocated space for this pattern should be 10-16.5 sq. ft. per child (15 sq. ft. is recommended), i.e., 150-220 sq. ft. for 15 infants.
For stimulating infants, Evans and Saia (1972) recommend placing mobiles above cribs for infants to look at and reach for when they awaken.
ISSUE

Preschool children in child-care settings are often reluctant to give up their playing long enough to take a nap. For children who have difficulty settling down, nap time becomes unpleasant as they fight the experience. It can be equally trying for caregivers who must coerce these active children into lying down and being quiet while others sleep.

JUSTIFICATION

Even if they don't sleep, children need the opportunity to relax and unwind from their play experiences, particularly those children who receive full-day care. Prescott and David (1976) note that many states require children to be given rest periods, and that they be provided with their own sheet and blanket.

Most state licensing codes require that a rest period be provided, but most developmentally-oriented child-care programs treat napping on a flexible schedule, each child napping as necessary for his or her needs, activity level, and health (e.g., children with colds may require more rest).

There are two basic ways in which most good centers provide napping places: separate napping areas or in the group play environment.

A designated sleep area can be reassuring to children because the comfort and privacy of home conditions can be duplicated (Landreth and Moise, 1949). In separate sleep areas, cots, mats, or bunks are allowed to remain assembled and do not have to be taken down or pushed out of the way after each use. As Osmon (1971) notes, other activity spaces in the center can be easily reprogrammed or rearranged for new uses while the children rest, in a separate area. As children awaken they can then be sent back to the play areas without disturbing others who are still sleeping. Separate areas also provide for staggered rest periods which allow some children to nap while others can be playing in the group play space.
Some centers, however, prefer the economical double-functioning of a space for various uses, such as using a large group play environment for napping places. Lightweight folding cots and mats are easily stored away while not in use, yet can be quickly assembled and pushed into position. In addition, fewer staff members are required for observation of one space versus two separate areas. Texas A & M University (1969) suggests that napping in their own classrooms may be relaxing for children because of the familiarity of the atmosphere. In such open-plan, double-functioning centers, Twardosz, Cataldo, and Risely (1974, as cited in Prescott, 1976) found no adverse effect on the sleep patterns of young children.

A few centers such as the Eveline Lowe Primary School provide getaway places or "kivas" where children can go to read or sleep. (A "kiva" is a small, cozy room which is lower than the surrounding areas and whose entry is small and well defined--taken from the form of the sacred pit-rooms of the Native American Indians of the U.S. Southwest.) Conversely, but to the same purpose, at the Helen Owen Carey Center (see Travel Report, 1978), a quiet room is available where "can’t nap" children are encouraged to go to play.

National child-care experts seem to feel that either napping pattern is acceptable—a separate area or double-functioning area. Cohen (1974) advises:

If space and money permit, a separate room where cots can remain set up is most convenient; if not, stackable cots can be distributed in the classroom or playroom. (p. 59-60)

Prescott and David (1976) even remark that most homes provide a crib or special bed for infants (see SEPARATE INFANT NAPPPING) but often they spread a sheet or quilt over the bed of a family member for the nap time of older children. For child-care centers, Prescott and David "see no objection to this arrangement" (1976, p. 55).
Whether a separate area is provided, or an activity area double-functions for napping places, certain environmental criteria are critical. Noise and too intense light levels are the main potential problems. In either case, then, lighting and noise should be able to be controlled. Adjustable shades or curtains may be used for protection from glare and to promote a napping-place atmosphere any time of day (Child Welfare League, 1973).

If a corner is designated as a possible napping place, it should also have sufficient acoustic materials to deaden sounds: partial acoustic barrier may also be used to partially separate it from more active areas.

NAPPING PLACES

Provide a place or places where preschool-age children can sleep or rest quietly any time during the day. Either provide a separate sleeping area, or provide acoustic and light control in some other, double-functioning space like a multi-purpose or large group play area, or in a child retreat corner, or other smaller activity spaces. Individual differences in sleeping habits should be recognized and provided for in all napping places.

- Allocate 12-20 sq. ft. per child for a maximum of 1/3 of the children, e.g., 160-200 sq. ft. for 40 preschoolers.
- Two feet around each cot or mat has been recommended to allow adequate circulation space without disturbing other children (Evans, Saia, and Evans, 1974).
- Light and glare should be easily controlled and ventilation of each space should provide a fresh air supply to each sleeping area.
- If cots are taken down after each use, there should be storage space nearby. Similarly, there should be a blanket, sheet, and pillow storage which is easily accessible to children.
• If napping and other activities are occurring simultaneously, some acoustical buffering and sufficient acoustic materials to deaden the space are desirable.

• Some provision is necessary for "can't nap" children such as quiet or "special" places where they can play without disturbing other children.

• If napping areas and other activity areas are double-functioned, some "get-away" space should be provided for children who wish to sleep at times other than a designated "nap time."

• Sleeping areas in centers housing children under 3 years of age shall be compartmented with partitions having a 3/4-hour fire resistance rating so there are not more than 6 children in each compartment. (National Fire Protection Association, 1976, 9-5.3.3.6.2)
ISSUE

DIAPERING IS A MAJOR SOURCE OF INFANT-CAREGIVER INTERACTION, AND HAS BEEN THEORIZED TO BE IMPORTANT TO LANGUAGE DEVELOPMENT IN INFANTS. ONLY WHEN THE DIAPERING AREA IS EFFICIENTLY PLANNED AND SUPPLIES CONVENIENTLY LOCATED CAN CAREGIVERS GIVE CHILDREN THEIR COMPLETE ATTENTION.

JUSTIFICATION

Caregivers are required to lift and carry infants many times each day. Until toilet training begins to take place, it is more convenient for caregivers to diaper infants at changing tables within infant spaces so that visual supervision is uninterrupted and unnecessary steps minimized.

The changing area can also be a place where caregivers can exercise infants' muscles, and linger for a few moments talking and cuddling the child. In addition to strengthening the relationship between the infant and his or her caregiver, this personal attention has been suggested as a basis for furthering language and cognitive development (Huntington, Parker, Provence, 1971).

Therefore, a convenient, efficiently arranged diapering area encourages relaxed exchanges between caregivers and infants.

PATTERN

INTIMATE DIAPERING AREA

DIAPERING AREAS SHOULD BE QUIET, INTIMATE AREAS, EFFICIENTLY ARRANGED, PROTECTED FROM DRAFTS, AND INFANT SCALED. DIAPERING AREAS REQUIRE 34" HIGH BY 24" WIDE COUNTERS, A LARGE SINK, INDIVIDUAL STORAGE PLACES FOR INFANTS' PERSONAL SUPPLIES, AND LARGE AMOUNTS OF SURFACE AREA TO ACCOMMODATE DIAPER CHANGING ACTIVITIES.

RECOMMENDATIONS

- The diapering area should be large enough for caregivers to easily move about, but intimate enough in scale to enhance the opportunity for exchanges between infants and caregivers.
- Wooden cabinets 34" high, 24" wide by any length are required to provide an adequate surface on which an infant can safely be placed when being changed. A raised edge on three sides prevents babies from accidentally slipping off.

- Surfaces should be non-skid, washable, and warm to the touch. All corners on furniture should be rounded to prevent injury.

- A sink large enough to bathe and wash off infants is necessary. Counter space next to the sink provides a convenient place to dry the infant and to place necessary supplies.

- Provide a higher-than-normal commode adjacent to the changing table for dumping out and flushing away the contents of cloth diapers and for flushing away the flushable part of paper diapers.

- Storage cubbies are useful for separating each infant's supplies. Additional storage space can be created by placing shelves under the changing table.

- Infant areas generate a large amount of soiled diapers each day. A large, lined container with a lid should be placed in a convenient location next to the changing table.

- Locate the diapering area adjacent to sleep areas but with acoustic separation so that sleeping infants are not disturbed.

- Provide shelves over the infant changing tables where small toys may be kept, and from which mobiles might be hung and pictures pasted onto.

- Protect all infant diapering areas from drafts.
- Temperatures should be approximately 2-4°F greater than in other parts of the child care center (see HVAC MECHANICAL SYSTEMS).

- Allocation of space for this pattern should be 60-100 sq. ft. minimum per 20 infants.
SINCE TOILET TRAINING IS ONE OF THE VERY BASIC AND IMPORTANT ACCOMPLISHMENTS FOR YOUNG CHILDREN, USE OF TOILETS AND WASH-BATH AREAS IN PRESCHOOLS SHOULD BE AS PLEASANT AND TROUBLE-FREE AS POSSIBLE. FURTHER, LOCATION OF TOILET AREAS IS VITAL SINCE CHILDREN OFTEN BECOME SO INVOLVED WHEN PLAYING THAT THEY WAIL UNTIL THE LAST POSSIBLE MINUTE BEFORE TRYING TO REACH THE TOILET.

Children who are learning to use bathrooms must spend time "sitting" at regular intervals. They may also be learning to wash themselves. If they can view bathroom time as special and the bathroom space as enjoyable, this training will be much less tedious.

Bathrooms which provide other things to do (seeing plants, writing on the walls, watching other activities going on) will seem less isolated from the rest of the activity spaces and reduce the anxiety and frustration which some children may feel at bathroom time.

An important design decision involves the relative openness or "closed-ness" of the toilet areas. The arguments which support the two opinions are based on these factors:

Closed:
- privacy is provided for children who wish it
- a child's home conditioning may cause shyness about the toilet process

Open:
- helps the child develop a healthy attitude toward sexual differences
- minimizes isolation, demystifies the toilet process (Travel Report, 1978, p. 345)
- there is more room for caregiver to assist
- easy supervision of toilet area is possible
Location of toilet areas is of critical importance in child-care facilities. How quickly a child can reach the toilet may mean the difference between success and embarrassment in toilet training.

Osmom (1971) has suggested that if there are more than 40-50 children in a center, several dispersed toilet areas should be provided. This minimizes travel distances by allowing toilets to be located in several different areas. When selecting toilet locations it is also important to consider accessibility from outdoor play areas. Getting out of snowsuits and boots can be cumbersome and time consuming for children, particularly if they wait until the last minute to come in to use the toilet. Children should not have to travel halfway through the center on their way to the toilet area.

An important factor affecting toilet location is noise. Sound insulation is required along walls which accommodate soil pipes. In addition, the constant coming and going of children and caregivers from this area may disrupt nearby quiet activities.

Another decision involves the scale of fixtures. Children generally use adult-sized fixtures at home, but child-sized fixtures make use much easier for them. Child-scale fixtures promote independence and ease the fear some children have of falling into the toilet. While sources do not recommend segregation of the sexes at preschool levels, urinals for males are recommended to keep toilet seats and floors drier.

Finally, the selection of finishes should consider the ease of maintenance, pleasant qualities, and interest to children.

LEARNING BATHROOMS

BATHROOMS SHOULD BE EASILY ACCESSIBLE, FAIRLY OPEN, INCLUDE CHILD-SCALE FIXTURES OR EASY WAYS FOR CHILDREN TO USE ADULT FIXTURES. INCLUDE BATHING FACILITIES, AND CREATE A PLEASANT AND INTERESTING ENVIRONMENT.
RecommenDations

- If toilet areas are divided, provide low partitions to make the child feel less enclosed than high ones would.

- Provide one toilet and washbasin for each 15 children age 3 years or older (AR 608-1).

- Disperse toilet areas in centers of over 40-50 children.

- Make toilet areas easily accessible from outdoor play spaces and locker-cubby spaces where children store outdoor clothes.

- Use of plants, natural light, and colors would make toileting and bathing more attractive to the child.

- Finish materials should be easily cleaned, seamless if possible, and provide interest to children (e.g., a write-on surface a child can reach while sitting on the toilet would be a real plus).

- Child-scale fixtures are best (i.e., seat 11" from the floor). If some compelling reason dictates adult-scale fixtures, stools and steps must be provided.

- Prescott and David (1976) recommend that washbasins resemble those at home rather than using industrial-type fixtures since children are assimilating cultural mores as well as washing.

- Bathing and water play are inseparable to small children. A large enough bathing space to permit benches (etc.) with natural light, pleasant, relaxed atmosphere will permit this type of water play.

- Infant bathing sinks should be at adult height (35-36") and include counter space adjacent for storage and dressing.

- Toddlers and older children may use regular tubs or other more imaginative bathing areas (e.g., a pool in the greenhouse with water squirters, a fountain basin, etc.). Ease of adult supervision and help, non-slip surfaces, no sharp corners, and no abrasive surfaces are essential.
- All bathing areas should include hooks for clothing, etc., and any equipment storage staff may require.

- Practical necessities which can't be neglected:
  - sinks with easy-to-get-at traps for removing toys, paper towels, etc.
  - paper towel racks away from toilet(s)
  - water temperature controlled so children can't be burned
  - sound isolation (insulation) so quiet areas aren't disturbed--windows from toilet areas to activity areas might cut down on visual isolation and noise at the same time
  - air-handling requirements as stated in local codes
  - floor drains!

- Centers with both day and night usage will need to bathe infants and children. These centers in particular must have bath areas included. These may easily be separated from toilet areas if care patterns make this desirable.

- See Chapter 5-4 of Military Construction Civil Works document EM-1110-1-103, "Design for the Physically Handicapped" for specific recommendations for the design of toilets accessible to handicapped persons.

- Army regulations require 1 toilet and 1 washbasin per 15 children. We recommend 1 toilet and 1 washbasin per 10 children in order to achieve state licensing in most states.

- Allocate 30-50 sq. ft. per toilet and washbasin unit (includes room for bath) (e.g., a total of 120-200 sq. ft. for 40 children).

RELATED ITEMS
INTIMATE DIAPERING AREAS
LAUNDRY
ISSUE

Very young children experiment upon the world of taste, texture, size, and temperature by placing objects in their mouths. Through this general mode, they learn about their environment, and eventually as they get older, about the specific task of eating.

Food preparation and consumption play an extremely important part in a child's perception of the world. But in educational institutions in the U.S., food experiences tend to be limited to a 15-minute regimented gobbling of preprocessed food in disposable containers.

JUSTIFICATION

Piaget (1967) discusses children's confusion about where such necessary things such as wood to build shelters and homes, and food to eat come from. If children see food only in processed form, they are losing connections to the natural world and their place in the food chain. A whole area of cognitive development is closed to them. Kates, Katz, and the People of Elm Park Center (1976) came to similar findings about young children's lack of understanding of where tap water comes from.

In discussing Swedish preschools, Passantino (1971) describes a very different attitude:

All aspects of food, its growing, preparation and consumption are seen as learning experiences to be capitalized upon. The children themselves tend vegetable gardens and fruit-tree orchards located on-site; they are taught the nutritional values of the products by "educator-dieticians" and encouraged to participate in the cooking of their own meals. Electric ovens, many designed with a high platform on one side for the children, real sinks, and plate storage at child level, afford opportunity for the children to prepare their own mid-day snacks. The dining tables alongside these cooking areas are set daily with well-designed tableware, utensils, napkins and fresh flowers. (p. 410)
Other values which children may gain from positive food experiences include developing eye-hand coordination in learning to handle silverware, identifying utensils and their uses, learning one-to-one correspondence necessary to set the table, learning to prepare food themselves, learning eating habits by observation, taking responsibility for some preparation set up, breaking down male-female stereotyped roles, enjoying a home-like atmosphere, and, finally, deriving aesthetic satisfaction through use of well-designed, attractive and colorful tableware and nicely displayed.

To realize the benefits described above, one food preparation areas and food consumption areas must be designed to facilitate child use. Therefore, materials must be child-size. Child-scale means table and chair height certainly, but it also means group size be limited. When over 30 children eat, space, noise and confusion result (Texas A & University, 1969).

Evans and Saia (1972) note that children enjoy eating in small groups throughout the center, and that if five or six children eat at a table with an adult, the atmosphere would be more home-like, encourage conversation, not be too overwhelming for shyer children. Other sources suggest that group size for any activity should not exceed 12-18 children.

**CHILDREN IN THE KITCHEN**

**WHETHER A CENTRAL KITCHEN WITH SATELLITE KITCHENS OR SEVERAL COMPLETE KITCHENS ARE MOST ECONOMICALLY FEASIBLE, CHILDREN SHOULD HAVE THE EXPERIENCE OF PREPARING AND SERVING THEIR OWN FOOD IN SMALL-SCALE KITCHENS WITH CONTROLLED ACCESS AND ADULT SUPERVISION.**

**RECOMMENDATIONS**

- Two options are open, depending on the size of the center and staffing patterns:
  - one central institutional kitchen for adult kitchen staff only, with satellite kitchens supplied with equipment for child-adult use, and eating areas to serve 12-16 children.
- several fairly complete kitchens scattered through the center—each one capable of being used by staff to prepare group meals (12-16 children) and to be used by children and staff together to prepare food—may actually serve two to three groups of 12-16 at different times if facility program permits shared use of space.

- Food preparation areas should be planned for use by both adults and children, e.g., pull-out cooking surfaces at two heights, counter space with a series of steps up, etc. For safety, food preparation areas should be closed to children when no adults are present to supervise.

- Storage for dishes, glasses, silverware, etc., should be accessible to children and close to eating areas to allow table setting and clean-up by children.

- All utensils for eating and cooking should be both functional and aesthetically pleasing.

- For safety reasons, separate food preparation and eating areas, but maintain visual connections for supervision. Use a counter-space to separate areas (possibly with dish-utensil storage opening into the eating area side).

- Locate kitchens near greenhouse-outdoor garden areas where food is grown, to emphasize the connection between nature and nutrition.

- Kitchens shall be separated from other parts of the building with construction having not less than a 1-hour fire resistance rating and all openings shall be protected with self-closing fire doors, or such area shall be provided with automatic sprinkler protection. (National Fire Protection Association, 1976, 9-5.3.3.5)
Allocated area for this pattern should be 150-220 Sq. ft.

PROGRAMMED USE OF KITCHEN SPACE

RELATED ITEMS
EATING CLUSTERS
NATURE STUDY AREAS
ISSUE

FEEDING CHILDREN CAN BE SEEN AS A PRODUCTION LINE OPERATION OR A FAMILY-STYLE EXPERIENCE.

JUSTIFICATION

Children's early experience with food will definitely affect their later attitudes toward the social aspects of eating. A spirit of enjoyment, sharing, experimentation, and learning can be gained most readily by example. As has been mentioned in CHILDREN IN THE KITCHEN, experts recommend small groups of children (5-6) at a table with one adult (Evans and Saia, 1972).

The goal is to make meals into attractive events with child-made centerpieces and/or flowers, nicely displayed food which children have helped prepare, and a leisurely atmosphere during which children can talk, learn how to handle silverware, etc.

The eating space can facilitate this atmosphere. Texas A & M University (1969) suggests that groupings of 30 children eating together is noisy and chaotic. An appropriate group size for other spaces is 12-16 children, however, several tables for 4-5 children and one adult would be best.

In order to make the eating experience most enjoyable for all children, some separation of children by physical development (e.g., hand-eye coordination) and social development (e.g., talking-nontalking) may be appropriate. If 12-16 children are using an eating area at one time, some moveable partitions may be necessary to keep flying food away from children who are ready to learn to use silverware.

Children up to 9 months require a quiet atmosphere and should be acoustically separated from older, noisier children (Frost and Kissinger, 1976; Cohen, 1974; Huntington, Parker, and Provence, 1971). Children between 9 and 18 months do not require as quiet an atmosphere. Their area can be included within a larger area, but should be distinct. They cannot always sit in a chair at this age; a high chair-table combination seating two infants and one staff works well (Mialaret, 1968; Frost and Kissinger, 1976). Children
from 18 to 30 months should have their own distinct area within the larger room. Chairs should be 11 inches from the floor and tables 16 inches from the floor (Mialaret, 1968). Children 30 to 60 months should also have a sub-area. Chairs should be 13 inches from the floor and tables 19 inches from the floor (Mialaret, 1968) (see ZONING).

Windows in the eating area would be most helpful if they could provide a view of the outdoor garden or greenhouse area where food is actually grown.

EATING CLUSTERS

EATING SPACES ADJACENT TO "CHILDREN IN THE KITCHEN" SHOULD ACCOMMODATE 12-16 CHILDREN AT SEPARATE TABLES FOR 4-5 CHILDREN AND ONE ADULT. THERE SHOULD BE STORAGE FOR DISHES, SILVERWARE, AND GLASSES BETWEEN FOOD PREPARATION AREA AND EATING AREA, AND WINDOWS WHICH PROVIDE PURPOSEFUL VIEWS.

RECOMMENDATIONS

- Eating clusters should be directly adjacent to food preparation areas (see CHILDREN IN THE KITCHEN).

- Dining tables and chairs should be child-scale and planned for 4-5 children and one adult. Typical cafeteria benches and long tables are unpleasant for small children.

- Provide an acoustically separate eating cluster for infants up to about nine months.

- Provide an eating cluster for 9-to-18-month-olds, one for 1½-2½-year-olds, and others for 2½-5-year-olds within a larger group of clusters; make each age cluster a distinct area, but provide visual connection.

- High-chair or high-chair/table combinations should be provided for infants and staff.
- Low chairs and tables should be provided for older children—for toddlers 1½-2½, chairs should be 11 inches from the floor and tables 16 inches from the floor; for preschoolers 2½-5, chairs should be 13 inches high and tables 19 inches high.

- Storage for dishes, silverware, glasses, serving dishes, flower vases, etc. should be child-height, and be located between food preparation area and eating area.

- Windows should provide seated children with a view of the greenhouse or garden where food was grown.

- Allocated area for this pattern should be 150-220 sq. ft. per cluster; minimum two clusters per 60 children.

**RELATED ITEMS**

MULTIFUNCTIONING HOUSE ZONING

CHILDREN IN THE KITCHEN

SPACES FOR 4-5 CHILDREN
WHEN CHILDREN BECOME ILL AT THE CENTER, THEIR PARENTS MAY NOT BE IMMEDIATELY AVAILABLE TO TAKE THEM HOME. THEREFORE, AN AREA IS NEEDED WHERE CHILDREN CAN REST UNDISTURBED WHEN THEY ARE SICK, OR WHEN THE CAREGIVER HAS REASON TO BELIEVE THEY ARE BECOMING ILL AND MAY BE INFECTING OTHER CHILDREN.

Prescott and David (1976) have noted that the provision of health-care areas is often more elaborate in description than in practice. Large centers may contain professionally staffed facilities for caring for a number of children, for giving first-aid and for administering health maintenance programs. Some smaller centers may contain only a cot in the director's office where the child can rest under adult supervision.

It is important to provide a health-care area where children do not feel cut-off from the mainstream of activities of the center. Kellogg (1949, as cited in Osmon, 1971) noted that germs can be isolated without isolating the child.

A cheerful, homey decor helps relieve children's anxiety and minimizes the sterile hospital environment which young children so often fear. Adjoining play space which contains a rug, table, and chairs, and some favorite toys can make staying in the health-care area much more pleasant and relaxing.

PROVIDE A PLEASANT SPACE WHICH IS VISUALLY CONNECTED WITH ACTIVITY AREAS, AND EASILY SUPERVISED BY AVAILABLE STAFF FOR AILING CHILDREN WHO ARE WAITING TO BE PICKED UP.
RECOMMENDATIONS

- In large, full-day centers, Osmon (1971) recommends three beds per 30 children. Depending on the program requirements, 80-120 sq. ft. of medical first-aid space has been suggested (Texas A & M University, 1969).

- There should be locked storage cabinets to hold necessary first-aid supplies, extra blankets, and other miscellaneous supplies.

- Include a toilet in the health-care space or locate the area near the children's toilets to minimize accidents.

- Allow sick children to feel connected to the center's activities by providing a visual link to areas such as group play where other children can be seen.

- Locate the area where it is easily supervised by the director or other caregivers.

RELATED ITEMS  MULTIUSE SPECIAL SERVICE AREA
IN ANY CHILD-CARE FACILITY WHERE INFANTS ARE CARE FOR, WHERE SMALL CHILDREN ARE INVOLVED FOR MORE THAN ONE TO TWO HOURS AT A TIME, THERE WILL NECESSARILY BE A LOT OF CLEAN-UP OF CHILDREN, CLOTHES, PLAY ITEMS, SURFACES, ETC. A CENTER WHERE CHILDREN WERE EXPECTED TO STAY CLEAN CONSTANTLY WOULD BE A STERILE PLACE.

Children involved in any kind of quality child development program will not stay clean and dry. They will be painting, pasting, sculpting with many materials, building, molding, gardening, splashing, playing with animals, eating, cooking, crawling on the floor, and being otherwise excited and stimulated by any number of "messy" activities. These children will need to clean up themselves and the spaces they use, and will produce large numbers of dirty towels, wash cloths, and dirty clothes.

Further, children under three may have irregular toilet habits and will need clean-up for these "accidents."

Infant care requires quantities of clean linens daily. Diapers, crib sheets, wash cloths, blankets, clothing, etc. all need changing several times daily.

Since a linen service would be inadequate in cases of daily emergency, and useless for children's personal clothing, a laundry area within the center is needed.

Anytime children's clothing or other washable textiles need to be cleaned, laundry facilities at the center are convenient.

LAUNDRY AREAS

PROVIDE AN EFFICIENTLY EQUIPPED AND ACOUSTICALLY BUFFERED LAUNDRY AREA CLOSE TO DIAPERING AREAS.
RECOMMENDATIONS

- The number of washers and dryers will be dependent on the size of the center. One large industrial-type washer and dryer will probably be sufficient for a small center (100 children). Since centers caring for infants usually wash everything that is washable daily to prevent germ spread, the infant area of a larger center may well need its own laundry.

- Laundry locations should be considered close to diapering areas for infants and toilet-wash-bath areas for older children.

- Laundry areas should be away from child-activity areas and circulation spaces and acoustically buffered. For safety, the laundry area should be able to be closed to children when an adult isn't present.

- Ventilation, washable surfaces, floor drain, flat surface at adult height for folding, laundry tubs with faucets for soaking, storage for dirty laundry, clean laundry and supplies, are all functional requirements.

- Allocated area for this pattern should be 50-85 sq. ft.

RELATED ITEMS

INTIMATE DIAPERING AREA
LEARNING BATHROOMS
CONVENIENT, EFFICIENTLY DESIGNED MAINTENANCE AND UTILITY SPACES ARE OFTEN LEFT OUT WHEN PLANNING CHILD-CARE CENTERS.

Maintenance of a facility can be made considerably easier when supplies, sinks, and equipment are located near the area where they are used. Most centers are serviced commercially after hours, or by their own staff. Carpets are shampooed, floors vacuumed or mopped, trash removed, and kitchens and toilet areas scrubbed for the following day's use. Janitor's closets which service the activity areas contain a deep sink where wash water can be disposed of and usually provide space for pails, mops, vacuums, and related supplies. If trash is removed by wheeled carts, there must be aisles and doorways leading to the service entry which are wide enough to accommodate the carts without scratching or denting furniture and equipment.

Emergency supplies for daytime accidents would be most convenient if kept in the activity spaces.

In addition to the usual supply of equipment storage, it is useful to include a workshop area where toys and equipment can be painted and minor repairs made. Tools can be stored for routine building and grounds maintenance.

PROVIDE SEVERAL SMALL MAINTENANCE AND SERVICE SPACES, ONE IN EACH MAJOR ACTIVITY AREA.

- Janitor's closets should be kept locked when children are around, to prevent them from coming in contact with cleaning solutions, and other potentially harmful supplies.

- Activity spaces need supplies for quick clean-ups which can't wait for the maintenance staff. These supplies should be kept in a locked cabinet in the activity area.
Consider both a central storage and equipment area to service the entire facility or several areas where different types of equipment can be stored. Adequate shelving and floor surfaces will be necessary to accommodate the variety of maintenance-related tools and supplies.

- Service/utility spaces may be located near a workshop area (e.g., A PLACE FOR BUILDING).

- Maintenance "closets" should be 20-25 sq. ft. in each activity space.

- A workshop should be 80-100 square feet and may double-function with A PLACE FOR BUILDING.

RELATED ITEMS

A PLACE FOR BUILDING
MECHANICAL AND ELECTRICAL SPACE
PARKING AND SERVICE AWAY FROM PEDESTRIANS AND PLAY
ISSUE

THE PROPER LOCATION OF MECHANICAL AND ELECTRICAL SPACE CAN INSURE EFFICIENT MECHANICAL AND ELECTRICAL LINES AND MEANWHILE NOT INTERFERE WITH THE DEVELOPMENTALLY MORE IMPORTANT PRIMARY AND SECONDARY ACTIVITY SPACES.

JUSTIFICATION

It is difficult to estimate the actual space necessary for equipment. Climatic differences, types of equipment, use of solar technology, all will affect the amount of space needed.

Location of equipment will be affected by factors such as noise levels generated, ease of service, and efficiency of operation.

PATTERN

NON-INTERFERING MECHANICAL AND ELECTRICAL SPACE

PROVIDE SPACE AT APPROXIMATELY 1 SQUARE FOOT PER 15 SQUARE FEET OF BUILDING SPACE AT AN EFFICIENT LOCATION FOR THE SYSTEM, YET NOT INTERFERING WITH THE PRIMARY AND SECONDARY ACTIVITY SPACES.

RECOMMENDATIONS

- Locate the equipment centrally if possible to make it most efficient, yet not so it interferes with primary and secondary activity spaces.
- Insulate mechanical space against noise transmission by use of vibration damping and insulating materials, flexible connections, and all other reasonable steps to reduce possible annoyance.
- A rough rule of thumb will be to provide approximately 1 sq. ft. per 15 sq. ft. of building space (Texas A & M University, 1969).
- Mechanical-electrical space should only open directly to the exterior of the building, not into any interior spaces.
- Owing to the complexity of equipment for a very large center (i.e., 240 children), consideration should be given to installation of a central control panel to monitor climate control and mechanical equipment; such a panel should be located in the central mechanical room.
Adequate space must be provided for electrical switchboards, distribution panels, and transformers as required in accordance with local and military building codes. As voltages generally in excess of 4,000 volts are being transformed into usable voltages for building and child equipment, the electrical panels must be securely isolated from children, and may be combined with the general mechanical space.

The fan room or rooms which will vary with the type of climate control equipment used, must have direct access to the exterior for supply and exhaust.

Boilers, a cooling tower, and stack may be necessary depending on heating system used (see Metropolitan Toronto School Board, 1968).

Fuel storage, if required, must be provided in accordance with the requirements of the appropriate building and fire safety code requirements.

RELATED ITEMS

SEMI-OPEN SPACE
ZONING
PARKING AND SERVICE ACCESS AWAY FROM PEDESTRIANS AND PLAY
SERVICE-UTILITY SPACES