

UFC 4-740-14
1 August 2002

UNIFIED FACILITIES CRITERIA (UFC)

DESIGN: CHILD DEVELOPMENT CENTERS



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CHILD DEVELOPMENT CENTERS

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U.S. ARMY CORPS OF ENGINEERS

NAVAL FACILITIES ENGINEERING COMMAND (Preparing Activity)

AIR FORCE CIVIL ENGINEER SUPPORT AGENCY

Record of Changes (changes are indicated by \1\ ... /1/)

Change No.	Date	Location

This UFC supersedes Navy and Marine Corps document MIL-HDBK-1037/2A Child Development Centers, dated 29 August 1997 and Air Force document Facility Design and Planning Guide for Child Development Centers (draft) dated 5 August 1994.

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FOREWORD

The Unified Facilities Criteria (UFC) system is prescribed by MIL-STD 3007 and provides planning, design, construction, sustainment, restoration, and modernization criteria, and applies to the Military Departments, the Defense Agencies, and the DoD Field Activities in accordance with [USD\(AT&L\) Memorandum](#) dated 29 May 2002. UFC will be used for all DoD projects and work for other customers where appropriate. All construction outside of the United States is also governed by Status of forces Agreements (SOFA), Host Nation Funded Construction Agreements (HNFA), and in some instances, Bilateral Infrastructure Agreements (BIA.) Therefore, the acquisition team must ensure compliance with the more stringent of the UFC, the SOFA, the HNFA, and the BIA, as applicable.

UFC are living documents and will be periodically reviewed, updated, and made available to users as part of the Services' responsibility for providing technical criteria for military construction. Headquarters, U.S. Army Corps of Engineers (HQUSACE), Naval Facilities Engineering Command (NAVFAC), and Air Force Civil Engineer Support Agency (AFCESA) are responsible for administration of the UFC system. Defense agencies should contact the preparing service for document interpretation and improvements. Technical content of UFC is the responsibility of the cognizant DoD working group. Recommended changes with supporting rationale should be sent to the respective service proponent office by the following electronic form: [Criteria Change Request \(CCR\)](#). The form is also accessible from the Internet sites listed below.

UFC are effective upon issuance and are distributed only in electronic media from the following source:

- Whole Building Design Guide web site <http://dod.wbdg.org/>.

Hard copies of UFC printed from electronic media should be checked against the current electronic version prior to use to ensure that they are current.

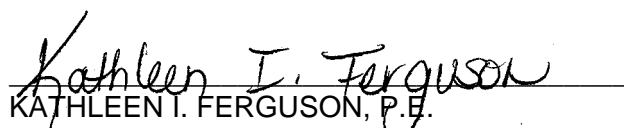
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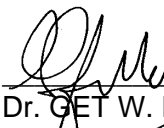
DONALD L. BASHAM, P.E.
 Chief, Engineering and Construction
 U.S. Army Corps of Engineers



DR. JAMES W. WRIGHT, P.E.
 Chief Engineer
 Naval Facilities Engineering Command



KATHLEEN I. FERGUSON, P.E.
 The Deputy Civil Engineer
 DCS/Installations & Logistics
 Department of the Air Force



Dr. GET W. MOY, P.E.
 Director, Installations Requirements and
 Management
 Office of the Deputy Under Secretary of Defense
 (Installations and Environment)

FORWORD Continued

This UFC was created by representatives from the Services' child development programs and facility design and construction programs:

- Headquarters, U.S. Army Community and Family Support Center (HQ CFSC) and U.S. Army Corps of Engineers
- Navy Personnel Command Child Support and Facilities and Acquisitions Branches and Naval Facilities Engineering Command
- Headquarters (HQ), Air Force Civil Engineer Support Agency, Air Force Center for Environmental Excellence, and HQ USAF/ILV (Air Force Family Member Programs)
- Marine Corps Command Services, Child Development Program and Construction
- Office of Children And Youth, Office of Secretary of Defense

While all the Services have contributed program, design, and construction experience in order to define the criteria in this document, this UFC represents required criteria for the Navy, Air Force and Marine Corps only. The Army will continue to mandate the use of the Department of the Army Facilities Standardization Program Seven standard designs and the Supplemental Data Booklet for Army Child Development Centers for its CDC (age 6 weeks – 5 years) construction program.

The required Army documents were created as part of the Army's strategy to replace deficient facilities being used for childcare. The Army standard designs were developed to the definitive design level (10 to 15 percent) and provide criteria and guidance for the planning, programming, design and construction of Army Child Development Centers. The standard designs provide mandatory functional and special relationships and the associated outdoor play environment which meets the Army CDC Programmatic Objectives and Goals. The Army standard designs have been updated and revised as necessary to implement changes in guidance and criteria. The latest update occurred in 1995, and the documents can be found at the following web sites:

- TECHINFO, TI 800-00, Design Criteria:
<http://www.hnd.usace.army.mil/techinfo/to/800-01/ti80001a.htm>
- Army CDC Standard Designs in the DA Facilities Standardization Program Library:
<http://155.74.8.101/stddgn/cdc/>

The Army Center of Standardization (COS) for Child Development Centers is the U.S. Army Engineering and Support Center, Huntsville, AL. Information on Army CDC criteria can be obtained from COS point of contact Mr. Marcus Searles, voice (256)895-1672.

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CHAPTER 1

INTRODUCTION

1-1 **SCOPE.** UFC 4-740-14 provides guidelines for evaluating and planning the site, determining programming requirements, establishing space distribution needs, determining building size, and designing all outdoor and indoor spaces for Tri-Service and Marine Corps child development center (CDC) facilities to support the child development program. (Throughout this UFC, the term Tri-services is intended to include the Marine Corps, except where specifically indicated.) The information in this UFC applies to the design of all new construction projects as well as renovation projects. Renovation projects should update existing facilities to meet the guidance and criteria within budgetary constraints. Further, this UFC serves as an ongoing program management tool within the Tri-Service child development programs. This UFC is not intended as a substitution during design for thorough review by individual Child Development Program Managers in each of the Services.

1-2 **APPLICABILITY.** UFC 4-740-14 is intended to be a source of basic architectural information for all individuals involved in the planning, programming, design or evaluation of CDC facilities and managing a child development program. Note: where one or more Service's criteria vary from the other Services' criteria, it is noted in the text with the  (Service Exception) symbol. If a Navy exception is noted, it does not apply to the Marine Corps unless specifically noted. Specific users of this UFC include the following:

1-2.1 **Architects and Engineers.** Architects and Engineers (A/Es) who will provide design services under the direction of the individual design agencies, including the Naval Facilities Engineering Command and the Air Force Civil Engineer.

1-2.2 **Tri-Service Planning Personnel.** These individuals must use this UFC for pre-design planning or to assess the extent of improvements required in an existing center in order to achieve the established standard.

- Headquarters Staff
- Major Command Staff
- Installation Commanders
- Installation Facilities Management
- Installation Technical Proponents
- Program Directors
- Facility Staff

1-3 **USERS OF THE FACILITY.** The primary users of CDCs are as follows:

1-3.1 **Children.**

- Infants (6 weeks-12 months)
- Pre-toddlers (12 months-24 months)
- Toddlers (24 months-36 months)
- Preschool Age (3-5 years)

1-3.2 **Facility Staff.**

- Program Administrators/ Directors
- Assistant Directors
- Training and Curriculum Specialists
- Group Leaders/Caregivers
- Family Child Care Coordinators/Child Development Home Directors
- Receptionist or Operations Clerks/U.S. Department of Agriculture (USDA) Clerks/Monitors
- Cook and Food Service Workers
- Custodial Staff

1-3.3 **Parents.**

1-4 **DESIGN GUIDANCE.** UFC 4-740-14 provides the basic guidelines for evaluating, planning, programming and designing new and renovated CDCs on military installations. It is intended for use in developing future centers and expanding or renovating existing ones. Furthermore, it aims not only to specify design criteria but also to explain the rationale for the criteria in order to enhance professional judgment. The criteria contained in this UFC establish the baseline levels of features and finishes to be provided in all centers. This UFC also identifies desired or allowable design features. The objective of this UFC is to promote centers that are child-oriented, developmentally appropriate, environmentally sensitive and functional.

1-4.1 **Space Attributes.** The design effort must allow for, and be sensitive to, the differences in space attributes for children and those for adults as well as the differences in space usage by the children in different age groups. Information about the characteristics and activities of the children is included to provide rationale for aspects of design. The requirements and recommendations set forth in this UFC are

aimed at establishing optimal design, though, when appropriate, specific maximum or minimum requirements are stated. The center design must meet the needs of children, caregivers, administrators, and parents by performing the following functions:

- Support the staff's care of children by creating safe and healthy environments that allow them to focus their efforts on the care and nurture of children. Provide features that encourage positive relationships between staff, children, and parents.
- Create an environment that comfortably accommodates the needs of well-qualified staff in order to attract and retain them.
- Facilitate family involvement in the center, particularly with the child's caregivers.
- Respond to local conditions, climate, and regional preferences in the design, while also considering the goals of the parents and sponsoring agency or agencies.
- Create a safe environment for both children and staff.
- Create an appropriate, well thought-out and attractive child-oriented environment. The CDC should avoid a typical institutional atmosphere; it should be inviting and feel "home-like" for the child.
- Accommodate a child's scale, including how they will use the space, what they will see, and what kind of experience they will have, i.e., design through the eyes of a child.
- Provide an intriguing environment, but one devoid of overpowering colors, features and literal themes. Too much literalness can inhibit a child's creativity.
- Size the child activity rooms to accommodate the recommended group sizes and staff-to-child supervision ratios. Efficiently use space and provide strategically situated storage to accommodate effective supervision.
- Provide durable and cost effective materials and details. A CDC is used intensely; the design must be particularly sensitive to the life cycle cost of materials.
- Create a reasonably accommodating center for staff, parents and children in a cost effective manner.
- Provide for flexibility as the installations' demographic needs change.

1-4.2 **Stages of Development.** Human development research indicates that there are universal, predictable sequences of growth and change that occur in children during the first years of life. Each stage is characterized by behavior that is different from that of the preceding stage. Each stage also integrates all behaviors possible at previous stages, consolidates them, and prepares for development toward the next stage. Knowledge about child development, i.e., behaviors, activities, and materials for a specific age group, and understanding about individual children's needs, must be applied to design the most appropriate learning environment.

1-4.2.1 Infancy, from birth to about 12 months, is the period when rapid changes of a child can be noted in terms of intellectual as well as physical development. This period is characterized by the sequential acquisition of abilities such as locomotion and grasping. An infant's behavior is centered on the manipulation of objects and performance of activities for the simple sensation of them.

1-4.2.2 The major developmental changes from infancy to toddler-hood are the increase in physical capabilities, the use of language, and the ability to internalize thoughts. During this period a child establishes walking and running, begins to explore and experiment with the environment, and increases social experiences such as talking and seeking the attention of others. Personalities are manifested, as well as likes and dislikes. Play for these children will progress into fantasy and parallel play where, although often in groups, toddlers play without much interaction with other children.


1-4.2.3 The preschool age child, between three and five years, has increased control of fine motor skills, a large vocabulary, and often engages in cooperative play. These children are better able to concentrate and remember.

1-4.3 **Ages Accepted.** In general, Child Development Programs accept children from six weeks through five years of age. Some other programs accept children whose parents are not at home before and after school hours or who wish to place children in a care situation between school and family-gathering time. However, before and after school care programs usually occur somewhere other than a Child Development Center for Tri-Service facilities. The three basic scheduling patterns are as follows:

- **Full Day.** Children attending for a full day, for example, as many as 12 hours.
- **Part Day.** Children attending part of a day, typically a half-day or less on a regular, scheduled basis.
- **Hourly.** Children attending for one hour or more on an infrequent or unscheduled basis.

1-4.4 **Separation and Mixing of Children.** There are two types of separation and mixing to be considered in the context of child development centers:

1-4.4.1 **Need and Opportunity.** The need is to provide separation of spaces and program options for older children from younger children and to also provide opportunities for overlap of different ages with the proper supervision.

1-4.4.2 **School Age Program.** The school age program is not usually included within the CDC; it is typically located elsewhere in other approved buildings. However, if the requirement for preschool age care decreases, excess preschool space in a CDC may be used for younger school-age care.  Navy requires Program Manager concurrence prior to including children older than five years.

1-4.4.3 **Mixed-age Program.** A facility that includes school-age children with the typical CDC age groups may be appropriate for some installations.

1-5 **REGULATORY AUTHORITIES.** Construction for CDC facilities will comply with the construction requirements of the most current editions of the *Uniform Building Code* and NFPA 101 *Life Safety Code*. Noncombustible construction (Type I and II) is the preferred method of construction, since noncombustible construction enhances the fire safety of the CDC, allows for omission of sprinklers in the attic, and reduces clearance requirements for heat producing equipment, such as kitchen exhaust ducts. The Life Safety Code states that if staff-to-child ratios are less than that on which the code requirements are based, additional safeguards as determined by the authority having jurisdiction, will be necessary.

1-5.1 **Occupancy Classification.** CDCs are classified as Day-Care Occupancy when applying the NFPA 101, *Life Safety Code* and as Educational Occupancy, Division 3, when applying the *Uniform Building Code*. For part-day preschool programs or kindergarten facilities, the requirements for Educational occupancies are applicable.

1-5.2 **Occupant Load.** The allowable occupant load for fire and safety considerations will be based on NFPA 101 *Life Safety Code*. The maximum permitted occupant load is based on the capacity of the exit components, not solely on the floor area. The minimum exiting capacity is based on the floor area at normally one person per 3.25 m² (35 ft.²) of net floor area.

1-5.3 **Military Authorities.** The comprehensive authorities having jurisdiction for CDCs are the following:

1-5.3.1 **Navy.**

- NPC PM
- NAVFAC EFD

1-5.3.2 **Air Force.**

- HQ AFCEE (architectural, publication coordination).

- HQ Air Force Civil Engineering Support Agency (AFCESA), <http://www.afcesa.af.mil/> (technical, fire, life safety).
- HQ AFSVA (functional requirements)
- HQ USAF/ILV (functional policies)

1-5.3.3 **Marine Corps.** HQ, USMC (MRY) (MRD), LSC: NAVFAC EFD/ NPC PM

1-5.4 **Fire Protection.** The DoD CDC fire protection and life safety requirements exceed the minimum standards of the NFPA codes because the DoD ratio of children to child caregiver is greater than permitted in the NFPA codes. The additional features required in DoD facilities compensate for the reduced number of child caregivers. The National Fire Codes include, but are not be limited, to the following:

- NFPA 13, *Installation of Sprinkler Systems*
- NFPA 70, *National Electrical Code*
- NFPA 72, *National Fire Alarm Code*
- NFPA 80, *Fire Doors and Windows*
- NFPA 96, *Ventilation Control and Fire Protection of Commercial Cooking Operations*
- MIL-HDBK 1008C (or current edition)

1-5.5 **Certification.** The CDC must be certified by the DoD and accredited by an external accrediting agency.

1-5.6 **Other Regulatory Authorities.** CDC design must also comply with the following:

1-5.6.1 **Accessibility.** *Uniform Federal Accessibility Standards (UFAS)* and *Americans with Disabilities Act Architectural Guidelines (ADAAG)*. Design to accommodate children and adults with special needs.

1-5.6.2 **Historic Preservation Act.** Modification of historic buildings or buildings deemed eligible for the National Register of Historic Places must follow specific guidelines.

1-5.6.3 **Sustainable Design Requirements.** See [Section 2-18](#) for more information on energy-conscious and sustainable design.

1-5.6.4 **Antiterrorism Requirements.** Meet the requirements of UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings* in addition to these criteria for all

projects through the Fiscal Year 2003 military construction program. Meet the requirements of *DOD Antiterrorism Construction Standards, December 2001* in addition to these criteria for all projects beginning with the Fiscal Year 2004 military construction program.

1-5.6.5 **Public Law 104-106, Section 568 of Title 10, United States Code.** The MCCA of 1989 (Pub.L.101-89) was recodified as the *Military Family Act and Military Child Care Act*, February 10,1996.

1-5.6.6 **Technology Transfer and Advancement Act.** Public Law 104-113 (*USC Title 15 Sec 272*)

1-5.6.7 **Additional Requirements.** See [Chapter 6](#) for additional certification requirements on the design of the outdoor activity area and the selection and installation of playground equipment.

CHAPTER 2

GENERAL DESIGN CRITERIA

2-1 **MASTER PLANNING.** Evaluate the total childcare requirements for the populations and missions of the individual installation.

2-1.1 **Facility Classification.** Once the demand has been determined, classify the facility size as follows:

- **Small.** Less than 100 children
- **Medium.** 100 to 200 children
- **Large.** 200 to 305 children

2-1.2 **Number of Children Accommodated.** No CDC will accommodate less than 48 children or more than 305 children. If the projected installation requirement exceeds 305 children, provide multiple CDCs.

2-1.3 **Land Area Requirements.** Table 2-1 indicates the minimum hectare (acreage) required to accommodate the CDC facility and the developmental play program to include the building, parking, service area, outdoor activity area, and vehicular circulation.

TABLE 2-1. SITE SIZE REQUIREMENTS

CDC Size	Minimum Site Size	
	Hectares	Acres
Small	0.84	2.07
Medium	1.53	3.78
Large	2.09	5.15

2-1.3.1 In the event the site is limited and cannot accommodate the minimum required area for the facility and play area, select a new site.

2-1.4 **Impact on Neighborhood.** The designer and community planner must give serious consideration to the impact that a large CDC will have on land use, peak traffic patterns and safety of the children. Providing CDC facilities adjacent or proximate to another may have an impact on traffic, but doing so should not be precluded. Adjacent facilities may be more customer responsive in that a parent may have children in both facilities. Additional site criteria can be found in [Chapter 3](#) and [Chapter 7](#).

2-1.5 **Locating.** Locate the CDC as recommended by the community planner and as approved by the installation commander. Consider practical future expansion to the facility and AT/FP issues, again, according to the installation commander and planners.

2-2 **COORDINATION.** Follow this criteria regarding coordination with the appropriate Service representatives:

2-2.1 **Navy.** Coordinate all stages of planning, siting, and design development for CDC new construction, addition/alteration, and renovation projects with Navy Personnel Command (PERS-656D/659), MWR Division, Integrity Drive, Millington, TN 38055-6560.

2-2.2 **Air Force.** Coordinate all stages of design development of CDC new construction, addition/alteration, and renovation projects as follows:

2-2.2.1 Projects estimated at \$500,000 or more with MAJCOM CE/Services and HQ AFSVA/SVXF (10100 Reunion Place, Ste 502, San Antonio, TX 78216-4138) and HQ AFCESA (HQ AFCESA/CESM, 139 Barnes Drive – Suite 1, Tyndall AFB, FL 32403-5319).

2-2.2.2 Consult Major Commands for all other projects. Consult the AF Project Managers Guide for Design and Construction at <http://www.afcee.brooks.af.mil/dc/products/dcproducts.asp>. For all projects requiring certification or re-certification of the facility, contact HQ AFCESA/CESM, 139 Barnes Drive – Suite 1, Tyndall AFB, FL 32403-5319.

2-2.3 **Marine Corps.** Coordinate all stages of planning, siting, and design development for CDC new construction, addition/alteration, and renovation projects with HQ USMC (MRY) and (MRD) 3280 Russell Road, Quantico, Virginia 22134.

2-3 **GROUP SIZE AND CAREGIVER-CHILD RATIO.** Children's needs, in many respects, correspond to their ages. Although each child develops according to his or her unique schedule, children can be characterized as belonging to general age categories of development, with each age group having a different set of needs. See [Section 1-4](#) for more information on the age categories. To meet these needs, the staffing requirements for each age group are inherently different. The required ratios of caregiver and children served for various CDC capacities are illustrated in Table 2-2. In any individual center, actual age ranges between groups may overlap. In some centers, children may be grouped in mixed-age activity rooms. In these cases, use the design criteria for the youngest children in the group.

TABLE 2-2. CAREGIVER/CHILD RATIOS

Group	Age Range	Adult/Child Ratio	Group Limit*
Infants	6 wks. - 12 mos.	1 to 4	8
Pre-Toddlers	12 mos. to 24 mos.	1 to 5	10
Toddlers	24 mos. to 36 mos.	1 to 7	14
Pre School Age	3 yrs. to 5 yrs.	1 to 12	24

* The group limit is the limit for children only.

2-4 **SPACE REQUIREMENTS.** The space requirements for each age group are also inherently different. This UFC states area requirements in terms of Net Floor Area (NFA) or Gross Floor Area (GFA). NFA refers to the net usable area of buildings and spaces, exclusive of the area required for building construction and mechanical and electrical equipment rooms. GFA is the total building footprint measured to the exterior side of the exterior wall. For the purposes of this UFC, space requirements indicated for various uses will be expressed in terms of NFA. GFA is determined, where appropriate, by adding to NFA totals an estimated area for building construction (including wall thickness, ventilation space, etc.) and for mechanical/electrical equipment rooms.


2-4.1 **Space Programs.** Sample space programs for the three CDC size classifications are illustrated in Tables 2-3 to 2-6. They are grouped into basic functions including (2-3) Core Administrative Areas; (2-4) Core Staff Support Areas; (2-5) Core Facility Support Areas; and (2-6) Child Activity Rooms.

2-4.1.1 The space programs illustrated in Tables 2-3 to 2-5 are purely sample programs and are not intended to establish fixed design programs for CDC planning teams. Determine the actual total space program for CDC Core Administrative Area functions, Staff Support Area functions, and Facility Support Area functions by considering the anticipated number of children accommodated by the facility and the specific space and design criteria given in [Chapter 4](#).

2-4.1.2 The general space requirements per Child Activity Room given in Table 2-6 are mandatory; however, determine the total number of activity rooms based on the number of children to be accommodated. Child activity space functions are discussed in more detail in [Chapter 5](#).

**TABLE 2-3. SAMPLE PROGRAM OF TYPICAL SPACE REQUIREMENTS
CORE ADMINISTRATION**

Functional Spaces	Standard Areas					
	Small CDC		Medium CDC		Large CDC	
	m ²	ft. ²	m ²	ft. ²	m ²	ft. ²
Entrance/Lobby. Includes vestibule, circulation space from the vestibule to the reception desk, the circulation space in front of the reception desk, and all areas dedicated to waiting. This area must include circulation space that allows easy access of food carts from the kitchen, if required.*	11.15	120	16.72	180	37.16	400
Reception/Work Area. Generally includes space required for staff workers behind the reception counter and any circulation space leading to adjacent office space, to the isolation room and to the toilet. It does not include any space for general public. Includes the net space required to enclose any office equipment such as printers, faxes, copiers, computers, and video recording equipment, if any. It also includes general office work space (work tables or work surfaces).	26.01	280	35.30	380	48.31	520
Administration Offices. The required offices will vary both by Service and by Installation. Refer to Chapter 4 and the contact names for each Service noted in that Chapter for more information. These ranges are rough estimates.	37.16 to 55.74	400 to 600	41.81 to 60.39	450 to 650	51.10 to 69.68	550 to 750
Isolation/Health Room. Includes area for isolating and observing a sick child.	7.43	80	7.43	80	14.86	160
Isolation Toilet. Includes area for use by children in isolation, handicapped adults, staff, and visitors in small centers	3.25	35	3.25	35	3.25	35

*  Navy Exception: Circulation space for food carts is not allowed between the reception desk and the entrance to the facility. It is allowed in a hallway behind the reception area to pass from one wing of the building to another.

**TABLE 2-4. SAMPLE PROGRAM OF TYPICAL SPACE REQUIREMENTS
STAFF SUPPORT**

Functional Spaces	Standard Areas					
	Small CDC		Medium CDC		Large CDC	
	m ²	ft. ²	m ²	ft. ²	m ²	ft. ²
Break/Staff Room. Includes space for counter/cabinet space for microwave, sink and refrigerator, space for tables and chairs for staff. Provide closet for coats and jackets.	16.72	180	20.44	220	27.87	300
Training Room. Includes space for a conference room, resource bookshelves, etc.	23.22	250	32.52	350	41.81	450
Central Storage. Generally includes any space required for storage of both bulk and individual items for use within the Care Rooms and in the office area. Includes space to store any equipment such as Audio/Visual equipment that is rotated in the Care Rooms or used in training.	9.29	100	12.08	130	13.94	150
Staff/Public Toilet. This area must be sized based upon building code requirements (occupant load/occupancy) and shall be compliant with ADAAG.	11.15	120	18.58	200	26.01	280

**TABLE 2-5. SAMPLE PROGRAM OF TYPICAL SPACE REQUIREMENTS
FACILITY SUPPORT**

Functional Spaces	Standard Areas					
	Small CDC		Medium CDC		Large CDC	
	m ²	ft. ²	m ²	ft. ²	m ²	ft. ²
Kitchen. Includes space for all food preparation and dishwashing, as well as cart storage, dry goods storage, coolers and freezers, and work station for cooks.	65.03	700	83.61	900	102.2	1100
Janitorial. Includes all floor space required for storing janitorial supplies and equipment. Includes a mop sink. Large facilities may have more than one room	4.64	50	4.64	50	7.43	80
Laundry. Includes area required for washers and dryers, one dryer more than the number of washers and a sink and work surface for folding.	7.43	80	10.22	110	12.08	130
Other Facility Support. Generally calculated at a percentage of total building area, this includes building construction, mechanical rooms, and electrical rooms (see Section 4-12 for more information). A rough percentage of total building area for these items would range from 10 to 20 percent; however, these spaces are inherently variable as a result of installation unique requirements. Consult with mechanical engineer or CDC Program Manager when programming these spaces.						

TABLE 2-6. REQUIRED SPACE REQUIREMENTS CHILD ACTIVITY ROOMS

Age Group(s) Accommodated	Room Area	
	m ²	ft. ²
Infants and Pre-toddlers. This room can accommodate two groups of infants (eight children) or two groups of pre-toddlers (10 children).	68.28	735
Toddlers and Preschoolers. This room can accommodate two groups of toddlers (14 children) or one group of Preschoolers (12 children).	85.47	920
Preschoolers. This room can accommodate two groups of Preschoolers (24 children).	131	1,410
Note: While the rooms are set-up to accommodate more than one age group in terms of space and facilities, usually two age groups will never share a room. See Section 5-2 for more detailed breakdown of Child Activity Room spaces.		

2-5 **ORGANIZATION AND LAYOUT.** Locate CDCs on a first floor, at-grade level permitting exit discharge directly outside the building. CDCs are not permitted in basements. CDCs must not be located in a mixed occupancy with high hazard or storage occupancies. In any permitted mixed occupancy, CDCs must be separated from other occupancies by a minimum of 1-hour rated construction.

2-5.1 **Noise Level Zoning.** Zone the building in terms of noise levels so that activity rooms and/or spaces are grouped together and separated by distance and/or barriers from quiet rooms and/or spaces. Design CDCs with functional groupings to include:

2-5.1.1 **Core Administration Area.** Entrance/Lobby; Reception and Administrative Functions. Administrative Requirements are discussed in [Chapter 4](#). Locate administrative offices as close to lobby/reception area as possible.

2-5.1.2 **Staff Support Areas.** Relating to Staff Functions. Staff requirements are discussed in [Chapter 4](#). Locate spaces used by the staff, particularly caregivers, to provide easy access from the main circulation routes.

2-5.1.3 **Facility Support Areas.** Relating to food preparation and associated functions; heating, ventilating, air-conditioning; electrical; security and communications equipment; laundry; janitor; and building circulation. Functional support areas are discussed in [Chapter 4](#). Locate the kitchen so it is accessible directly from the interior and the exterior of the building without passing through activity rooms or the playgrounds. Locate the mechanical room so it is accessible only from the exterior of the building and so the access does not go through a playground.

2-5.1.4 **Child Activity Areas.** Child Activity Areas are discussed in [Chapter 5](#). Child Development Areas organize and group children's activities by age group (e.g., infant, pre-toddler, toddler, preschool). Attempt to arrange age groups nearest the next age group to simplify and possibly consolidate playground areas.

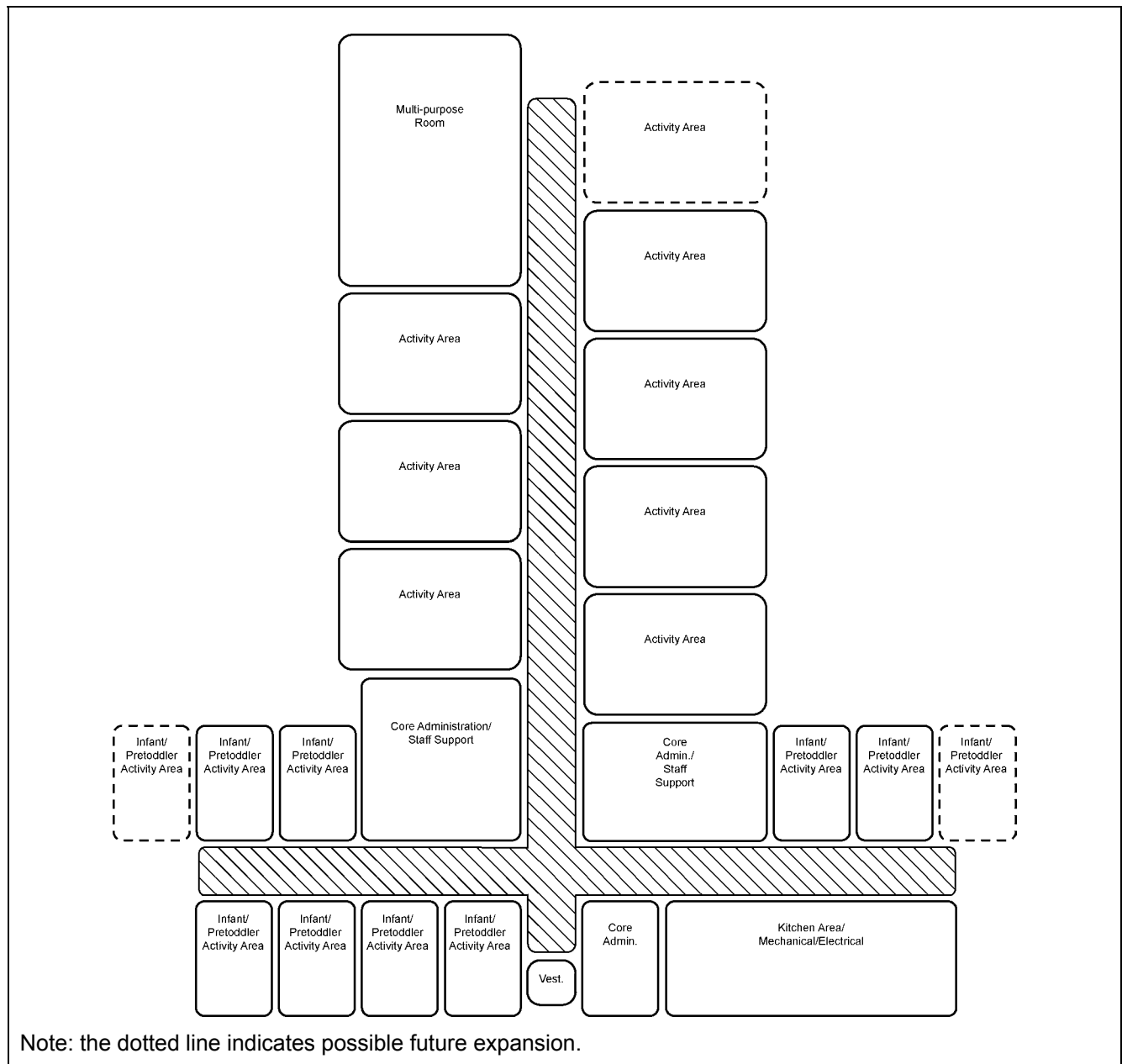
2-5.1.4.1 Locate child activity rooms along the exterior perimeter of the building to provide direct egress from each activity room to an age-appropriate playground and in

order to receive the maximum amount of natural light. These rooms also require direct access to the central circulation system. Child activity rooms should also be close to common use spaces. The Infant/pre-toddler room should be closest to the reception/lobby area because the child is usually carried to the room, along with diaper bags, etc.

2-5.1.4.2 Children's activity spaces serve dual functions as sleeping and dining spaces. Separate or centralized sleeping and/or eating spaces are not acceptable. Provide emergency egress from playgrounds. Lay out the emergency egress so it does not interfere with access by emergency vehicles and personnel. In small centers, design to allow for construction of additional rooms, if future expansion is likely.

2-5.2 **Sample Overall Functional Relationship Bubble Diagram.** See Figure 2-1. This bubble diagram is not intended to represent a mandatory or even a suggested design but is provided to indicate acceptable relative adjacencies of functional spaces. Note that the multi-purpose room is optional and each Service has different requirements regarding its need and the criteria for its design (see [Section 4-9](#)). Circulation space is variable but must be included in overall area calculation.

FIGURE 2-1. SAMPLE OVERALL FUNCTIONAL RELATIONSHIP BUBBLE DIAGRAM



2-6 **ALTERATIONS TO EXISTING FACILITIES.** Except as modified here, design new CDCs and modernize existing facilities according to the design criteria established in this UFC. The objective of all modernization projects is to approximate new construction standards to the maximum extent possible within the programmed criteria.

2-6.1 **Program.** For CDCs that will be located in existing, modernized facilities, the size and activity room distribution should follow the criteria given in [Section 2-4](#) and the appropriate individual sections of this UFC. Modify the standard CDC activity areas

to accommodate the existing structure. However, send all proposed modifications to the standard criteria to the following agencies for review and approval prior to the initiation of concept design:

- Navy. NPC PERS 656/659
- Air Force. HQ AFCESA, Fire Protection/Life Safety, HQ AFSVA/SVXF, and the MAJCOM Child Care specialists.
- Marine Corps. HQ, MCCA (MRY) and (MRD)

2-6.2 **Design.** When modifying an existing building, analyze its potential with regard to location, site services, architecture, structure, internal environmental systems, and functional adaptability. Enhance its architectural character in accordance with the local base architectural compatibility standards.

2-6.3 **Historic preservation.** If the center is housed in a building included or eligible for inclusion on the National Register of Historical Places (NRHP), or if the center or its playground is within visible, close proximity to such a building, retain, respond to, and respect the use and character of the historic structure(s).

2-6.3.1 Coordinate the resolution or mitigation of any adverse effect on historic property with the Service contacts noted below, the State Historic Preservation Officer (SHPO), the Tribal Historic Preservation Office (THPO) and the Advisory Council on Historic Preservation, or other jurisdictions if overseas. This coordination must start early in the planning process to allow for appropriate reviews.

- Navy. PWC/D and Engineering Field Divisions/Activity (EFD/A)
- Air Force. HQ AFCEE/ECR,
<http://www.afcee.brooks.af.mil/ec/cnr/ftsht2.htm>
- Marine Corps. Base Civil Engineering or EFD/EFA/Public Works Department

2-6.3.2 Any undertaking significantly affecting any building included or eligible for inclusion on the NRHP will have to be evaluated according to Section 106 of the *Historic Preservation Act of 1966*, as amended. Work on historic buildings, structures, or properties should comply with the *Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Structures* (current publication) and the *Fire Safety Retrofitting in Historic Buildings* (August 1989), jointly written by the Advisory Council on Historic Preservation and the General Services Administration. Consider the following criteria to determine if a building is eligible for inclusion on the NRHP. Direct any question on the applicability of these regulations or historic eligibility to the SHPO during the planning stages.

- Is at least fifty years old (or will be when the renovation is completed).

- Is deemed to be exemplary of a particular style.
- Has historic significance in terms of events to which the building is related.
- It should be noted that the design and appearance of the outdoor activity areas has also been a difficult issue in the past when they are located near historic buildings.

2-7 **STRUCTURAL REQUIREMENTS.** Select an economical structural system based on facility size, projected load requirements, local availability of materials and labor, and wind, snow, seismic, geological, and permafrost conditions. Consider the use of pre-engineered systems and components when conducting economic analyses. Structural decisions will be made by registered structural engineers during the actual design phase. In the event of conflicts between structural criteria and standards contained in this document and other government documents, resolution must be approved by the Service representatives noted in [Section 2-2](#).

2-7.1 **Insulation.** Since children spend a great deal of time on the floor, both temperature control and avoidance of drafts are very important. Maximum insulation of floors (depending on the project location), including perimeter insulation of floor slabs is required.

2-8 **EXTERIOR DESIGN.**

2-8.1 **Architectural Style And Scale.** Design CDCs to reflect a residential, non-institutional character, within the guidelines of the local base architectural compatibility standards. The physical environment supports the operational quality of a center and profoundly affects the behavior and development of children, as well as the efficient functioning and sense of well being in adult caregivers. The design must be sensitive to all environmental influences without compromising the functional program requirements. Accomplish this through sensitive architectural design that addresses the issues of environment, proportion, scale, forms, landscaping, and imagery that are important in this type of facility. Choose appropriate colors and materials that are complementary to installation plans. A pleasant functional environment influences the way caregivers react to the children.

2-8.1.1 Do not incorporate irregular geometry in the overall building design that results in any wall angle other than 90 degrees in the offices, activity rooms, or service areas.

2-8.1.2 Contain the facility in one building. If a facility consists of two or more freestanding buildings, they must be joined by an enclosed and covered walkway. However, in tropical areas these walkways need only be covered and not necessarily enclosed. Design these passageways so they do not allow unauthorized access. Large centers that are not expressed as small components can engender an institutional environment that should be avoided.

2-8.1.2.1 Incorporate a point of reference or landmark that serves as a welcome and a transition. Separate the center entrance from any other entrances and service areas, if possible. A transition such as a covered entry is very desirable at the main entry. Such a feature might be combined with a covered walkway that connects the building to short-term parking to protect arriving children and parents from inclement weather. In cold climates, there must be a canopy (or a recess) at required egress doors to ensure that doors can completely open without obstruction from snow and ice. In cold climates, a vestibule can be considered at all egress points from the activity rooms. One vestibule could serve two rooms.

2-8.1.3 Roofs should be a simple gable or hip without multiple levels. Roof overhangs assist with reducing glare in children's activity rooms. Combine exterior covered areas with shade structures in the playgrounds. See paragraph 6-5 for more information on outdoor activity area shade structures.

2-8.1.4 Provide doors and windows of residential size and type. Locate windows so that children have visual access to the outside. Recess or locate casement and other projecting types of windows to be free from dangerous protrusions at child and adult heights. Provide exterior windows in every activity room. See paragraph 2-8.2 (below) and paragraph 2-20 for more information on exterior window requirements.

2-8.1.5 Refer to paragraph 2-6 for exterior design requirements relative to historic buildings.

2-8.2 **Exterior Finishes.** Choose materials and color selections compatible with the local base architectural compatibility standards and the adjacent exterior environment. Because this facility is focused on children, use a pallet intriguing and rich but not over-stimulating or "flashy". Choose wall materials of low maintenance type and high durability, such as brick or stone. Limit the use of synthetic stucco systems (EIFS) to areas out of reach of children, since these systems are easily damaged. Incorporate reliable materials in the roof systems such as asphalt shingles or standing seam metal panels. Do not consider flat roofs. Use doors and door and window frames of aluminum or aluminum-clad. Tinted glass is allowed to control solar heat gain and glare, but do not use heavily tinted, mirrored or any glass that compromises visibility.

2-9 **INTERIOR DESIGN.**

2-9.1 **General.** Ensure the interior design package is compatible throughout the facility and is supportive of functional requirements. Ensure collaboration between interior designer, architect, and appropriate child development program personnel.

2-9.1.1 Think of the center as a "home away from home" for the child. Design the interior spaces to dispel an institutional feeling, especially if it is treated in a "home-like" way. This may simply be circulation areas that allow stopping places for social interaction.

2-9.1.2 Natural lighting is essential in CDCs. Use throughout to the highest degree possible. In addition, it is desirable to have natural lighting coming from multiple

directions. The quality of light is critical—consider glare and control of light. See paragraph 7-2 for more information on lighting.

2-9.2 Interior Finishes. Include elements such as textured carpet/large area rugs, neutral warm colors, low-level lighting, and soft residential-type furniture to create an inviting and reassuring reception for children. Provide offices with exterior windows to the extent possible. Use finishes that feel "home-like." For instance, small-scale finish materials, such as bricks, are typically preferable to large pre-cast panels. The dimension of brick is more congruent with the size of a child and his or her home experience.

2-9.2.1 Color Selection. Choose light, neutral colors for large background areas and walls used for display. Children's clothing, play equipment, supplies, etc. always add color to a room, so it is important to avoid using bright colors on walls, floors, carpets/rugs, etc. in large quantities. Avoid entire walls of graphics and designs that would compete with children's work or display materials. Do not use cartoon or fairy tale characters. Consider use of color-coding to differentiate spaces for each age group or activity room. Warm hues are preferred, when appropriate. The intent is to create a "home-like" environment, to the degree possible.

2-9.2.2 Finish Textures. Use textures to help cue children in activity areas. Provide a variety of textures on surfaces within reach of children, especially for infants and toddlers. Soft textures relax children while harder finishes and surfaces make a space noisier and more chaotic. Utilize soft textures whenever possible to promote relaxed and quiet behavior. Hard textures are more appropriate for large motor activity areas. Using subtle, varied and natural textures are highly encouraged.

2-9.2.3 Finish Schedules. See Tables 2-7 and 2-8 for Service-specific schedules of allowable finishes. See paragraph 7-1 for more information on finishes and interior design.

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TABLE 2-7.  TYPICAL NAVY AND MARINE CORPS INTERIOR FINISHES

Space	Floor	Wall	Ceiling
ADMINISTRATION			
Entrance/Lobby	RT, SV	PTD, WC	SAT, PTD, EXP
Reception	RT, SV	PTD, WC	SAT, PTD, EXP
All Offices	CA	PTD, WC	SAT, PTD
Lending Program	CA	PTD, WC, FTS	SAT, PTD
Conference Room	CA	PTD, WC, FTS	SAT, PTD
Isolation Room	SV	PTD, WC	SAT, PTD
Isolation Toilet	SV	PTD, WC	PTD
STAFF SUPPORT			
Training/Breakroom	CA, RT, SV	PTD, WC, FTS	SAT
Central Storage	RT, SV	PTD	SAT, PTD
Staff/Pub Toilet	SV, CT	PTD, WC, CT	SAT, PTD
CHILD DEVELOPMENT AREAS			
Crawl Areas	SV	PTD, WC	SAT
Feeding	SV	PTD, WC	SAT
Infant Play	SV	PTD, WC	SAT, EXP
Cribs	SV	PTD, WC	SAT
Food Preparation	SV, SR	PTD, WC	SAT
Diapering	SV, SR	PTD, WC	SAT
In-Room Lavatory	SV, SR	PTD, WC	SAT
Cubbies	SV	PTD, WC	SAT
Reception	SV, RT	PTD, WC	SAT
Storage	SV, RT	PTD, SV	SAT, PTD
Child Toilet	SV, SR	PTD, WC	SAT, PTD
Toddler/School Age Activity	SV	PTD, WC	SAT, EXP
Multipurpose Room	SV	PTD, WC, FTS	SAT, EXP
FOOD SERVICE			
Food Prep/Dishwash	QT, LA	PTD, SS	PTD, SATV
Dry/Janitorial Storage	QT, LA, SC	PTD	PTD
SUPPORT AREAS			
Laundry	RT, SV, CT, SC	PTD, CT	PTD
Janitor	RT, SV, CT, SC	PTD, CT	PTD, EXP
Corridors	RT, SV	PTD, WC, FTS	SAT
Mechanical	SC	PTD	EXP

LEGEND: CA	Carpet	CT Ceramic Tile*	EXP	Exposed (w/ protective coatings)
IS	Impervious Surface	LA Liquid Applied	FTS	Fabric Tack Surface
PTD semigloss)	Painted (lead-free, gloss,	QT Quarry Tile	RT	Resilient Tile
SAT	Suspended Acoustical Tile	SC Sealed Concrete	SS	Stainless Steel
SR	Skid Resistant	SV Sheet Vinyl, slip resistant	WC	Vinyl or Fabric Wall Covering
SATV	Suspended Acoustical Tile,		* Use non-skid CT on floors only	
Vinyl-coated				

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TABLE 2-8.  TYPICAL AIR FORCE INTERIOR FINISHES

Space	Floor	Wall	Ceiling
ADMINISTRATION			
Entrance/Lobby	CA, RT, SV, CT	PTD, WC, FTS	SAT, PTD, EXP
Reception	CA, RT, SV, CT	PTD, WC	SAT, PTD, EXP
All Offices	CA	PTD, WC	SAT, PTD
Lending Program	CA	PTD, WC, FTS	SAT, PTD
Conference Room	CA	PTD, WC, FTS	SAT, PTD
Isolation Room	SV	PTD, WC	SAT, PTD
Isolation Toilet	SV	PTD, WC	PTD
STAFF SUPPORT			
Training/Breakroom	CA, RT, SV, CT	PTD, WC, FTS	SAT
Central Storage	CA, RT, SV	PTD	SAT, PTD
Staff/Pub Toilet	SV, CT	PTD, WC, CT	SAT, PTD
CHILD DEVELOPMENT AREAS			
Crawl Areas	CA, SV	PTD, WC	SAT
Feeding	SV	PTD, WC	SAT
Infant Play	CA	PTD, WC	SAT, EXP
Cribs	CA, SV	PTD, WC	SAT
Food Preparation	SV, SR	PTD, WC	SAT
Diapering	SV, SR	PTD, WC	SAT
In-Room Lavatory	SV, SR	PTD, WC	SAT
Cubbies	CA, SV	PTD, WC, FTS	SAT
Reception	CA, SV	PTD, WC, FTS	SAT
Storage	CA, SV	PTD, SV	SAT, PTD
Child Toilet	SV, SR	PTD, WC	SAT, PTD
Adult Toilet	SV, CT	PTD, WC, CT	SAT, PTD
Toddler/School Age Activity	33%-50% SV 50%-67% CA	PTD, WC	SAT, EXP
Multipurpose Room	CA, SV	PTD, WC, FTS	SAT, EXP
FOOD SERVICE			
Food Prep/Dishwash	QT, LA	PTD, SS, CT	PTD, SATV
Dry/Jan Storage	QT, LA, SC	PTD	PTD
SUPPORT AREAS			
Laundry	RT, SV, CT, SC	PTD, CT	PTD
Janitor	RT, SV, CT, SC	PTD, CT	PTD, EXP
Corridors	RT, SV, CT, CA	PTD, WC, FTS	SAT
Mechanical	SC	PTD	EXP

LEGEND: CA Carpet CT Ceramic Tile* EXP Exposed (w/ protective coatings)

IS Impervious Surface LA Liquid Applied FTS Fabric Tack Surface

PTD Painted (lead-free, gloss, semigloss) QT Quarry Tile RT Resilient Tile

SAT Suspended Acoustical Tile SC Sealed Concrete SS Stainless Steel

SR Skid Resistant SV Sheet Vinyl, slip resistant WC Vinyl or Fabric Wall Covering

SATV Suspended Acoustical Tile, Vinyl-coated * Use non-skid CT on floors only

2-10 **BUILT-IN EQUIPMENT.** In general, specify furnishings that do not have sharp corners or edges, will not splinter, do not have toxic surfaces, and cannot be tipped over. Provide built-in and installed furnishings and equipment to support child activity, administrative, and staff spaces. Ensure that appropriate moveable furnishings and equipment are provided for child activity, administrative, and staff spaces. Choose furnishings and equipment that meet all applicable codes and standards.

2-10.1 **Furnishings and Built-Ins.** Choose furnishings and built-in equipment of institutional quality, that meet safety standards, that are smooth and easily cleaned, and are scaled for the age, size, and activities of the children served. These child-scaled elements include plumbing fixtures, mirrors, windows, drinking fountains, counters, cabinets, cubbies, furniture, and display boards, etc. If adult-sized equipment is provided in child activity rooms that must be used by children, make provisions to accommodate this use. Use pre-manufactured items whenever appropriate. Use furnishings that are easily moved by staff to define activity areas (e.g., storage units, display space units, bookcases, puppet stages) and circulation paths.

2-10.2 **Diaper Changing Area.** See paragraph 7-1 for more information on the diaper changing area and the art sink area in the activity rooms.

2-10.3 **Storage Cubbies.** See paragraph 5-5 for information on Storage Cubbies.

2-10.4 **Project Funding.** Project funding information and each Service's typical equipment lists can be found in [Appendix B](#).

2-11 **SIGNAGE AND GRAPHICS.**

2-11.1 **Exterior signage.** Identify the CDC as a "Child Development Center." Ensure that signage complies with Installation requirements. The installation or community name or graphical location of the facility may be used for public identification purposes (i.e. "___ Base Child Development Center"). Do not use terms such as "Nursery", "Child Care Center," or "Preschool" to designate a CDC. Likewise, do not use unique names, such as "Kiddie Kastle." Sign placement and type are also a site-specific issue, but signs will be strategically located, adequately lit, and of sufficient size to permit proper viewing by individuals approaching the facility.

2-11.2 **Interior signage.** Interior signage is an important part of making the facility inviting to children and adults. The use of color to code different age group modules is an excellent way to create interest, identify the module and help children with a visual orientation throughout the facility. Avoid entire walls of graphics and designs that compete with children's work or display materials. Avoid cartoon and fairy tale characters. Use colors, textures, and finish materials on the walls and/or floors to define circulation patterns. Use signs with words and symbols where appropriate. Interior signage will comply with ADA requirements for the visually impaired. Interior signage must be in upper and lower case and horizontal only.

2-11.2.1 Provide adequate display space for children's artwork, clip rails or strips at children's eye-level, i.e., 500 mm to 850 mm (20 in. to 34 in.) high. **SE** The Air Force requires Plexiglas holders for children's artwork at this height. Use walls for storage and display, and to offer visual and tactile stimulation through the use of colors and texture variations that are consistent with the overall design concept of the facility. Do not use tack boards in child-accessible areas. In general, accommodate the celebration of children's artwork and creativity.

2-11.3 **SE Air Force.** Air Force requires interior and exterior signage to comply with [AFP 32-1097](#). Photos and names of individual staff will be posted outside each care area they oversee. Coordinate photo presentation with activity room signage.

2-12 ACOUSTICAL REQUIREMENTS.

2-12.1 **Background.** Sounds can be used to heighten interest in activities. They can also be used to relate activities to space; for example, a quiet space can suggest a place for rest, but an acoustically live space indicates an area for physical activity. Certain sounds, such as music, are comforting and interesting to children while others, such as loud or repetitive noise, produce irritation, distraction, and fatigue.

2-12.2 **General.** In the acoustical design concept, provide an environment in which wanted language sounds are heard and unwanted sounds are controlled, dissipated and/or absorbed. Examine noise relationships between activity areas and provide appropriate acoustic protection where needed. Zone quiet activity spaces away from noisy activity areas.

2-12.3 **Exterior Noise.** Minimizing exterior noise is typically required only when the center is adjacent to or near aircraft flight paths, major highways, or busy rail lines. The Installation commander and Community Planner must approve use of sites exposed to high noise levels. **SE** The Navy requires NPC PERS-659 Program Manager to approve sites exposed to high noise levels. If proximity to high levels of noise is unavoidable, acoustical measures are necessary. Maximum acceptable noise levels are dependent upon which area of the center is subjected to the noise and whether the sound is continuous or intermittent.

2-12.4 **Interior Noise.** Modulate interior noise generated within a room or space. In addition to standard commercial construction, two other requirements are necessary to ensure sound control within the center:

2-12.4.1 Acoustical ceiling tile should be provided throughout a majority of the center spaces, (with exception of service areas).

2-12.4.2 Either permanently installed carpet or large area rugs should be provided in appropriate spaces. See paragraph 7-1 for more information on flooring and carpet requirements. Carpet will not be provided in the corridors. **SE** The Navy requires large area rugs/area carpet in lieu of carpet. **SE** The Air Force does not permit area

rugs. The Air Force does allow carpet in corridors that can be quite noisy due to the narrow configuration.

2-12.4.3 Provide acoustical panels where necessary to meet acoustical criteria.

2-12.4.4 Consider baffles, banners, and fabrics to help absorb the high level of sound generated within a center. However, these features will not obstruct the exits or view of exits and will meet fire and life safety codes.

2-12.5 **Controlling the Transfer of Noise Throughout the Facility.** Consider sound transfer between activity rooms and the kitchen, laundry, mechanical/electrical spaces, and staff gathering areas. Maintaining low noise levels in sleeping/napping and quiet areas is important. The following methods should be used:

2-12.5.1 Extend interior partitions to the structure above the ceiling. Partitions may be single layer gypsum wallboard but should have cavity insulation and should be completely caulked at the top and bottom of the partition.

2-12.5.2 Provide solid core doors for openings onto noisy areas. See paragraph 7-1 for more information on doors.

2-12.5.3 Use fabrics and baffles to absorb sound.

2-12.5.4 Provide acoustical baffles in all ductwork that penetrates sound attenuating partitions.

2-12.5.5 Avoid back-to-back electrical outlet boxes.

2-13 **MECHANICAL REQUIREMENTS.**

2-13.1 **Plumbing.** Design domestic hot and cold water, sanitary and storm drainage, plus propane, fuel oil, or natural gas systems to meet the requirements of the most current edition of the *International Plumbing Code* (IPC) or the *Uniform Plumbing Code* (UPC) and be responsive to the needs of children. See paragraph 7-2 for more detailed plumbing requirements.

2-13.2 **Heating, Ventilating, and Air Conditioning (HVAC).** Design the HVAC system to comply with the recommendations of the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) and be responsive to the needs of children. See paragraph 7-2 for more detailed HVAC requirements.

2-14 **ELECTRICAL REQUIREMENTS.** Provide electric service and distribution equipment, wiring receptacles and grounding, interior and exterior lighting and control, emergency lighting, telephone, communication systems, fire alarm, and intrusion systems according to NEC and the latest installation design requirements. See the latest edition of *Electric Current Abroad*, US Department of Commerce, to determine voltages and cycles in overseas locations. Service grounding system and all wiring methods will meet the current National Electric Code (NEC) requirements. All service

equipment will be Underwriters Laboratories (UL) listed. Alternately, provide published proof from an approved independent testing laboratory. See paragraph 7-2 for more detailed electrical requirements.

2-15 FIRE PROTECTION AND LIFE SAFETY. Fire protection and life safety will comply with the National Fire Protection Association (NFPA) Standards, latest edition, and the requirements listed below and in paragraph 7-2. The DoD CDC fire protection and life safety requirements exceed the minimum standards of the NFPA codes because the DoD ratio of children to child caregiver is greater than permitted in the NFPA codes. The additional features required in DoD facilities compensate for the reduced number of child caregivers.

2-15.1 Exit Requirements.

2-15.1.1 Dead end corridors are not permitted.

2-15.1.2 All doors in the egress paths will be not less than 915 mm (36 in.) and must provide a minimum clear width of not less than 865 mm (34 in.).

2-15.1.3 Equip all exit doors from the facility to the outside with flush type full-width push bar panic hardware. (Note: The contact or pressing surface must extend the full width of the door. This is to prevent snagging on evacuation cribs.)

2-15.1.4 Provide a direct exit to the outside from every child activity room.

2-15.1.5 Equip every exit door from a child activity room to the outside with an automatic hold open device integral to the door or door closer. Flip down door stops are not permitted at any time.

2-15.1.6 Every exit door from a child activity room will permit immediate reentry from the outside at all times when the facility is being used.

2-15.1.7 Design door thresholds and hardware to facilitate the exiting of an evacuation crib with up to four children pushed and/or pulled by a single adult.

2-15.1.8 Exits will have a maximum drop of 6 mm (.25 in.) and will be equipped with ramps with all-weather non-slip surface for emergency evacuation of wheeled evacuation cribs and wheelchairs from all rooms. The maximum slope of the ramp will be not greater than 1:12. The minimum width of the ramps will be not less than 1020 mm (44 in.). Turns and bends in the ramps will be wider than the minimum. Provide ramps with any portion more than 305 mm (12 in.) above the adjacent grade with guard rails.

2-15.1.9 Provide a smooth paved-surfaced evacuation route to a safe gathering area not less than 23 m (75 ft.) from the facility for all childcare activity rooms. Route will not cross any emergency vehicle access path, parking area or street. The evacuation route will be not less than 1020 mm (44 in.) wide, turns and bends in the route will be wider to account for the turning radius of the evacuation cribs and

wheelchairs. Provide gates with not less than 1020 mm (44 in.) clear width as necessary in the play area fence.


2-15.1.10 Provide doors with not more than one latching/locking device operable with a single motion.

2-15.1.11 Provide all closet doors a latching mechanism that can be operated by children from the inside (i.e. hotel-style latching where operation of the inside door handle always opens the door but the door is always locked from the corridor or activity room side).

2-15.1.12 Provide the door to the kitchen with a magnetic hold open device connected to the alarm system to allow movement of food carts into and out of the kitchen without chocking or blocking the door open.

2-15.2 **Additional Exiting Requirements For Extreme Cold Weather**

Locations. Extreme cold weather locations are those with more than 50 hours per year with a dry-bulb temperature below –15 degrees C (5 degrees F) between the hours of 0900 and 1600. (Weather data for DoD is maintained by the Air Force Combat Climatology Center and may be accessed for all DoD locations at https://www2.afccc.af.mil/prodloc_mil/index.html). The file can be searched by installation or city name. Temperature data is found in the Table, *Dry-Bulb Temperature Hours for an Average Year* and is presented first by month and annual summary. From the summary under the column 0900 to 1600, total the hours. For example, the number in parenthesis are the hours in that temperature range for the following bases: Bangor, ME (40); Elmendorf AFB, AK (151); Minot, ND (244); Offutt AFB, NE (41); and Andrews AFB, MD (0). If a location meets the criteria for an "extreme cold weather location," see the additional fire protection and exiting requirements in paragraph 7-2. Weather data is also available at <http://www.afccc.af.mil/> using the "Other Domain" link to submit a service request for the weather data.

2-15.3 **Exit Marking.** Provide LED illuminated exit signs where exit marking is required by NFPA 101. By requirement, install exit signs in the individual child activity rooms at the exterior exit door.  The Air Force does not require exit signs in the individual child activity rooms.

2-15.4 **Emergency Lighting.** Provide emergency lighting in all areas required by NFPA 101, in all child care activity rooms, and at the front desk area for desk attendant to make emergency calls and carry out other duties necessary for the safety and security of the children. Whenever possible, incorporate the emergency lighting into the normally provided lighting fixtures.

2-16 **BARRIER FREE ACCESSIBILITY.** Design CDCs to be barrier-free and accessible in compliance with the *Architectural Barriers Act* (Public Law 90-480) of 1968, <http://www.access-board.gov/ufas/ufas-html/ufas.htm> - ABA. Provide barrier free design requirements according to the *Uniform Federal Accessibility Standards* (UFAS), published as *Federal Standard (FED-STD)-795*, <http://www.access-board.gov/ufas/ufas->

<http://www.access-board.gov/adaag/html/adaag.htm>, and 28 CFR Part 36, the *Americans With Disabilities Act Accessibility Guidelines for Buildings and Facilities* (ADAAG), <http://www.access-board.gov/adaag/html/adaag.htm> and 36 CFR Part 1191, *Guidelines for Buildings and Facilities; Play Areas*, as published in the Federal Register, <http://www.access-board.gov/play/finalrule.htm>. See [Chapter 6](#) for more information on accessibility requirements for play areas.

2-16.1 **Criteria.** Use the criteria that provide the greatest accessibility. However, provide accessibility requirements in such a manner that they do not compromise the safety or accessibility of children who do not have disabilities.

2-16.2 **Specifications.** The specifications in ADAAG are based upon adult dimensions and anthropometrics. These guidelines also contain alternate specifications based on children's dimensions and anthropometrics for drinking fountains, water closets, toilet stalls, lavatories, sinks, and fixed or built-in seating and tables. In general, note the following guidelines for children:

- **Infant.** For the purpose of the standard design, infants are not considered to be self-mobile wheelchair users. Infants are assisted and transferred by caregivers.
- **Pre-Toddler.** For the purpose of the standard design, pre-toddlers are not considered to be self-mobile wheelchair users. Pre-toddlers are assisted and transferred by caregivers.
- **Toddler.** For the purpose of the standard design, toddlers are not considered to be self-mobile wheelchair users. Most toddlers with physical disabilities would not have sufficient strength or coordination skills for independent wheelchair mobility. Toddlers are assisted and transferred by caregivers.

2-16.2.1 **Preschool.** For the purpose of the CDC design, preschool age children are considered to be self-mobile wheelchair users.

2-17 **SECURITY AND CHILD ABUSE PREVENTION.** The purpose of designed security measures is to keep children safe within the center, to safeguard them from outside intruders, and to protect them from hazards to the fullest extent possible. Visibility of all areas, interior and exterior, is a key element in the prevention of child abuse. Plan for maximizing direct visual access through building organization and design, placement of windows, toilet room design, and playground design (e.g., by eliminating walls, where possible, or using half walls, CCTV, vision panels, and convex mirrors).

2-17.1 **Building Perimeter.** Treat the perimeter of the building and play yards as a controlled filter with only one primary means of public access and egress. Control all other service and emergency egress points, with access limited to authorized

individuals. Design the entry approach to be visible by center staff who are inside. Position the reception area adjacent to the entry and director's office.

2-17.2 **Diapering Areas.** Locate diapering area(s) so they are visible to other adults.

2-17.3 **Interior Doors.** All interior doors, except for those at school-age and adult toilet rooms, will have a vision panel. See paragraph 7-1 for more information on doors and vision panel requirements. Ensure that no fire ratings in these doors or walls are compromised. Do not use Dutch doors to accomplish this requirement.


2-17.4 **Corridors.** Provide vision panels between corridors and activity rooms.

2-17.5 **Children.** The design must ensure that a child will be unable to leave the center without the knowledge of the staff. For instance, the designer must be sensitive to placement of operable windows in the vicinity of a public sidewalk, or the ability of children to open egress doors.

2-17.6 **Alarm.** Provide an alarm buzzer on exterior doors, other than the main entrance and the kitchen exterior entrance, that do not open to a fenced area, to alert staff of unauthorized entry or exit.


2-17.7 **Hardware for Playgrounds.** Provide hardware that prevents unauthorized access to the playgrounds, but allows safe emergency egress.

2-17.8 **View of Playgrounds.** Organize outside activity areas to permit views into the playground from within the CDC and from outside the playground fencing. Exterior doors will include glazing. Configure each play area to allow one person to see the entire area from any one point within that area. Exterior windows should remain uncovered except in areas of extremely intense sunlight where sunshading devices may be used.

2-17.9 **CCTV Systems.** CCTV systems are considered an important supplement to direct visual access. More information can be found on CCTV systems in paragraph 7-2.  The Navy requires only that the conduit and cabling for the CCTV system be provided. The Air Force and Marine Corps require fully operational CCTV systems be provided and funded from construction funds rather than equipment funds.

2-18 **SUSTAINABLE DESIGN.** Use an integrated approach to the planning and design of CDCs that minimizes energy consumption and optimizes life cycle cost renewable energy possibilities. Use a practical combination of site selection and siting, energy conserving building envelope technologies, energy efficient lighting, occupant sensing controls, variable frequency drives for motors and exhaust fans, and high efficiency HVAC systems to achieve this goal. Incorporate renewable energy principles such as day-lighting, passive and active solar heating, natural ventilation, and photovoltaics where they are life cycle cost effective.

2-18.1 **Green Building Council.** Use the United States Green Building Council (USGBC) LEED™ Green Building Rating System to measure the sustainability of the completed project. It can also be used during planning and design as a source of green building strategies. LEED™ addresses sustainable sites, water efficiency, energy and atmosphere, materials and resources, and indoor environmental quality. It can be downloaded from USGBC at <http://www.usgbc.org/programs/index.htm>.

2-18.2  **Service Specific References.** See the following Service-specific and general references for more information:

2-18.2.1 For the Navy and Marine Corps, follow the guidance in *Design Energy Target Reductions*, NAVFAC Interim Technical Guidance (available from www.efdlant.navy.mil/criteria) to achieve energy conserving designs for CDCs.

2-18.2.2 For the Air Force, link to <http://www.afcee.brooks.af.mil/dc/products/dcproducts.asp> for Sustainable Design information.

2-18.2.3 When specifying products that are included in EPA's list of affirmative procurement guideline items, designers must include the requirement for these products to meet or exceed the recycled material content standards established by EPA. The list of products and their corresponding recycled content requirements are found at www.epa.gov/cpg/products. Listed products likely to be used in CDCs include building insulation, carpet and cushion, cement and concrete, latex paint, floor tiles, patio blocks, shower and restroom dividers, structural fiberboard, playground equipment and playground surfaces.

2-18.2.4 The "Whole Building Design Guide" www.wbdg.org further explains the environmental issues related to building materials and provides technical guidance on green building material selection.

2-18.3 Design new facilities to ensure that building energy consumption will not exceed the DoD energy budget figures.

2-19 **HAZARDOUS MATERIALS.**

2-19.1 **Flammability Codes And Standards.** Use textiles and upholstered components that comply with the applicable interior finish requirements stated in the *Life Safety Code* and any other local, state, or federal standards that may apply. See paragraph 7-1 for more information on carpet and upholstery requirements.

2-19.2 **Radon.** Check the EPA's *Map of Radon Zones* (by state), EPA 402-R-93-071 (available from <http://www.epa.gov/>), to determine the radon priority area. Also, check the results of the Navy radon survey by contacting the NAVFACENGCOM Engineering Field Division (EFD) or Engineering Field Activity (EFA) Air Pollution Engineer. Provide passive sub-slab depressurization systems for projects located in Priority Areas No. 1 (predicted average radon level is greater than 4/pCi/L). Change the

system to active, if needed, based on follow-up testing. Check the following EPA documents available from the EPA Radon Information Center, (703) 356-5346:

- *EPA's Model Standards and Techniques for Control of Radon in New Residences, U.S. Environmental Protection Agency, Air and Radiation (6604-J), EPA 402-R-94-009, March 1994.*
- *Radon Prevention in the Design and Construction of Schools and Other Large Buildings, EPA/625/R-92-016,*
- *Radon Measurement in Schools, EPA/402/R-92-014.*

2-19.3 **Contaminants.** Evaluate the site for potential soil and groundwater contamination. Check with the Environmental Installation Restoration Program and the Underground Storage Tank Program. Also, check previous uses of the site.

2-19.4 **Lead-Based Paints.** Lead-based paint is forbidden throughout all buildings—interior and exterior, including playground equipment (lead-based paint is defined as any paint containing more than six one-hundredths of 1 per centum (0.06 percent) lead by weight (calculated as lead metal) in total nonvolatile content of the paint, or the equivalent measure of lead in the dried film of paint already applied).

2-19.5 **Asbestos.** Materials containing asbestos are forbidden throughout all buildings.

2-19.6 **Hazardous Decorations.** Special decorative materials, such as pictorial or high-relief tiles and carpets, are forbidden throughout all buildings.

2-19.7 **Janitorial and Cleaning Products.** Store janitorial and all cleaning products in a secure, locked janitor's closet away from areas where children's activities take place. See paragraph 4-12 for more information on the janitor's closet.


2-20 **SAFETY.** The following section highlights some general safety criteria. Additional criteria will be found throughout the document under the appropriate sections.

2-20.1 **Furniture and Built-Ins.** Edges, including shelving, table tops, and counters must have 13 mm (.5 in.) rounded edges. Secure in place any furnishings in children's areas that are 915 mm (36 in.) or higher and may be tipped.

2-20.2 **Windows.** If projecting windows are used, project windows to the exterior and position at adequate height to not interfere with child head height on the exterior.

2-20.3 **Window Screens.** When screened operable windows are used, install guards to protect children from falling through screens.

2-20.4 **Openings.** In order to prevent child head entrapment, all areas accessible to children will have no openings between 85 mm and 230 mm (3.5 in. to 9 in.) wide.

- 2-20.5 **Glass.** Use shatter-proof safety glass for all interior glass. Meet AT/FP requirements for all exterior glass as outlined in paragraph 1-5.
- 2-20.6 **Mirrors.** Mirrors must be safety glass, acrylic, or reflective metal.
- 2-20.7 **Outdoor Activity Areas and Fences.** There is considerable safety-related information provided throughout [Chapter 6](#), including safety criteria for fences.
- 2-20.8 **Common Hazards.**
- 2-20.8.1 Locate electrical transformers and other above-ground utilities so they are outside of the fenced playground and inaccessible to children.
- 2-20.8.2 Locate manhole covers, transformers, clean outs, and valve covers outside the children's outdoor play area.
- 2-20.8.3 Properly vent heating units in the mechanical spaces that utilize flame to the outside and supply with sufficient combustion air.
- 2-20.8.4 Make heating units, or any piece of equipment that reaches temperatures greater than 43 degrees C (110 degrees F,) inaccessible to children by the use of barriers such as guards or locks.
- 2-20.8.5  The Navy requires CO detectors in spaces where fossil fuels are burning.
- 2-20.8.6 Use tamper resistant electrical outlets in areas accessible to children, including corridors. Use listed tamper resistant receptacles or general-use receptacles with listed tamper resistant receptacle closures. (Tamper resistant receptacles will be marked with the words "Tamper Resistant" or the letters "TR" visible after installation with the cover plate removed.) See paragraph 7-2 for more information on electrical outlet locations and requirements.
- 2-20.8.7 Coordinate location of electrical outlets with crib location and general room arrangement.
- 2-20.8.8 Do not use raised electrical boxes with sharp metal edges in areas or passageways used by children.
- 2-20.8.9 There will be no cables or wires in the center with enough "slack" to present a possibility of strangulation should a child become entangled in them. Encase computer cables in conduits or channels.
- 2-20.8.10 Locate window blinds with pull cords and any other such wires, cords, or string out of reach of children, at least 1372 mm (54 in.) above floor level.

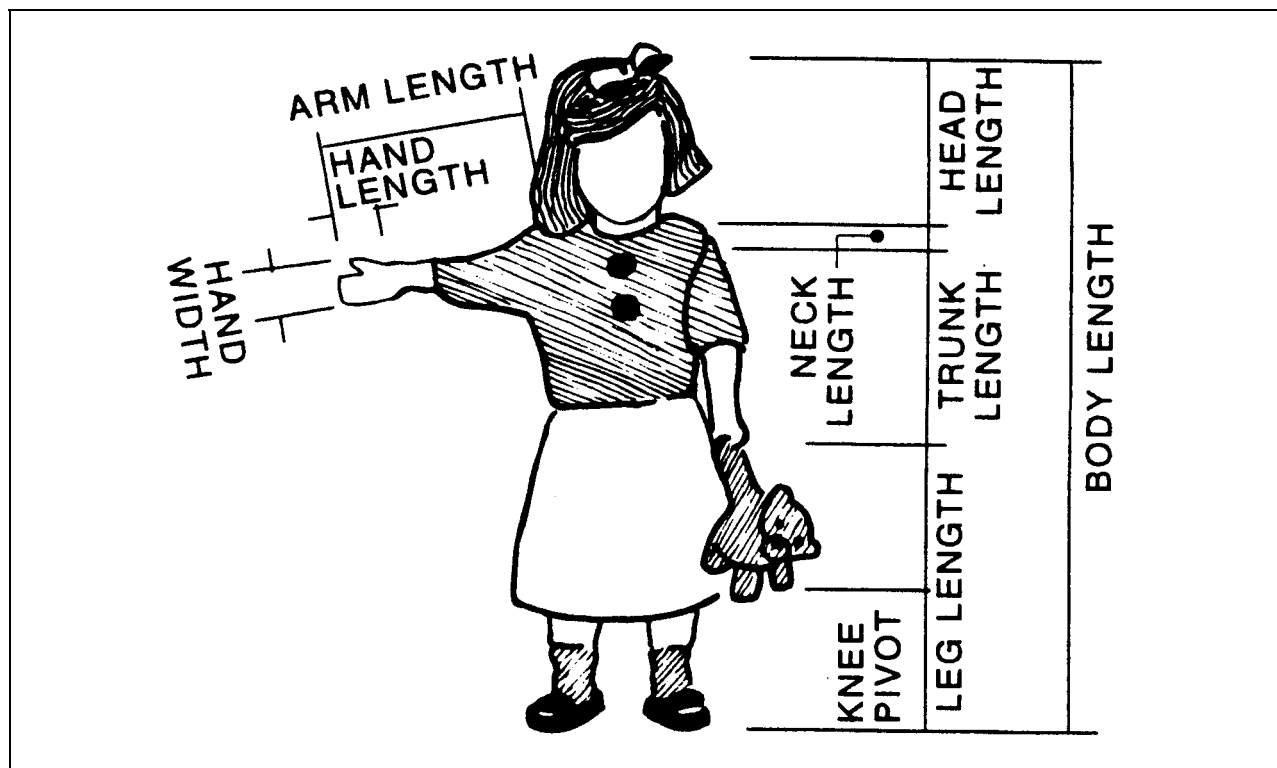
2-21 **ANTHROPOMETRIC GUIDELINES.** Average physical dimensions of children, according to their chronological age, are presented in Table 2-9 and illustrated in Figure 2-2. These figures do not apply to children with disabilities.

TABLE 2-9. ANTHROPOMETRICAL DATA

	Age In Years (The following dimensions represent averages)															
	Birth		0.5		1		2		3		4		5		6	
	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
Body Length	500	19.7	660	26	750	29.5	860	33.8	950	37.4	1040	41.9	1120	44.9	1170	46
Head Length	125	4.9	150	5.9	175	6.9	190	7.5	195	7.7	198	7.8	200	7.9	203	8
Head With	97	3.8	119	4.7	132	5.2	140	5.5	142	5.6	145	5.7	145	5.7	145	5.7
Head Circumference	556	21.9	439	17.3	472	18.6	498	19.6	505	19.9	511	20.1	511	20.1	516	20.3
Trunk Length	211	8.3	295	11.6	320	12.6	345	13.6	363	14.3	381	15	389	15.3	399	15.7
Shoulder Width	150	5.9	178	7	203	8	224	8.8	236	9.3	246	9.7	254	10	262	10.3
Chest Circumference	330	13	437	17.2	475	18.7	508	20	521	20.5	528	20.8	538	21.2	554	21.8
Abdominal Circumference	N/A		411	16.2	445	17.5	462	18.2	470	18.5	516	20.3	518	20.4	521	20.5
Pelvic Width	81	3.2	117	4.6	130	5.1	145	5.7	157	6.2	175	6.9	185	7.3	196	7.7
Arm Length	193	7.6	254	10	305	12	371	14.6	417	16.4	424	16.7	503	19.8	533	21
Hand Length	N/A		N/A		97	3.1	107	4.2	119	4.7	124	4.9	127	5	130	5.1
Hand Width	36	1.4	41	1.6	43	1.7	48	1.9	51	2	51	2	56	2.2	58	2.3
Leg & Thigh Length	168	6.6	208	8.2	244	9.6	312	12.3	371	14.6	437	17.2	582	22.9	627	24.7
Sitting Height	N/A		447	17.6	488	19.2	538	21.2	572	22.5	597	23.5	622	24.5	635	25
Knee Width	38	1.5	N/A		64	2.5	66	2.6	69	2.7	69	2.7	69	2.7	71	2.8
Weight (Kg/lbs)	3.4	7.5	7.6	16.8	10	22	12.6	27.8	14.6	32.2	17.3	38.1	19.5	43	21	46.3
Knee Pivot to Floor	N/A		N/A		N/A		244	9.6	264	10.4	287	11.3	318	12.5	340	13.4

1 Anita R. Olds, Ph.D., ARCHITECTURAL PROTOTYPE DOCUMENT, Commonwealth of Massachusetts, 1987; Diffrient, N., Tilley, A.R., and Bardagly, J.C., HUMANSCALE 1/2/3 MANUAL, Cambridge: MIT Press, 1974; Society of Automotive Engineers, Inc., ANTHROPOMETRY OF U.S. INFANTS & CHILDREN, Michigan: 1975

FIGURE 2-2. ANTHROPOMETRIC DIMENSIONS




CHAPTER 3

SITE PLANNING

3-1 **SITE SELECTION.** The location of a CDC is critical to a child's safety, well-being, and quality of care provided at the facility. See [Chapter 2-1](#) for minimum site area requirements and additional information.

3-1.1 **General.** In general, the following aspects need to be considered:

- Enrollment/size of facility
- Space
- Environment/Sustainable Design (See paragraph 2-18 for more information on sustainable design)
- Safety
- Security
- Antiterrorism/Force Protection (AT/FP.) (See paragraph 1-5)
- Accessibility
- Historic Preservation.

3-1.2 **Noise Requirements.** Site CDC facilities consistent with the following noise environment requirements for each Service . See paragraph 2-12 for more information on acoustical requirements.

- **Navy.** OPNAVINST 1700.9D
- **Air Force.** AFH 32-784, *AICUZ PROGRAM MANAGER'S GUIDE* at <http://afpubs.hq.af.mil/pubfiles/af/32/afh32-7084/afh32-7084.pdf>
- **Marine Corps.** MCO P1710.30D or most current version.

3-1.3 **Natural Light.** Do not use locations without access to natural light for new CDCs. The absence of natural light may be a prime consideration when contemplating a relocation of an existing center. Strive to ensure that the maximum amount and warmth of light is available to the children during their day, while remaining sensitive to climatic conditions, e.g., Southern climates where the "maximum amount" of warmth of light may be undesirable.


3-1.4 **Natural Environment.** Select a site with as many natural amenities as possible for a beneficial learning environment. Areas that include nontoxic plants and trees, non-dangerous animals, earth forms, and rolling terrain are ideal locations.

Select a site with natural protection from the sun, wind and rain, if possible, to enhance the outdoor play environment. Develop a site plan that makes the most of the site's existing natural resources. Where possible, conserve existing natural areas and restore damaged areas to provide habitat and promote biodiversity.

3-1.5 Natural Surveillance. Locate CDCs in areas of high natural surveillance to provide natural crime and vandalism defenses, e.g., amidst community facilities, housing, parks, etc.

3-1.6 Hazards. In general, do not locate CDCs near the following hazards or nuisances:

- Fuel or other HAZMAT storage buildings
- Service stations
- Maintenance shops, including woodworking and painting areas
- Laundry facilities
- Large kitchen/food preparation facilities
- Aircraft runways
- Railroads
- Security areas
- Heavy traffic
- Any facility producing odors or smoke
- Any facility producing dust or pollution
- Unsafe buildings
- Explosives
- Radiation
- Other safety hazards, including utility substations, overhead power lines, etc.

3-1.7 Streets and Intersections. If the site is located close to busy streets and intersections, then devise mitigation measures, such as bollards, to lessen the effect of congestion and to increase safety, especially at playgrounds near busy intersections. Intersections with a heavy volume of traffic require particular attention.  For Navy

projects, if the site is located close to busy streets and intersections, seek concurrence of NPC (PERS-656/659) prior to committing to the site.

3-1.8 Soil Testing. Before selecting the site for the center and its playground, test the soil for the presence of dangerous contaminants. Continue to monitor the site, at the direction of the environmental safety staff, to ensure that it does not become subsequently contaminated, especially by lead. This is particularly a concern in urban areas or where there is a heavy concentration of automobiles or industrial facilities. Also, investigate proposed playground locations adjacent to old structures, which may be painted with lead paint or contain other hazards. See paragraph 2-19 for more information on this topic.

3-1.9 Lighting. See paragraph 7-2 for information on site lighting requirements.

3-2 SITE LAYOUT. Integrate the conceptual site design for CDCs into the design of the overall site, including vehicular and pedestrian movement, parking, entry, service points, and constructed or landscape features.

3-2.1 Considerations. Five major considerations in CDC site design are as follows:

- Entry and circulation
- Parking
- Service access
- Safety and security
- Outdoor activity areas

3-2.2 Vehicle Traffic. Site the CDC so the building is clearly visible to cars and pedestrians coming to the facility. Separate service and delivery access from the public and children's areas. Minimize or eliminate the potential for conflict between moving vehicles and children.

3-2.3 Outdoor Areas. Design the outdoor activity area to be directly accessible from the building. When planning the outdoor activity area, consider prevailing weather patterns that may affect children's comfort. For example, locate, as necessary in some geographical areas, the outdoor areas on the south side of the building where they will be protected from northerly winds. See [Chapter 6](#) for more information.

3-3 GRADING AND DRAINAGE. If possible, accommodate both the building and outdoor activity areas without extensive grading and potential damage to the existing drainage run-off patterns. Ensure that all areas have positive drainage. This is especially critical in outdoor play areas. Water must be drained away from all play areas to ensure the areas are useable as quickly as possible after rain. Slow site drainage in safety surface play areas will contribute to increased deterioration as a

result of foot traffic. See paragraph 7-4 for more information on slope and banking requirements.

3-3.1 **Downspouts.** Locate above-grade downspouts outside the outdoor activity area and away from areas where children congregate. If this is not possible, connect downspouts to an underground drainage system. Design any elements of the downspouts or the drainage system located in the outdoor activity area to be free of sharp edges. Protect underground drainage systems from clogging. Typically, a subsurface drainage system is required under all safety surfacing systems (including synthetic surfacing). Some synthetic surfacing systems will deteriorate even without foot traffic if water is not removed.

3-3.2 **Hydrologic Regime.** Prepare a grading plan that maintains the pre-development hydrologic regime to the extent possible. Limit disruption of natural water flows by minimizing storm water runoff, increasing on-site infiltration and reducing contaminants. Keep storm water on-site rather than dumping it to collection facilities. Rather than creating a large retention basin that could be a hazard, control storm water at the source by the use of micro-scale features that are distributed throughout the site. Do not locate retention or detention basins in the outdoor activity area. Integrate the landscape design into the storm water management strategy, creating planted areas that benefit from storm water while removing pollutants through natural processes.

3-4 **WALKWAYS.** Connect the building to the public sidewalk system and to parking with pedestrian sidewalks. The minimum width of the sidewalks will be 1525 mm (5 ft.) with handicap curb cuts placed at appropriate locations. The design will provide sidewalks immediately in front of or beside parked cars. This will help eliminate the possibility of a child being required to walk behind a parked car to gain access to the building.

3-4.1 **From Parking Lot.** Develop a successful transition from parking lot to entry by providing interesting walks that pass through natural or landscaped areas wherever possible, and which overlook engaging sights such as playgrounds. Consider a child's perspective in this development.

3-4.2 **Outdoor Areas.** Do not pass the pedestrian approach through any outdoor activity areas.

3-4.3 **Cribs.** Make walks sufficiently smooth to allow for rolling cribs from rooms with cribs to a place of refuge.

3-5 **PARKING/VEHICULAR CIRCULATION.** Coordinate parking and vehicular circulation design with AT/FP criteria (see paragraph 1-5). Prepare a site traffic impact study to determine the traffic patterns and the peak demand for parking. Access for fire equipment, garbage removal and other essential services must be provided. The parking demand analysis should consider adjacent parking areas for joint-use. The circulation and parking demand includes the turnover for the hourly care program and the part-day care program. Design the entrance and exit drives to accommodate safe and controlled flow of traffic generated by this demand.

3-5.1 **Security.** When designing the vehicular circulation and parking facilities, consider the security-related requirement for parents to walk the child inside the facility to drop him or her off for care and meet the child inside the facility to pick him or her up. Design circulation, parking areas and entrance drives to meet the safety requirements for children and the AT/FP requirements. Provide separation of vehicular and pedestrian circulation. Minimize pedestrian crossing of traffic lanes.

3-5.2 **Parent Parking.** The CDC location should provide ease of short-term parking for parents bringing their children to the center or taking them home. Sufficient parking spaces are needed to allow parents time for brief conversations with caregivers. Locate this parking as close to the CDC as possible, and configure so that the majority of the parking for parents with children is on the building-side of the drive. Doing so reduces the conflict between passing vehicles and children.

3-5.3 **Barrier Free Accessibility.** Parking must comply with UFAS and ADAAG requirements.

3-5.4 **Parking Functions.** Provide access and parking for seven different functions:

3-5.4.1 **Bus Drop-Off/Pick-Up.** Locate the bus drop-off/pick-up directly adjacent to the main building entrance. Provide safe points of facility access for children and adults that are separate from the main vehicular circulation. Not all CDC programs use buses.

3-5.4.2 **Parent Parking.** Provide short-term parking spaces (15 minutes duration), based on one space per 20 children. Support an increase in the parking allocation for patrons with the required site traffic impact study. During peak traffic demand, parking lots may be full; therefore, accommodate easy return to parking areas for circling. Provide a one-way traffic pattern with angled patron parking to improve traffic flow and limit back-up and turning maneuvers.

3-5.4.3 **Visitor Parking.** Provide a minimum number of parking spaces for visitors at the rate of one parking space for each 12 children cared for by the facility.

3-5.4.4 **Staff Parking.** Separate long-term staff parking from parent/visitor parking. However, locate both parent/visitor and staff parking near the building with a view to the entry. Provide parking spaces for the maximum number of staff on duty at one time. Consider local staffing plans when planning parking. Staff parking can be configured for 90 degree parking.

3-5.4.5 **Service Access.** Four basic functions require service access to a typical child development facility:

3-5.4.5.1 Regular food deliveries to the storage and kitchen area

3-5.4.5.2 Occasional supply deliveries (furniture, laundry, books, toys, etc.)

3-5.4.5.3 Mechanical room related service (fuel deliveries, maintenance equipment, etc.)

3-5.4.5.4 Regular garbage pick-up.

3-5.4.5.5 Verify the size of required service vehicles prior to planning the service access areas. Provide a back-up spur for dead-end and service drives which exceed 30,480 mm (100 ft.) in length. Locate access near the serviced areas, i.e., kitchen, garbage storage (indoor or outdoor), mechanical room, and service entry, if one is designated. Provide a service vehicle apron and consolidate service access when possible. Screen or separate the service area from public use or traffic areas with attractive fences, depressions, berms, and landscaping. Ensure proper drainage if depressions are used. Provide physical barriers to separate outdoor child areas from all service areas. Do not cross service access through playgrounds.

3-5.4.5.6 Provide exterior food and trash service area accessible to maintenance and kitchen staff. Locate the entrance next to service areas away from the front entry and children's activity areas. Screen the service area from adjacent playgrounds, pedestrian exposure, and private automobile traffic. Ensure the security of the area during periods when deliveries or pick-ups are not occurring. Locate with prevailing breezes in mind to minimize odor across the playground.

3-5.4.6 **Emergency Vehicle Access.** Coordinate emergency vehicle access with the installation fire protection office. Personnel emergency egress routes/exit discharge paths will not cross any vehicle access roads. Provide emergency vehicle access into the playgrounds via a gate.

3-5.4.7 **Maintenance Vehicle Access.** Coordinate maintenance vehicle access with the installation engineer's office to ensure access to the CDC.

3-6 **LANDSCAPING.** Coordinate landscaping design with AT/FP criteria (see paragraph 1-5). Landscaping for the facility in both the playgrounds as well as in the areas surrounding the facility, will comply with plant materials listings provided to the designer by the individual installation and the criteria provided in this document. Provide a variety of plants with seasonal change, color, texture, fragrance, and interpretive value in the outdoor activity area to accommodate the programming requirements for the learning experiences of children. Consider retaining the services of a landscape architect.

3-6.1 **Native Species.** Always use local, durable, native species to help ensure survivability. The use of native plants will also minimize the need for chemical pesticides and herbicides used in landscape maintenance. Retain existing planting material when it meets the criteria. Consider the effect children's play may have on the plants, especially in playgrounds. Ensure that landscaping selected for playgrounds is of adequate size to withstand daily children's play.

3-6.2 **Hazardous Plants.** Plants with thorns are not permitted. Poisonous or toxic plants are not permitted. Plants that produce fruits, nuts, or seeds that may be

choking hazards, regardless of toxicity, are not permitted. Verify the selected plant material for meeting these requirements. It is important that the submittal section of specifications require written verification by the nursery contractor that plants with thorns, poisonous plants, toxic plants, or fruit bearing plants are not planted in the outdoor activity area. Refer to a comprehensive, commercially-available field guide for lists of poisonous plants. See [Appendix A](#) for non-comprehensive lists of common poisonous and non-poisonous plants.

3-6.3 Natural Features. Preserve natural landscape features, including existing topography, trees and vegetation and supplement as needed to help children explore movement in space, to lend novelty and challenge and to assist children in developing awareness of nature. Such features enhance fantasy play, motor activity, exploration, and learning. Exercise care to ensure that natural features such as hills and nature areas are accessible to everyone and that plants and vegetation are non-toxic. Integrating plants into the entire play area is preferred over isolated nature areas. Create nature areas throughout the area by careful selection of shrubs, trees, and flowering bushes. Thought should also be given to providing sufficient "openness" for adult visual supervision of children at play, avoiding areas where unsupervised mischief or child abuse can occur.

3-6.4 Windbreaks. Natural windbreaks (trees) may be needed for extra protection from the elements. In hot, sunny climates, pay close attention to providing both natural and artificial shade. See [Chapter 6](#) for more on shade requirements.

3-6.5 Buffers. Buffer play areas from traffic noise with earth berms of a minimum height of 1200 mm (4 ft.) at the site perimeter. Slope berms to allow mowing equipment navigation. For supervision and safety, do not block views. Consider earth berms to screen parking and service areas.

3-6.6 Building Entry. Consider plantings at the building entry to be essential. Provide colorful flowering plantings that are visually interesting throughout the seasons in order to create a welcome feeling at the entry and to appeal to the children. Plants that attract butterflies are recommended.

3-6.7 Irrigation. Equip playgrounds with an irrigation system with sprinkler heads that do not present tripping or other safety hazards. Consider providing a sprinkler irrigation system for the non-playground landscaped areas.

3-7 UTILITIES. Consider the location and adequacy of existing utilities and their connection points when making site selection and orientation of the CDC. The required utilities include water, sewer, electricity, telephone, cable services, and possibly gas and/or steam lines.

3-7.1 Hazards. Make inaccessible to children any transformers, mechanical equipment, and other above-grade utilities and do not locate them inside the playgrounds. Locate storm drainage inlets, utility clean outs, valve covers, and manhole covers outside the children's outdoor activity area. Ensure they are securable and accessible to only the installation's engineering staff.

CHAPTER 4

ADMINISTRATIVE AND SUPPORT SPACES

4-1 **GENERAL.** Tables 2-3, 2-4, and 2-5 in Chapter 2 illustrate example administrative and support space size programs for representative facilities in each of the three CDC size categories. These are not definitive programs, but guides to approximate sizes, shared utilization, and distribution of spaces for a given facility. Determine the number, distribution, and types of administrative rooms by the demand at the installation. Modify the set of spaces and sizes as appropriate to fit individual project needs within the criteria established in this UFC.

4-2 **ENTRANCE/LOBBY/RECEPTION/WORK AREA.** The entry includes the transition space and vestibule where parents, caregivers, children, and visitors enter the facility. The character of the main entry communicates security and professionalism to the parents. At the same time, it must be fun and engaging to children. Pay attention to the design, materials, finishes, interesting volumes and colorful details.

4-2.1 **General.** Certain features help promote the desired character:

- The entrance door must afford full visibility for children and adults.
- Children should be able to see other children in Children's Activity Rooms from the approach to the entry to help allay anxiety.
- The main entry should include a covered exterior transition area.
- The main entrance should be in close proximity to a barrier free accessible adult toilet room, for use by parents.

4-2.2 **Entrance/Vestibule.** A vestibule for energy conservation, conforming to barrier free accessible requirements, is required. Provide a flush-mounted walk-off mat to prevent water and soil from being tracked into the center. In extreme cold climates, consider other options for this function. The entrance will always be monitored from the reception area for security purposes. Security equipment at the entrance, if required by the Installation, should be non-intrusive and have a non-threatening appearance. (See paragraph 2-17 and paragraph 7-2 for more information about building security.) In areas with snow and ice, a generous roof overhang or canopy diminishes the risk of falls. Ensure the minimum overhang at the exit door allows opening for fire purposes, even during periods of heavy snow and ice. Provide the vestibule area with a view of the short-term-parking area and pedestrian approach.

4-2.3 **Lobby/Waiting Area.** Immediately inside the entry, provide a waiting area. This area needs to be warm, bright and welcoming, and as comfortable as possible. The reception area connects the entrance to the main circulation pathways of the center, and from this area, parents escort children to the activity room. It needs to have direct access to the Administrative Office. It is also convenient to include a small area for storage of child safety seats.

4-2.4 **Reception Desk, Transaction Counter And Furnishings.** The reception desk is the working surface for the receptionist/desk attendant. Design so seated reception staff member(s) can see the front door as well as children entering and standing at the transaction counter. In addition, locate CCTV monitors to be visible and easily monitored by the reception staff member and the parents standing at the counter. Design so the staff member seated at the desk does not have to turn more than 90 degrees from his or her normal working position to view the monitors. See paragraph 7-2 for more information and **SE** (service exceptions) on the CCTV system. At the reception desk area provide for a computer, POS terminal, and phone and data lines.

4-2.4.1 The transaction counter must accommodate adults, both with and without disabilities, and children. The size of the counter depends on the size of the facility, but should accommodate at least three adults side by side. Larger centers need to accommodate six parents at the transition counter. Design to accommodate at least one person in a wheelchair. In all events, design so a child can see the adult behind the counter upon entry.

4-2.4.2 For desk and counter millwork, use solid-surface, durable materials. Plastic laminate tends to peel and chip. Select durable finishes that have an informal, comfortable appearance, and establish a warm, inviting feeling through use of color, soft seating, plants, and art work. See paragraph 7-2 for more on this topic.

4-2.4.3 Typical furnishings in the waiting area include a sofa, chair, end table, and coffee table, if space permits. Provide wall and floor display space for notices and children's artwork. Consider deep wall recesses or niches with accent lighting to highlight this work. Also, include shelf/display space for parent education and program materials.

4-2.4.4 Provide a mechanical room trouble-warning panel in the reception area. This panel indicates mechanical system problems in the building. **SE** The Air Force prefers not to have a mechanical system annunciation panel in their facilities.

4-2.5 **Work Area.** This area of the building also serves as a general work area and includes space and power and data requirements for a fax machine, photocopier, computer, and a point-of-sale (POS) terminal. It also includes general workspace with chairs and tables/work surfaces.

4-2.6 **Corridors.** Design main circulation corridors to be 2 m to 2.45 m (6.5 ft. to 8 ft.) in width.


4-3 **ISOLATION/HEALTH AREA.** The isolation area is dedicated to isolating and supervising a child who is ill. Locate and design the isolation area to allow reception desk personnel to supervise, observe, and control access to the isolated child. Locate so it is readily accessible to a single-occupant, handicapped-accessible unisex toilet. Locate the isolation area to screen direct view by visitors in the public areas.

SE The Air Force does not recommend a separate isolation room for small CDCs.

4-4 **ADMINISTRATION OFFICE SPACES.** Administrative offices and workspaces are utilized to conduct CDC business including work of the administrator, the director, assistant administrators, with spaces for conferences, counseling, or interviewing with parents, staff, and co-workers. The number of individual offices required varies depending upon the governing Service, the size of the CDC, the number of children served, the number of caregivers required and the support facilities required.

4-4.1 **General.** Design administration offices to be visible and accessible to staff and parents directly from the lobby. Provide vision panels in the office doors if there is no window to lobby, corridors, or public spaces. Provide window(s) for natural light in administrative offices when possible. Refer to paragraph 7-2 for lighting requirements.

4-4.2 **Director's Office.** Provide work, storage and conference space for the CDC director. This should be 9.3 m² (100 ft.²) minimum. Medium to large facilities will require more space: 11.2 m² (120 ft.²) for medium facilities and 13 m² (140 ft.²) for large facilities. Locate this room adjacent to the reception area and accessible to visitors. It should have clear views of the main entry, reception and as many activity rooms as possible. Provide a lockable storage closet, 0.56 m² (6 ft.²) minimum.

4-4.3 **Other Program Offices.**  Other offices may include those listed in paragraphs 4-4.3.4 through 4-4.3.9, but they will vary by Service and the size of the facility. Specific CDC may require additional spaces not listed here. Do not program CDC office space types and sizes without first consulting with the following Service contacts:

- Navy. NPC (Pers-659)
- Air Force. The Family Member Program Flight Chief and the CDC director.
- Marine Corps. HQ USMC (MRY)

4-4.3.1 **Assistant Director's Office.** Provide work and personal/professional storage space for CDC assistant director. This office is not required for all facility sizes or Services.

4-4.3.2 **Administrator's Office.** Provide work, storage, and conference space for the CDC administrator, 9.3 m² (100 ft.²) minimum. Provide a lockable storage closet that is .56 m² (6 ft.²) minimum. The size of this office depends on the size of the facility. Some Services combine this function with the director's office.

4-4.3.3 **Training and Curriculum Specialist.** This includes workspace for a specialist, space for staff training, and file storage that is minimum 9.3 m² (100 ft.²). Buffer space visually and acoustically from public view and the children's activity rooms, and locate adjacent to the Staff/Training Room. Two offices may be required for large facilities.

4-4.3.4 **Family Child Care (FCC) Office.** This office provides administrative workspace for program staff (one staff person per 40 FCC providers, i.e., licensed or in the process of becoming licensed), space for one clerical and one resource and referral person (as required) and files storage. CDC may require additional space for a FCC lending program. Locate this office to be visible and accessible from the lobby to staff, providers, parents, and children. In the medium-sized CDC, consider combining the activities of training, curriculum programming, and family childcare programming. Provide a separate office for family childcare programming in a large CDC.

4-4.3.5 **Child Development Home (CDH) Office.** This office provides administrative workspace for program staff (one staff person per 30 CDH providers, i.e., licensed or in the process of becoming licensed), space for one clerical, one resource, one referral person (as required) and files storage. CDC may require additional space for a CDH lending program. Locate this office to be visible and accessible from the lobby to staff, providers, parents, and children.

4-4.3.6 **Resource And Referral Office.** Locate this office to be visible and accessible from the lobby to patrons. Provide 9 m² (100 ft.²) minimum office space, and .56 m² (6 ft.²) minimum lockable closet in the office. This office may not be located in the CDC or it may be combined with other offices.

4-5 **BREAK/STAFF ROOM.** The break/staff room provides space for staff breaks, meals, and storage of staff belongings. Design requirements include the following:

4-5.1 **Location.** Locate adjacent to staff toilet(s), general storage, and the Training and Curriculum office.

4-5.2 **Privacy.** Buffer visually and acoustically from children's activity rooms and public area. Provide a vision panel in the door.

4-5.3 **Storage.** Provide closet space for coats and jackets, smocks, boots, etc. with 3 m (10 ft.) of lineal rod and shelf. Provide individual lockers for secured storage of personal valuables.

4-5.4 **Seating.** Confirm seating requirements with local director, but in general, provide space for comfortable seating (e.g., sofa and lounge chairs) for about 25 percent of staff or at least 8 people.

4-5.5 **Bulletin Boards.** Provide bulletin boards.

4-5.6 **Windows.** Provide window(s) for natural light, when possible.

4-5.7 **Kitchen.** Provide a sink and space for a coffee machine, refrigerator and microwave. Use solid surface counter tops.

4-5.8 **Time Clock.** Provide space, power and data line for time clock.

4-5.9 **Additional Equipment.** Consider providing and planning the necessary space, power, and data requirements for the following additional equipment:

- Telephone
- Microwave oven, refrigerator, and coffee maker
- Wall clock
- Television

4-6 **TRAINING ROOM.** The Training Room provides space for staff work, development of program materials, and utilization for staff training library and resources. Plan wall surfaces or tack-boards suitable for displays, information, and employee notices. Design requirements include the following:



4-6.1 **Location.** Locate adjacent to staff toilet(s), general storage and the Training and Curriculum office.

4-6.2 **Privacy.** Buffer visually and acoustically from children's activity rooms and public area. Provide a vision panel in the door.

4-6.3 **Work Area.** Provide work counter with storage above and below counter. Coordinate location of electrical receptacles with counter heights.

4-6.4 **Storage.** Provide shelving and closet space for staff training resources (e.g., books, journals) and supplies for the development of program materials (e.g., poster boards, scissors).

4-6.5 **Seating.** Confirm seating requirements with local director, but in general, provide space for conference/work table with chairs for the following percentages of staff:


-  Air Force requires space for 100 percent of staff in small facilities, 50 percent in medium facilities, and 30 percent in large facilities.
-  The Navy and Marine Corps require space for 50 percent of staff.

4-6.6 **Bulletin Boards.** Provide bulletin boards.

4-6.7 **Windows.** Provide window(s) for natural light, when possible.

4-6.8 **Door.** Provide a keyed lock set for the Training Room. Design the door to be opened from the inside without the key.

4-6.9 **Additional Equipment..** Consider that the following additional equipment may be provided and plan the necessary space, power, and data requirements:

- Personal Computer(s) With Internet Access.  The Air Force requires personal computers with Internet access. Provide the necessary space, power, and data requirements.
- Printers and scanners
- Telephone
- Wall clock

4-7 **PUBLIC/STAFF TOILETS.** In small CDCs, consider combining public and staff toilets. In medium to larger facilities, provide separate public and staff toilets. Toilets do not need to be separated by gender. Design all toilets to comply with barrier free accessible requirements.

4-7.1 **Minimum Requirements.** Minimum requirements are as follows:

- Small CDCs - one unisex public and one unisex staff toilet.
- Medium CDCs - one unisex public and two unisex staff toilets.
- Large CDCs - one unisex public and three unisex staff toilets.

4-7.2 **Toilets.** Locate public toilet adjacent to lobby/reception area. Locate staff toilet(s) adjacent to staff/training room and children's activity rooms. At least one of the staff toilets accessible from the corridor and the public toilet should require keyed entry. No vision panels are required. See paragraph 7-2 for more information on toilets and accessories

4-8 **GENERAL STORAGE.** Provide a separate storage room for shared program materials, audiovisual equipment, and other resource materials located near staff/administrative area. In the initial design process, the designer should elicit the number and approximate size of anticipated equipment that will need to be stored. Provide shelving appropriate for efficient organization and storage of materials and equipment. Utilize a combination of low open shelving, baskets, drawers, cabinets with doors, boxes, chests, hooks that do not present a hazard, adult height shelves, wall-hung cabinets, storage bags, buckets, crates and bins. Provide a keyed lockset and vision panels in doors. Keep the top 460 mm (18 in.) from the ceiling clear for sprinkler operation.

4-9 **MULTI-PURPOSE ROOM.** Verify the need for a multi-purpose room with the Service contacts noted below. When provided, accommodate children 24 months to 6 years of age for large group activities, wheel toy play, exercise, group games, or indoor play in extremely hot or cold climates. This room may also support other activities such as parenting classes and staff training. Specify sound absorbing materials for ceilings and upper portions of walls and between this room and adjoining rooms. Provide high ceilings and a hard, durable and washable wall finish and storage

for equipment and supplies. Provide a minimum 0.4 m² (4.34 ft²) observation window into the room from the public corridor. Maximize windows through the wall separating the corridor from the care areas, ensuring visual access to children as well as adults. Exterior windows are less critical here than in the child activity rooms, although natural lighting from non-breakable skylights or a clerestory is desirable and energy efficient.

4-9.1 **SE Navy.** NPC (PERS 656/659) will determine when climatic conditions warrant the requirement for a multi-purpose room.

4-9.2 **SE Air Force.** HQ AFCEA will determine when climatic conditions warrant the requirement for a multi-purpose room. As a general rule, only those Air Force bases with extreme (heat, cold, rain) climates should consider programming a Multi-purpose room. Climate data is available at https://www2.afcc.af.mil/prodloc_mil/index.html. Climate data is also available at <http://www.afcc.af.mil/> using the "Other Domain" link to submit a service request for the climate data.

4-9.3 **SE Marine Corps.** HQ USMC (MRY) will determine the requirement for a multi-purpose room.

4-10 **KITCHEN/FOOD SERVICE.** These facilities support food preparation, food and supply storage, delivery of snacks or meals to child activity rooms, sanitation (washing of dishes, utensils, pots, pans, etc.), and storage of food service equipment, flatware, and dishes. The type of food service provided to the center impacts the scope and size of the area.

4-10.1 **Guidelines.** **SE** Consult the individual Service's food sanitation guidelines:

- Navy and Marine Corps. [NAVMED-P-5010](#).
- Air Force. [U.S. Food Code](#).

4-10.2 **Location.** Locate the kitchen accessible to service personnel, staff, and other adults. For safety reasons, children are not allowed in this space. Locate kitchen adjacent to an exterior wall and the service area—it requires a direct service entrance from the outside that does not cross any child activity areas. Locate the kitchen for easy food cart transport to the various child activity rooms through the corridor system without passing through the lobby or other functional areas, if possible. The interior door providing access to the rest of the facility must include a magnetic hold-open device, that is tied into the fire alarm system, to facilitate the pass through of service carts.

4-10.3 **Size.** Size the kitchen for full meal service based on [USDA Program Aid Food Service Equipment Guide for Child Care Institutions](#) and for the guidelines in this UFC. The size is primarily determined by the size and type of equipment selected and food delivery frequency. See [Appendix C](#) for sample kitchen layouts and equipment lists. It is recommended to consult a food service specialist as part of the design services.

4-10.4 **Space And Layout.**

4-10.4.1 Provide an area for children's food service to include areas for receiving, record keeping, food preparation, distribution, and clean up. Include a telephone and computer to use when ordering food.

4-10.4.2 Provide space for one stainless steel food cart for every two child activity rooms.

4-10.4.3 Provide lockable, windowless dry food storage area with adequate ventilation and protection from rodent infestation.

4-10.4.4 Provide locked storage for any hazardous materials.

4-10.4.5 Provide storage for all utensils and equipment off the floor in a clean, dry, closed space.

4-10.4.6 Provide for an efficient flow of food preparation, assembly for transport, distribution, and cart storage.

4-10.5 **Doors, Windows, Finishes.**

4-10.5.1 Provide a keyed lock set for the interior and the exterior doors, and a vision panel in both doors.

4-10.5.2 Ensure that windows are provided to allow viewing into the kitchen from the corridor as well as to the outside from inside the kitchen.

4-10.5.3 Provide smooth, easily cleaned, seamless wall surfaces made for kitchens. Design the wall surface below 1,220 mm (48 in.) to be impact resistant.

4-10.5.4 Provide impervious, durable, easily cleaned, slip-resistant floor finish sloped to floor drain(s).

4-10.5.5 Provide easily cleaned, moisture-resistant ceiling finish.

4-10.6 **Mechanical, Electrical, And Communications.**

4-10.6.1 Do not locate sewage or drainpipes above food storage, preparation, or service areas.

4-10.6.2 Provide floor drains.

- 4-10.6.3 Design this area to prevent temperature extremes or dampness.
- 4-10.6.4 Install air curtains or air locks on the kitchen exterior door.
- 4-10.6.5 Provide ample electrical outlets (with ground-fault interruption in wet areas).
- 4-10.6.6 Provide dedicated electrical circuit for cold storage.
- 4-10.6.7 Provide telephone receptacle.
- 4-10.7 **Equipment.** In general, provide commercial-grade, automatic kitchen equipment with highly washable finishes such as stainless steel according to USDA guidelines. Additionally, provide food service equipment conforming to the standards promulgated by the National Sanitation Foundation International (NSFI). See [Appendix B](#) and [Appendix C](#) for more on equipment funding and kitchen equipment lists. Provide the following equipment at a minimum:
 - 4-10.7.1 Stainless steel, three-compartment, deep dishwashing sink with required plumbing with hot- and cold-water connections near the dishwasher. Hot water will be boosted to 82°C (180°F). Recommend using a gooseneck faucet.
 - 4-10.7.2 Separate two-compartment food preparation sink.
 - 4-10.7.3 Separate hand-washing sink at each entrance.
 - 4-10.7.4 Garbage disposal with required plumbing connections.
 - 4-10.7.5 Heavy duty, commercial-type dishwasher capable of boosting water temperature to 82 degrees C (180 degrees F).
 - 4-10.7.6 Commercial-type refrigerator storage at or below 4 degrees C (39 degrees F) and freezer storage at or below –18 degrees C. (0 degrees F). For medium and large CDC facilities, provide a walk-in refrigerator.
 - 4-10.7.7 Microwave oven.
 - 4-10.7.8 Convection oven.
 - 4-10.7.9 Commercial range with a fire suppression hood.
 - 4-10.7.10 Adequate length of 610 mm- (24 in.-) deep (minimum) stainless steel countertop space.
 - 4-10.7.11 Wire metal shelves for dry food, equipment, and supplies storage.
 - 4-10.7.12 Ample, easily washed, metal cabinets with interior shelving within reach of cooks.

4-10.7.13 Recycling bin.

4-10.7.14 Do not provide deep fat fryers.

4-10.8 **Fire Protection.** Provide kitchen equipment and exhaust systems that meet the requirements of NFPA 96. Protect grease removal devices, hoods, duct system, and cooking equipment served by the hood by a wet chemical system or a water spray system approved for protecting kitchen equipment. See paragraph 7-2 for more information on fire protection requirements.

4-11 **LAUNDRY ROOM.** Provide laundry facilities with floor drains and the necessary utility connections and ducting for washers and dryers. Do not provide utility connections for washers and dryers in kitchen areas. The using service will furnish washers and dryers with funds other than MCA (see [Appendix B](#)). Provide commercial-grade equipment.

4-11.1 **Location.** Design the laundry room to be accessible only to adults. Locate this area near the infant/toddler activity rooms. Ideally, locate the laundry room close to an exterior wall to minimize the run of the dryer exhaust vent length to the exterior. However, do not locate the room near a building entrance due to the exhaust.

4-11.2 **Space Requirements.** Plan space requirements based on the following: The typical small CDC uses one washer and two dryers and medium and large CDCs use two washers and three dryers. Consult with CDC director, since laundry may be contracted on the installation. In general, provide one more dryer than the number of washers.

4-11.3 **Dryers.** Vent dryers directly to the exterior. Provide a booster fan in the dryer vent when the travel distance exceeds 6.1 m (20 ft) to the exterior. Note that dryer exhausts contain combustible lint that can present a fire hazard when the exhaust vent is excessive in length. Vent dryers separately and do not combine with other building exhaust systems.

4-11.4 **Features.** Design features should include the following:

4-11.4.1 Accommodate barrier free accessible, side-by-side washers and dryers.

4-11.4.2 Provide a laundry folding counter (minimum 1200 mm long), open storage shelves for clean laundry, and secured storage for laundry supplies. Provide space for covered metal containers for soiled laundry.

4-11.4.3 Provide a lockable door that can be opened from inside with a vision panel in the door.

4-11.4.4 Provide durable, slip resistant floor sloped to floor drain(s).

4-11.4.5 Locate dryer exhaust vents for easy access for cleaning out the vents.

4-11.4.6 Provide a spacer on the wall with the dryer vent duct to prevent the dryer from being pushed back against the wall and collapsing or pinching the flexible duct.

4-11.4.7 Provide a single compartment laundry tub with hot and cold water.

4-11.4.8 Provide a one-hour resistive fire barrier around the laundry room.

4-11.4.9 See [Section 7-2](#) for plumbing requirements in the laundry room.

4-12 **SUPPORT SPACES.**

4-12.1 **Mechanical.** Locate mechanical equipment rooms to open directly to the exterior for access by maintenance personnel. Consider sharing the service drive with the kitchen. Do not allow access into any interior or exterior child activity spaces. Provide interior space for mechanical equipment. Rooftop equipment is discouraged.

4-12.2 **Electrical.** Locate the electrical room either internal or external with the same criteria regarding access applying as for the mechanical room. Provide a separate communications room conforming to criteria outlined in [TIA/EIA 569-A](#). Per that document, provide a minimum space of 2130 by 3050 mm (7 by 10 ft.)

4-12.3 **Janitorial Rooms.** Locate janitorial rooms as centrally as possible with direct access to the main circulation path. Service personnel and staff will use this space for storing janitorial supplies and equipment. Include a mop sink with hot and cold water plumbing connections and storage for pails, mops, vacuums, and related cleaning supplies and equipment. Provide the door with a lock, (which can be opened from the inside) and a vision panel. Provide cabinets for cleaning supplies that are lockable. Provide exhaust ventilation directly to the outside. Ensure that the closet is provided with proper fire detection devices as per code. Provide moisture-resistant walls and a durable, slip-resistant floor sloped to a floor drain.

CHAPTER 5

CHILD ACTIVITY ROOMS


5-1 **GENERAL CRITERIA.** Include child activity areas and functional support spaces in all child activity rooms. Developmental and routine activities, children's displays, eating, and all other activities pertaining to a child's care in a self-contained environment occur in these indoor spaces.

5-1.1 **For Interaction.** A prime objective of a successful design is to create conditions that allow caregivers and children to interact both verbally and non-verbally in large and small groups. To do this successfully, activity room space should not appear crowded. Include low tables and chairs, several interest areas, and the space for caregivers to communicate individually with children. Define functional areas by furniture arrangements that vary depending upon the age group.

5-1.2 **For Visibility.** The designer must keep in mind that visibility of all areas within the activity room is a key factor, so avoid creating "blind" areas that would make staff supervision difficult. The ideal room width to length ratio is 3:2.

5-2 **SPACE AND LAYOUT.** In child activity rooms, area requirements are expressed in terms of uninterrupted activity space (UAS). UAS is defined as space in a care area used exclusively for activity, excluding the diaper changing station, the food preparation station, the toileting areas, storage areas, installed millwork, door swings, and any dedicated circulation space. Dedicated circulation space is that area directly behind the diaper changing station, behind the food prep area, directly in front of access doors, directly behind access doors, or the path of routine travel between doors or any of the areas mentioned above. In other words, if a child can't play there without being interrupted by traffic, it is considered dedicated circulation.


5-2.1 **Maximize Space.** In order to maximize the amount of UAS and space devoted to childcare functions, design the circulation between the entrance and exits to be as direct as possible. Adjacent to circulation, it is appropriate to position tables and work surfaces, which tend to involve more crowded functions while retaining corners and floor area for more protected and nurturing activities.

5-2.2 **Flexibility.** Design activity rooms for flexibility. Provide in each activity room no less than 6.04 m² (65 ft.²) per child of UAS for infants and 4.18 m² (45 ft.²) per child for pre-toddlers, toddlers and preschoolers. Further, include diaper changing stations and food preparation areas in all activity rooms, no matter what the age group they serve, so that these activity rooms can accommodate all age groups and children with special needs.  The Navy does not permit diaper changing and food preparation areas in the preschool activity room. Major activity room elements should remain fixed, such as those requiring plumbing connections or case goods secured in place for safety reasons. The arrangement of storage cubbies for children's personal items will be less frequently altered. Children and their caregivers will modify the remaining space continually to create areas for their activities.

5-2.3 **Space Program.** Table 5-1 illustrates the space programs for the three types of activity rooms. Determine the number, distribution, and types of child activity rooms by the demand at the installation. Modify the set of spaces and sizes as appropriate to fit individual project needs within the criteria established in this UFC. Note that the sizes for individual child activity rooms remain constant and that in larger centers additional child rooms are provided rather than increasing the size of individual rooms.

TABLE 5-1. CHILD ACTIVITY ROOM SPACE REQUIREMENTS

Age Group(s) Accommodated	Room Area	
	m ²	ft. ²
Infants and Pre-toddlers. This room can accommodate two groups of infants (eight children) or two groups of pre-toddlers (10 children).	68.8	740
Uninterrupted activity space	48.31	520
One child toilet	1.86	20
Children's hand washing station	1.39	15
Food preparation, including sink	4.65	50
Diapering station, including sink and storage	4.65	50
Cubby storage	2.32	25
General storage closet	5.57	60
Toddlers and Preschoolers. This room can accommodate two groups of toddlers (14 children) or one group of Preschoolers (12 children).	86.0	925
Uninterrupted activity space	58.53	630
Two child toilets	3.72	40
Two children's hand washing stations	2.79	30
Food preparation, including sink	4.65	50
Diapering station, including sink and storage	4.65	50
Cubby storage	6.04	65
General storage closet	5.57	60
Preschoolers. This room can accommodate two groups of Preschoolers (24 children).	131.4	1,415
Uninterrupted activity space	100.3	1,080
Two toilets	3.72	40
Two children's hand washing stations	2.79	30
Food preparation, including sink *	4.65	50
Diapering station, including sink and storage *	4.65	50
Cubby storage	9.75	105
General storage closet	5.57	60

*  The Navy does not permit diaper changing and food preparation areas in the preschool activity room. The Navy does require an adult sink at .93 m² (10 ft.²), however, so the total preschool area is reduced by 8.83 m² (95 ft.²) to equal 122.6 m² (1,320 ft.²).

5-3 **ARCHITECTURAL FORM.** Consider the following factors when designing the spaces:

5-3.1 **Wall Display Area.** Provide a significant amount of activity room wall display area at children's height for display of artwork and projects. Include devices for display of artwork that do not involve tacks (tacks are dangerous for young children) and tape (because it can damage the finish of partitions.) Display of the children's artwork is an indication that children's art and development are valued.

5-3.2 **Corners.** Retain inside corners to the degree possible. Corners within the activity room offer opportunities to create differentiated areas.

5-3.3 **Adults.** Consider the adults using the space. Design center to be adult-friendly as well as child-friendly. Do not reduce all elements in scale. Retain door locks, light switches, and other functional elements at adult scale and mount at adult height. Keep food preparation, storage and service space, and other areas of the center used by adults at standard scale. Keep adult furnishings such as chairs used for comforting and reading to infants and young children at adult scale. Some items double function for both adults and children.

5-4 **ENTRANCE AREAS.** Design each child activity room to have a distinct and welcoming entrance. Design the entrance to meet all emergency egress requirements. Provide a second room entrance to the playgrounds. Place the entrance along a wall, leaving valuable corners available for activity areas. Design entrances to allow for views from the main circulation area to child activity rooms. Near the room door, consider a sign-in area and parent notice/mail box area approximately 1067 mm (42 in.) above the finished floor. This could be the top of the cubby storage area.

5-5 **CUBBY STORAGE AREA.** Upon arriving at the activity room entrance, children typically store their outdoor clothing and personal belongings. They may again need their outdoor clothing at times during the day to go to the play yard or on excursions, and to go home. Parents may linger in the cubby alcove, spending time with their children or with caregivers or other parents. In the design of the cubby area, consider these activities so that bottlenecks and blind spots do not occur at the child activity room entrance.

5-5.1 **Installation.** Use pre-manufactured cubbies anchored to the floor and/or wall to prevent tipping accidents. Design the space to accommodate the pre-manufactured cubbies specified.

5-5.2 **Number.** Provide one cubby for each child per activity room for coats and backpacks. Ensure children's clothing is physically separate from and does not touch other children's clothing.

5-5.3 **Type.** Use compartmentalized, open-front design cubbies scaled to child size (see sizes under age-specific activity room sections).

5-5.4 **Area.** Provide a 915 mm (36 in.) clear area in front of the cubbies for access.

5-5.5 **Seating.** Consider seating which may be integral with the pre-manufactured cubby for either adult or child use.

5-6 **FOOD PREPARATION AREA.** All children will eat in their activity room with their caregivers. Provide a food preparation area in all activity rooms to allow flexibility for the purpose of storing and heating individual bottles and food. Locate food preparation areas with other fixed elements within the activity room. Locate this area adjacent to the eating/table area and separate from the diapering station, toilet, and hand washing areas. Place food preparation areas near activity areas, providing caregivers with clear views of the activity room. Do not locate food preparation area under sewer or drain pipes concealed in the ceiling plenum above. The food preparation areas in activity rooms include the following heavy duty items:

5-6.1 **Upper and Lower Washable Cabinet Storage.** Provide childproof latches or magnetic locks to prevent child access to any storage within reach.

5-6.2 **Counter Area.** Provide an adult-scale counter of solid-surface material, a minimum of 2440 mm (96 in.) long with back splash. Design top of counter to be 865 mm (34 in.) high. Use drawer and door pulls that are non-projecting types. Use heavy-duty hinges that are durable as they receive intensive use in a child care center. Provide one cabinet that is lockable with a key.

5-6.3 **Sink.** Equip the sink with a single-lever faucet.

5-6.4 **Refrigerator.** Provide a minimum of 0.25 m³ (8 ft³) of refrigerator storage under the counter.

5-6.5 **Appliances.** Provide space and an electrical outlet for appliances.

5-7 **EATING/TABLE AREA.** Locate this area adjacent to the food preparation area. Design with a hard-floor surface. (See [Section 7-1](#) for more on flooring.)

5-8 **DIAPER CHANGING AREA.** Provide a diapering station and diaper storage area in each activity room to allow flexibility. Construct as part of the fixed elements within the activity room for economy of plumbing connections and locate so caregivers have a view of all the children in the room. The diapering station and storage area consist of a changing table, countertop with sink, waste bin, and upper storage cabinets for diapers and other supplies. All equipment and storage needed for this area, including the sink, must be within easy reach for the caregiver at the changing table, without requiring him or her to move away from the child being changed. Design the diapering station to reduce possible transmission of communicable diseases. Provide a diaper table that is easily sanitized and provide hygienic storage for all contaminate material. See [Section 7.1](#) for more information on the diaper changing area and accessories.

5-9 **TOILETS.** In general, note that toilet areas are used by both girls and boys and are partially screened but without doors. This offers some privacy, but still allows adult supervision. Locate toilet areas so they are easily accessible, yet cannot


be viewed directly from the doorway at the corridor entry to the room or the corridor windows. Construct toilets as part of the fixed elements, and share plumbing walls with other areas requiring plumbing connections to the extent possible. Physically separate the toilet area from food preparation and eating areas and partially screen from the view of remaining spaces. See [Section 7-1](#) for specific requirements for activity room toilets and fixtures.

5-10 ACTIVITY ROOM STORAGE CLOSET. It is essential for the child activity room to include adequate storage closet space for the many items required for a quality program. Provide storage for cots, strolling equipment, curriculum materials, and supplies. Provide some lockable storage within the activity room, including some cabinets elevated above children's reach or with a door to limit their access. Provide one lockable cabinet in each run of cabinets. This storage area is required for storing activity room equipment, materials, and supplies. Provide safety hooks and pegboards for easy storage of aprons and small equipment. Other areas of storage might include overhead storage in a food preparation area. Provide a lockable cabinet, above child's reach, for storage of items such as medications, cleaners and other restricted items.


5-11 CAREGIVER STORAGE. Provide some lockable storage in the child activity room for caregivers to store outdoor clothing and other personal belongings. Consider providing this storage in the storage closet area or in cabinets intended for the caregiver's use. Give preference to a caregiver's closet with a rod for hanging coats with shelving above.

5-12 INFANT AND PRE-TODDLER ACTIVITY AREAS. Design this room to accommodate two groups of infants or two groups of pre-toddlers. These rooms must meet the size and amenity requirements outlined in [Section 5-2](#).

5-12.1 Cribs. Provide one evacuation crib or wheeled evacuation device for every four infants/pre-toddlers. Place the evacuation cribs closest to the exterior exit. They may also function as a standard sleeping crib. Use a space-planning factor of 2.32 m² (25 ft.²) per crib and plan for eight cribs. When designing this area, note the following crib criteria: these special cribs must be of durable construction, be narrow enough to pass through a door with a 865 mm (34 in.) clear opening, and have sturdy caster wheels approximately 100 mm (4 in.) in diameter which allow one person to easily roll the cribs over different indoor/outdoor surfaces. The evacuation crib must have the capability of supporting and transporting a minimum of five 18-month-old children weighing a total of 55 kg (120 lbs.).

5-12.2  Air Force. The Air Force requires 2.32 m² (25 ft.²) of storage for "bye-bye" buggies near each infant and pre-toddler activity room. This may be a niche in the hallway outside the room. Bye-bye buggies are large, multi-child strollers.

5-12.3 Nursing and Lactation/Feeding. Provide a quiet, semi-private area in the infant/pre-toddler room for a parent to visit and nurse/feed his or her child. Locate this space near the sleeping area with some visual separation from the other areas of

the activity room and privacy from the circulation pathways. Consider providing a privacy curtain.  The Navy does not allow privacy curtains.

5-12.4 Infant Considerations. Infants engage in crawling, walking, floor play, table play, and wheel toy play. Provide a safe, soft, stimulating environment in which babies can crawl, explore, and interact with their caregivers. The infant room needs to be warm and nurturing in character. Because each infant may have a unique schedule, a variety of activities can take place in the infant room at any given time, ranging from playing, diaper changing, eating, sleeping, cuddling, and nursing. This variety of activities requires that quiet areas be separate from more active areas.

5-12.4.1 Most infants have not begun toilet training, so frequent diaper changes are needed. When caregivers are with an infant at the diaper-changing table, they also need to supervise other infants and maintain visibility to other infants. Maintain visible connection between caregiver and infant to the maximum extent feasible at all times. For young infants, eating is a nurturing time, with the infant either nursed by the mother or held by a caregiver or parent during bottle feedings. Caregivers may start to feed infants soft foods at around 5-6 months. At around 9 months, infants, seated in low high chairs, begin to feed themselves and drink from cups. Offer in the activity room a series of intriguing attractions for crawling and standing infants, particularly at eye level of 300 mm to 450 mm (12 in. to 18 in.) above the floor. Design and scale furnishings and equipment in the infant room to support the infant's activities, while assisting the caregivers. Design to allow caregivers to see and hear all the infants at any given time, and quickly reach any one of them if the need arises.

5-12.4.2 Consider the following elements when designing the infant child activity room:

5-12.4.2.1 Provide a gross motor area (away from the main circulation flow) that is soft and easily cleaned, with a provision of continuous soft mat.

5-12.4.2.2 Allow cribs to be directly observable by caregivers.

5-12.4.2.3 Provide easy access for infants to toys from open shelving.

5-12.4.2.4 Provide space for infants to eat in a social environment (as opposed to an isolated, lined-up high chair arrangement). Avoid the use of high chairs. It is essential to verify dimensions and indicate the location (using dotted lines) of all major equipment, particularly cribs and feeding components on the architectural plans. This will ensure the proper fit and clearances are achieved in the final result.

5-12.4.2.5 Crawl spaces provide a safe environment that a baby can explore. Provide these with low, soft barriers, or movable objects.

5-12.4.2.6 Provide low grab bars at 455 mm (18 in.) above floor level to aid infants in pulling up to a standing position. These bars also may aid an infant's sense of security while developing walking skills. Provide a minimum total length of 1525 mm (60 in.) in

each infant activity room. The diameter of the bars will be 25 mm to 30 mm (1 in. to 1.2 in.) with rounded corners.

5-12.4.2.7 Consider a baby's point of view and furnish interesting things to observe. These include views from adult seating and standing height while the child is being held.

5-12.4.2.8 Furnish mirrors starting at floor level up to approximately 760 mm (30 in.) minimum height for babies to see reflections. Use shatterproof safety glass, acrylic, or reflective metal for mirror material. Design edges so that they are not able to cut or puncture skin.

5-12.4.2.9 Infants need storage for their clothing and supplies. Provide cubby compartments of approximately 300 mm (12 in.) wide, 380 mm (15 in.) deep, and 450 mm (18 in.) high each.

5-12.4.2.10 Refer to [Section 7-1](#) for more information on finishes.

5-12.5 **Pre-Toddler Considerations.** The pre-toddler activity room will hum with activity as pre-toddlers quickly move through their space, involved in all the activities available to them. Design an environment that is stimulating, offering the child a safe, yet warm and nurturing place to spend the day. Scale furnishings and equipment for this age group to encourage growth toward independence. Consider that pre-toddlers may nap more often than once a day. Pre-toddlers will gather at child-scaled tables for snacks and lunchtime. They can feed themselves with some assistance from their caregivers. Some pre-toddlers are beginning toilet training, and thus provide child toilet facilities in the room. In the pre-toddler open activity area, offer a range of opportunities for exploring and challenges in developing large motor skills. Design the activity area for running and cruising (movement through the space to view and select from a variety of activities) without disrupting children in other activities.

5-12.5.1 Consider the following elements when designing the pre-toddler child activity room:

- Design broader pathways to accommodate group movement or cruising.
- Furnish intimate spaces for pre-toddlers that still retain visual connection with the caregiver.
- Allow for water play that might consist of freestanding tables or basins with nearby safety hooks for smocks and towels. Provide an impervious floor finish.
- Provide the diaper-changing unit with integral retractable steps that lock in place for the caregiver to assist the children to climb up to the changing surface.

- Pre-toddlers need storage for their clothing and supplies. Provide cubby compartments of approximately 300 mm (12 in.) wide, 380 mm (15 in.) deep, and 450 mm (18 in.) high each.
- Refer to [Section 7-1](#) for more information on finishes.

5-13 TODDLER AND PRESCHOOL ACTIVITY AREAS. Design this room to accommodate two groups of toddlers or one group of preschoolers. Design these rooms to meet the size and amenity requirements outlined in [Section 5-2](#). Note the following considerations depending on whether the room is to be used by toddlers or by preschoolers.

5-13.1 Sleeping and Eating. Generally, do not provide toddler and preschool child activity rooms with space allocated for a sleep area but provide for napping cots or mats that are stored within the activity room storage closet when not in use. Toddlers and preschool children usually need a nap or quiet time. Mealtime is an opportunity for social interaction as the children and their caregivers gather around tables in the activity room to eat meals and snacks.


5-13.2 Toddler Considerations. Toddlers are busy experiencing their environment and developing essential motor skills as they take part in active play. In the toddler open activity area offer a range of opportunities for exploring and challenges in developing these motor skills. Provide features such as wide access to portable platforms and generous, clear pathways that avoid sharp corners. Locate manipulative toys and materials on low, open shelving where the toddler can see and easily reach them. Though generally scale the space to child size, the activity room design must also permit caregiver access to all spaces.

5-13.2.1 Provide a diaper-changing table. Toddlers are typically in the process of toilet training. The diaper-changing unit should have integral retractable steps that lock in place for the caregiver to assist the children to climb up to the changing surface. This is particularly important for this older age group.

5-13.2.2 Consider the following elements when designing the toddler child activity room:

5-13.2.2.1 Design broader pathways to accommodate group movement or cruising.

5-13.2.2.2 Furnish intimate spaces that still retain visual connection with the caregiver.

5-13.2.2.3 Provide art sinks.  The Air Force does not require art sinks.

5-13.2.2.4 Allow for sand and water play that may consist of freestanding tables or troughs with nearby safety hooks for smocks and towels. Provide an impervious floor finish. Provide a floor drain. Consider that sand and water play can occur in the art sink area (see Air Force exception above).

5-13.2.2.5 Toddlers need to store bulkier outdoor clothing in their cubbies. Provide storage for satchels or backpacks used by children to carry personal items. Consider safety hooks. Provide cubby compartments of a minimum of 300 mm (12 in.) wide, 380 mm (15 in.) deep, and 1220 mm (48 in.) high each. Provide two safety hooks in each cubby for hanging garments, and include a shelf for boxes, boots, or extra shoes. Ensure children's clothing is physically separate from and does not touch other children's clothing. Provide a bench in this area about 255 mm (10 in.) high for children to sit on while donning their outdoor clothing and boots.

5-13.2.2.6 Refer to [Section 7-1](#) for more information on finishes and [Section 7-2](#) for more information on plumbing.


5-13.3 **Preschool Considerations.** Children at this age are actively exploring their environment; exercising large muscle skills by running, jumping, galloping, riding wheeled toys and playing various ball games. Provide a large amount of architecturally unrestricted available space that caregivers and children can divide into smaller interest areas. Their level of skills enables them to take part in more advanced activities, requiring a greater number of interest areas configured for small groups of children in each area. Other activities for this group are dramatic play, music, painting, puzzles, manipulative play, block play, pre-math, reading, and writing. Preschool age children are involved in various projects, including simple food preparation, problem solving, science, and gardening.

5-13.3.1 Consider the following elements when designing the preschool activity room:

5-13.3.1.1 The open activity area needs to be large, open and flexible to allow free movement within the space. More cooperative play occurs in this room, such as group activities and games. Children of this age are at a higher level of development that enables them to take part in a wider range of activities.

5-13.3.1.2 Allow for maturing skills in large motor development through the use of multi-level portable platforms.

5-13.3.1.3 Provide ample table space for games and projects.

5-13.3.1.4 Provide art sinks.  The Air Force does not require art sinks.

5-13.3.1.5 Allow for sand and water play, which may consist of freestanding tables or troughs with nearby safety hooks for smocks and towels. Provide an impervious floor finish. Provide a floor drain. Consider that sand and water play can occur in the art sink area (see Air Force exception above).


5-13.3.1.6 Provide an area for reading with natural light and a quiet environment.

5-13.3.1.7 Preschool children need to store bulkier outdoor clothing in their cubbies. Provide storage for satchels or backpacks used by children to carry personal items.

Consider safety hooks. Provide cubby compartments a minimum of 300 mm (12 in.) wide, 380 mm (15 in.) deep, and 1220 mm (48 in.) high each. Provide two safety hooks in each cubby for hanging garments, and include a shelf for boxes, boots, or extra shoes. Ensure children's clothing is physically separate from and does not touch other children's clothing. Provide a bench in this area about 255 mm (10 in.) high for children to sit on while donning their outdoor clothing and boots.

5-13.3.1.8 Refer to [Section 7-1](#) for more information on finishes and [Section 7-2](#) for more information on plumbing.

5-14 **PRESCHOOL ACTIVITY AREAS.** Design this room to accommodate two groups of preschoolers. Design these rooms to meet the size and amenity requirements outlined in [Section 5-2](#). See above for design considerations for preschoolers.

5-14.1 **Flexibility.** Provide a diaper-changing station and food preparation area for operational flexibility and serve children with special needs.  The Navy does not permit diaper changing and food preparation areas in the preschool activity room.

5-14.2 **Toilets.** The preschool activity area may, when required, be used for younger school-age children (K-1). Provide separate boy/girl toilet stalls with half-height partitions when it is used for this age group and equip the stalls to accommodate doors. Refer to [Section 7-1](#) for more information on finishes and [Section 7-2](#) for more information on plumbing.

5-15 **CHILD INTEREST CENTERS.** Child interest centers provide specific areas for children to engage in dramatic play activities, educational activities, etc. Provide child interest centers within each child activity room per Table 5-2 below. The interest areas are a function of furniture arrangement and are not to be enclosed with partitions; They are subsets of the UAS. Locate these centers to take full advantage of natural light. Preserve corner areas, which provide natural boundaries to distinguish individual activity areas. Interest centers will typically double as napping/sleeping and eating spaces. Include interest centers in the net useable square foot requirements.

TABLE 5-2. CHILD INTEREST CENTERS IN CHILD ACTIVITY AREAS

Age Groups	Interest Centers (see legend below)									
	A	B	C	D	E	F	G	H	I	J
Infants	•	•			•	•	•		•	•
Pre-toddlers	•	•			•	•	•	•	•	•
Toddlers	•	•		•	•	•	•	•	•	•
Preschool	•	•	•	•	•	•	•	•	•	•

Interest Center Legend:

A	Reading/Listening	F	Manipulative/Table Toys
B	Imaginative Play	G	Arts Area
C	Woodworking	H	Water/Sand Play
D	Science		Quiet Areas
E	Blocks	J	Music

5-15.1 **Considerations.** Consider the following information about the interest centers when designing the child activity rooms.

5-15.1.1 **Imaginative Play Area.** Include space for portable child-sized housekeeping equipment, space for children's table and chairs, child accessible storage for props and dramatic play accessories, and child-height, shatterproof mirrors.

5-15.1.2 **Science and Math Area.** Provide space for small caged animals, plants, and physical science and mathematics materials. Locate this area near sinks for ease in watering plants, and for cleaning animal cages and bowls, and near natural light for plants. Provide this area with childproof electrical outlets for aquariums, plant lights, incubators, etc.

5-15.1.3 **Blocks and Construction Area.** Provide space for unit and larger blocks, block accessories and transportation toys. Include child-height open storage for blocks and display of block accessories. Provide soft surface flooring in this area. Do not locate this area adjacent to major circulation—children will tend to not use this area if there is a chance that passersby will accidentally destroy their creations.

5-15.1.4 **Manipulative and Table Toys Area.** Provide space for table and floor manipulative and readiness toys and materials. This space double functions for eating and includes at least one child-sized table and 6 to 8 child-sized chairs. Provide open storage at child height for puzzles, pegboards, box games, manipulative toys, etc.

5-15.1.5 **Arts area.** Provide space for art activities such as painting, clay, etc. This space double functions for eating and includes child-sized table and chairs. Also consider easels, child-height drying racks for paintings, open child-height storage, closed adult-accessible storage for supplies, child-height wide shelving, safety hooks for aprons, and clip strips for the display of children's art work. Provide child-height sink in or near this area. Provide floor and wall finishes impervious to paint, clay, etc.

5-15.1.6 **Water and Sand Play.** Provide space for indoor activities including water, sand, and sand alternatives (oatmeal, rice, beans, etc.). This space double functions with the art area or science area and has similar requirements. Specify a non-slip seamless floor impervious to water and dampness and include a floor drain. Provide water resistant wall finishes.

5-15.1.7 **Quiet Area.** Provide space for one to three children at a time to pursue individual quiet activities or to separate themselves from the group. Locate away from major circulation paths and ensure the space is child scaled and can easily be supervised by caregivers. Consider soft surface floor coverings and shelving for books and other materials associated with quiet activity.

5-15.1.8 **Reading and Listening Area.** In this area, include open child-height storage for books, puppets, picture cards and other program materials, display space, and upright and reclined seating. Consider soft surface flooring.

5-15.1.9 **Woodworking Area.** Provide space for woodworking and other tool activities for one to three preschool age children only. Consider space for a work-bench with a child-height vise, child accessible open storage for construction materials, lockable storage for tools, and temporary hanging storage for tools when in use. Acoustically separate this area from quiet areas and provide low-maintenance, seamless, hard surface flooring.

5-15.1.10 **Music Area.** Provide space for musical activity such as singing, dancing, and musical instruments. Consider acoustical separation, enclosed storage for instruments and electronic equipment, and power requirements.

CHAPTER 6

OUTDOOR ACTIVITY AREAS

6-1 **INTRODUCTION/PURPOSE.** In the Outdoor Activity Area, provide outdoor play activities for infants, pre-toddlers, toddlers, and Preschool age children. Design the outdoor play area not simply as a place for “recess” but to support a program of activities and be conducive to creative play. To the degree that climate permits, design the Outdoor Activity Area to accommodate many indoor activities—it is an extension of the interior activity room space. The Outdoor Activity Area is a supervised environment, so design to the highest standards of safety. The play program encourages children to interact with the environment, each other, and the caregivers either in free play or through planned and structured activities. Design the play environment to allow a wide range of movement; stimulate the senses; offer novelty, variety and challenge; and be safe and comfortable. Ensure novelty incorporating both simple and complex features. Incorporate textures such as sand, water, grass, flowers, trees, and smooth rocks (and other artifacts of nature) within the natural environment. Incorporate manufactured textures of wood, metal and plastic as well as elements that respond when acted upon within the play environment. Design the play environment to be open to many interpretations and uses in order for the child to exercise his or her power to manipulate it. Do not design the environment to impart preconceived notions of how to act or respond to the surroundings. With appropriate supervision, children will actively manipulate, transform, dismantle, and re-create the environment in order to learn about the makeup of the world.

6-2 **UNIQUE CDC REQUIREMENTS.** The following elements may be unique to the Military CDC.

6-2.1 **Supervision.** To reduce the potential for child abuse, arrange playground areas to permit views into the playground from within the CDC and from outside the playground fencing. Do not create blind spots or hidden areas within the playgrounds. Thought must be given to providing sufficient “openness” for adult visual supervision of children at play, avoiding areas where unsupervised mischief or child abuse can occur. Control all access points to the play area and design them to be readily visible for security purposes. Do not allow large structures (e.g., storage, super-structure, trees) to block the view of caregivers.

6-2.2 **Integration with the Building.** Design outdoor play areas to directly adjoin the CDC building. Locate the required play area immediately adjacent to the activity rooms of the children who will use the area and to be viewed from the activity rooms that they serve. Integrate play areas, to the greatest extent possible, into the overall design of the center. Ideally, design the indoor and outdoor spaces simultaneously so that a proper link can be made to join the two spaces. Use this link to provide easy entry and exit for transporting materials, wheelchairs and infant strollers. Provide some covering such as an awning, canopy or porch for shade and partial shelter. (See [Section 6-5](#) for more information on shade structures.)

6-2.3 **Period of Use.** CDC Outdoor Activity Areas are used throughout the day.

6-2.4 **Age-Appropriate Areas.** Divide the outdoor play environment into at least three play areas: one for infants, one for toddlers, and one for Preschoolers. Pre-toddlers will use the infant play area or the toddler play area, as appropriate.

6-2.5 **Design Requirements.** Have a certified playground safety inspector design the playground or review the .

6-2.6 **Equipment Requirements.** Use and install playground equipment and components complying with the minimum standards put forth in the appropriate guidelines listed below. In some cases, this UFC criteria document may include more stringent guidelines than those listed. In those cases, follow the criteria identified in this UFC. See [Section 6-7](#) for UFC equipment criteria. Use the most recent editions of the following publications:

- The Consumer Product Safety Commission (CPSC) (<http://cpsc.gov/>) *Handbook for Public Playground Safety*. (Although the CPSC provides guidelines for unsupervised public play settings for children two years and older, the CDC playground must safely accommodate supervised children as young as 6 weeks of age.)
- ASTM F1292, *Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment*.
- ASTM F1487, *Standard Consumer Safety Performance Specification for Playground Equipment for Public Use*.
- ASTM F1951, *Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment*.
- ADAAG. See additional information in Section 6-2.7.

6-2.7 **Children With Special Needs.** It is the policy of DoD to integrate children with special needs into the outdoor play environment with their appropriate group. to best accomplish this, provide a diversity of play opportunities and equal opportunity for all children regardless of ability. It is important to remember that all children require special treatment. This means accommodating all kinds of abilities and disabilities. Trained caregivers and accessible play programs are key elements in creating a setting that effectively integrates all children. Discuss the needs for accessibility with the CDC staff before starting the design. Note the following information.

6-2.7.1 **ADAAG.** Recent amendments to ADAAG added a special application section for play areas that includes scoping and technical provisions for ground level and elevated play components, accessible routes, ramps and transfer systems, ground surfaces and soft contained play structures. Use this amendment, identified as ADAAG 15.6, can be accessed at the following Web site as a design guide: <http://www.access-board.gov/play/finalrule.htm>. For the purpose of this UFC, children 6 weeks to 3 years

old are not self-mobile or independent wheelchair users. Most children with special needs in these age groups do not have sufficient strength or coordination skills for independent wheelchair operation. Therefore, assume that children of these ages require assistance by caregivers.

6-2.7.2 Barrier Free Accessibility. Provide an accessible pathway throughout the play area. Younger children who are handicapped generally use strollers, walkers, or small wheelchairs for mobility and are either transferred onto play elements or to a transfer platform by the caregiver. Provide a safety-surfaced path for a wheelchair to approach, but not roll onto, manufactured play equipment. Do not provide access ramps that allow trike access onto equipment. The optimum solution is to provide an accessible surface up to the equipment and provide transfer platforms to help the child onto the equipment. Design play structures and play areas to be accessible. Provide specially designed decks and railings for transfer out of wheelchairs and onto equipment.

6-2.7.3 Surfacing. Meet zone criteria for surfacing, but also design to support wheeled vehicles to allow accessibility. However, use zone criteria take priority over making the equipment readily accessible.

6-2.7.4 Sensory Rich Materials. Provide a variety of materials to stimulate and entertain children, including those who are visually impaired, hearing impaired or who have other special needs.

6-2.7.5 Special Requirements. For requirements to accommodate children who are severely handicapped in the child development program, contact the following offices for additional guidance:

- Navy. NPC (PERS-659)
- Air Force. HQ USAF/ILVY
- Marine Corps. HQ USMC (MRY)

6-3 SITE.

6-3.1 Size. Per Department of Defense Instruction, [DoDI 6060.2, Section E4.1](#), provide a minimum of 7 m² (75 ft.²) per child for each child using the playground at any one time for playground spaces. Figure the number of children using the playground at one time at 30 percent of the total capacity of the CDC in a center of 100 or more children. For centers with a capacity of fewer than 100 children, provide a minimum of 7 m² (75 ft.²) per child for the total number of children. Provide larger outdoor play areas, if possible.

6-3.2 Shape. Do not create blind spots or hidden areas within the playgrounds. Provide sufficient "openness" for adult visual supervision of children at play, avoiding areas where unsupervised mischief or child abuse can occur.

6-3.3 **Utilize Existing Features.** Preserve natural landscape features, including existing topography, trees, and vegetation and supplement as needed to help children explore movement in space, to lend novelty and challenge, and to assist children in developing awareness of nature. Exercise care to ensure that natural features such as hills and nature areas are accessible to everyone and that plants and vegetation are non-toxic and don't have seeds or other elements that could be choked on. Integrate plants into the entire play area rather than provide isolated nature areas.

6-3.4 **Utilities.** The only utilities permitted in the outdoor activity area are those actively supporting the outdoor activity area. Specifically, Do not locate mechanical equipment, transformers, storm drains, and manholes in the outdoor activity area.

6-3.5 **Drainage.** Provide proper drainage on the site and under the playground equipment to permit use of the playground after inclement weather. Additional grading and drainage criteria is in [Chapter 3](#).

6-3.6 **Adjacencies (to building, age-specific areas).** Design outdoor play areas to directly adjoin the CDC building. Locating play area immediately adjacent to the activity room of the children using the play area is preferred. Locate play areas in view of the activity rooms they serve.

6-3.7 **Access and Exiting.** For the play area, provide a minimum of two access points, one from the activity room into the play area, and one from the play area outside to the site. Design the access point from the play area to the site beyond to allow the retrieval of play equipment (balls, etc.). Design to accommodate the movement of maintenance equipment into the play area and allow an emergency exit. Pave the main entrance pathway.

6-3.8 **Climate Considerations.** When planning the play areas, consider prevailing weather patterns that may affect children's comfort. For example, locate the play areas on the south side of the building in some geographical areas where they will be protected from northerly winds. Provide natural wind breaks (trees) for extra protection from the elements. Pay close attention to providing both natural and artificial shade.

6-4 **GENERAL SAFETY.** The major cause of playground injury is falling onto hard surfaces. Falls, head entrapments, strangulations, and contact with protrusions/projections on heavy swing seats account for most fatalities. A "use zone" is the area beneath and immediately adjacent to a play structure or equipment that is designated for unrestricted circulation around the equipment and on whose surface it is predicted that a user would land when falling from or exiting the equipment. Crush, pinch, or shearing points are junctures that could cause contusion, laceration, abrasion, amputation, or fracture during use. Locate moving elements in areas away from natural child movement between zones. Refer to [Section 6-2](#) for equipment specification requirements. The CPSC and ASTM standards provide appropriate criteria with regard to use zones, radiused corners, and crush, pinch, or shearing points.

6-5 **COMMON FEATURES.** The following features are common across the Outdoor Activity Area. Features that are specific to the age-specific playgrounds are discussed in [Section 6-6](#).

6-5.1 **Fencing.** Enclose play areas with fences to define the play area, allow ease of supervision of children, and protect them from unauthorized individuals or stray animals. In addition, consider that CDC location and local conditions may necessitate the use of fences and screens to block views from outside the center. The fence is one of the most visible elements in the center, so design to be compatible with the architecture of the CDC and be more than simply utilitarian. Consider a combination of fencing materials to avoid an institutional or "animal pen" effect. Black or dark green vinyl-coated chain link is the preferred fence material. Exposed galvanized wire, which has a highly institutional appearance, is not appropriate. Address the following items :

6-5.1.1 Use bollards, raised planters, or other devices to protect play areas located next to driveways or roads where cars could swerve into the play area.

6-5.1.2 The transparent or opaque nature of the fence and fence height depends upon the location and environmental conditions of the center and the requirements identified by the military security risk assessment.

6-5.1.3 Enclose the perimeter of the play area by a 1520 mm (5 ft.) high fence when allowing views into the play yard. Add or position planting or landscape features so that an adult would not be able to reach over the fence. **SE** The Navy requires a minimum 1520 mm (5 ft.) high fence around all playgrounds. Additionally, Navy facility planners must submit site plans to BUPERS-659 to determine if a taller fence or solid wall is required.

6-5.1.4 When the play area is adjacent to hazards, busy roadways, or is in a high security risk neighborhood, enclose the perimeter of the play area by a 2440 mm (8 ft) high fence.

6-5.1.5 Design fences that subdivide the play area within the perimeter fence to be 915 mm to 1520 mm (3 ft. to 5 ft) in height. Provide gates between playgrounds.

6-5.1.6 Do not make fences out of wood. **SE** The Marine Corps allows wood fences. Make wood fences smooth-finished and splinter-free and use materials guaranteed to be non-toxic if treated for exterior use.

6-5.1.7 Make the top edge and bottom edge selvage knuckled with no sharp exposed connections accessible to children. Make the fence bottom to be no more than 75 mm (3 in.) above the ground. Consider burying the bottom on the fencing.

6-5.1.8 It is important to design fences so that spaces between vertical elements do not allow children's heads to be entrapped. Design so space between vertical elements is not more than 85 mm (3.5 in.). Additionally, design fence openings to be large enough to prevent finger or hand entrapment, but not so small that fingers and

hands cannot penetrate the opening. Therefore, design with no openings between 9 mm (.38 in.) and 25mm (1 in.). Pay particular attention to entrapment dimensions; they are very important to the safety of the children. Reference the *CPSC Handbook for Public Playground Safety (Handbook)* for more information.

6-5.1.9 Provide gates that permit occupant egress to include infant crib egress from the play area and from the building. Provide at least one access gate that is 3050 mm to 3650 mm (10 ft. to 12 ft.) wide for emergency or service vehicles. Provide gates with an adult-controlled securing device. Protect children's fingers from pinching or crushing on gate hinge spaces.

6-5.1.10 Fences are used for protection from the elements and to control sunlight and wind exposure. Ensure that fences used for this function do not impede caregiver supervision of children.

6-5.1.11 Design fences to be safe, with smooth caps and no finials or sharp picket tops on which children or adults might be injured. Use finials or sharp picket tops only on 2440 mm (8 ft) high fence.

6-5.1.12 Design fences to discourage climbing. Do not use horizontal slats or horizontal rails. Design walls used for barriers to discourage climbing. Design fences to be capable of withstanding code specific force applied horizontally.


6-5.1.13 Design all fastening devices used for fence construction to not project outward, where they can injure children or adults. Give careful attention where children and adults can come in contact with both sides of a fence.

6-5.2 **Storage.** Provide enclosed, weather-tight, vandal-proof storage in each play area. Program (and provide) storage with openings directly onto the playground into the facility requirements. The storage structure will house a wide range of play materials that are essential to children's play including wheeled toys, trikes, wagons, large carriages, sand toys, balls and hoops. Locate storage to be readily accessible to the major play zones and constructed of the same or compatible materials as the CDC to be architecturally or thematically compatible, including the roof design. Do not design storage units to create any blind spots on the Outdoor Activity Area that would impede supervision of the children. Note the following criteria:

6-5.2.1 Provide 9.3 m² (100 ft.²) of storage space per infant/pre-toddler play area, 9.3 m² (100 ft.²) of storage space per toddler play area, and 13.9 m² (150 ft.²) of storage space per preschool play area.

6-5.2.2 Locate and design storage facilities to be easily accessible by children and staff. Link pathways to and from the storage structure to the various play areas or zones. Construct of a hard surfacing material such as concrete, flush with the ground, with a light textured finish. Also note the following criteria:

6-5.2.2.1 As with all elements of the Outdoor Activity Area, design for visibility into the storage area. Provide doors 1220 mm to 1830 mm (4 ft. to 6 ft.) wide that are

visible from the building and equipped with clear safety glazing for ease of child entry and exit. Provide doors that meet the requirements for preventing finger entrapment and that swing outward and are equipped with vandal-proof hardware and keyed locks. Select locks that operate at the exterior of the door but do not allow children to be trapped inside the structure.  The Navy does not require vision panels in the storage shed.

6-5.2.2.2 Do not finish or insulate the interior unless required for continuation of the main building envelope. Ventilate the storage shed but do not air condition. Make the floors of concrete sloped to the door for drainage. Provide adequate headroom clearance for an adult, and provide bins and racks to facilitate stable and secure storage.

6-5.3 **Shade.** Patios and shade/shelter structures are an integral part of the Outdoor Activity Area. Shade is a requirement for the CDC to receive DoD certification. Cover each playground with a structure or structures to provide shelter from the sun and inclement weather. Whichever is greater, provide a minimum of 10 percent shaded area per each playground or a minimum of 1.4 m² (15 square feet) per child for the maximum number of children occupying the Outdoor Activity Area at any one time (See [Section 6-3](#)). Divide the area of shade appropriately between the age-specific playgrounds. However, at least 50 percent of the play area must be exposed to direct sunlight during the morning and afternoon when the play area will be used.

6-5.3.1 Use structures and materials for shade that include trees and other natural landscaping, exterior screened rooms, park shelters and structures, awnings, porches, gazebos and umbrellas. Any given structure should provide a minimum shaded area of 1830 mm (6 ft.) in any direction. The degree and orientation of shade will depend on local climatic conditions. In hot climates, consider larger shade structures. Consider using a transitional area such as a patio, deck or platform as the link between interior and exterior spaces. The requirements for platforms and stairs that access platforms are as follows:

6-5.3.1.1 Design platforms, stairs, handrails on stairs, guardrails, and protective barriers on platforms to comply with requirements for playground equipment contained in the latest edition of the CPSC Handbook.

6-5.3.1.2 Maximum platform height for infants is 455 mm (18 in.) above adjacent floor level. Maximum platform height for toddlers is 915 mm (36 in.) above adjacent floor level. Maximum platform height for Preschool children is 1370 mm (54 in.) above adjacent floor level.

6-5.3.1.3 Provide handrails to accommodate the intended age group on all stairs (including adults). For children, heights will range between 510 mm (20 in.) above the leading edge of the tread and 915 mm (36 in.). In certain instances it may be necessary to have two railings mounted at differing heights.

6-5.3.1.4 Provide guardrails for infants and toddlers on all platforms greater than 300 mm (12 in.) above adjacent surfaces. Provide guardrails for preschool-age children on all platforms greater than 505 mm (20 in.) above adjacent surfaces. Design the top surface of the guardrail to be a minimum of 740 mm (29 in.) above the platform and the bottom surface no more than 635 mm (25 in.) above the platform. Design the guardrail with no openings between 85 mm (3.5 in.) and 230 mm (9 in.) to avoid the possibility of head entrapment. To prevent finger entrapment, design for no openings between 9 mm (.38 in.) and 25 mm (1 in.) wide.

6-5.3.1.5 Provide protective barriers for all children on all platforms greater than 760 mm (30 in.) above adjacent surfaces. Design the top surface of the protective barrier to be 740 mm (29 in.) high, with no openings greater than 75 mm (3 in.) and no horizontal footholds to prevent climbing.

6-5.3.2 Covered patios are desirable elements, particularly in areas where weather can be problematic for outdoor play, such as the Northwest with its abundant rainfall, or the Great Lakes region with its abundant snow. Covered patios can be valuable for use on days when the weather will not permit full use of the playground. In areas with moderate temperatures for much of the year, such as Southern California, covered patios can be used as activity areas for virtually the entire year. When provided, design patios large enough to accommodate children's play activities.

6-5.3.3 Refer to Surfacing below for patio surfacing materials.

6-5.4 **Surfacing.** Use a variety of surface materials, with varying finishes, patterns, textures, and colors to stimulate interest and increase play opportunities. A variety of materials incorporates the advantages of each material and renders a more natural, less institutional appearance than any one alone. The outdoor activity area has four categories of surface areas, each with specific requirements: use zones, wheeled toy pathways, other hard surface areas, and general.

6-5.4.1 **Use Zones.** Use zones are the areas under and around playground equipment and are defined by ASTM F 1487. Use surface materials that meet the shock absorbency criteria recommended by the most current CPSC and ASTM guidelines. Additionally, accommodate ADAAG accessibility requirements. Provide as submittals the commercial playground safety surface manufacturer's warranty and liability in the specifications and transfer to the Using Service. Include a written verification by the manufacturer that the playground safety surface meets the requirements of the CPSC Handbook and ASTM in the submittal section of the specifications.

6-5.4.1.1 The Services prefer poured-in-place resilient safety surfaces. These surfaces allow for creative designs and patterns, are low maintenance, easy to clean and non-moveable. Follow the manufacturer's recommendations for drainage during installation of poured-in-place resilient safety surfaces. Receive approval of any other use zone surface material from the using Service.

6-5.4.1.2 Do not use the following surface materials. Disadvantages of these surfaces can be found in the CPSC Handbook.

- Engineered and natural wood fiber
- Engineered loose rubber and ground tires
- Any materials that are subject to compaction, ingestion, flammability, and wind dispersion.

6-5.4.2 **Wheeled Toy Pathways.** Use materials for pathways that allow for use during inclement weather. Acceptable materials include concrete, stone or masonry pavers, rubberized surfaces, or rubber matting. Design so the edge of pathways do not create trip hazards and taper for transitions. Provide smooth surfaces for wheeled toys that have joints not wider than 12 mm (.5 in.) because they may cause toys to tip. Design all pathway surfaces to allow access by those in wheelchairs—design the slope of paved surfaces to comply with ADAAG requirements. Consider the following when designing the wheeled toy pathways:

6-5.4.2.1 **Modular Paving.** Do not use modular paving in areas intended for infants. Pavers introduce joints and textures in the paving surface that can become uneven over time if they are not laid over a concrete base, presenting a tripping hazard. Install non-grouted interlocking type pavers on sand placed over a continuous concrete setting bed. Install brick, stone or other non-interlocking type paving in grout over a continuous concrete setting bed. Do not install non-interlocking paving on sand in play areas, as the modular units may settle unevenly, resulting in a hazardous irregular surface. Where winter freezing is common and where poor soils occur, use a gravel base under concrete and reinforce to prevent cracking and deterioration.

6-5.4.2.2 **Concrete.** Add color additives or surface finishes to improve the appearance of concrete and reduce glare. Avoid smooth steel trowel finishes, which can become slippery when wet. Where winter freezing is common and where poor soils occur, use a gravel base under concrete and reinforce to prevent cracking and deterioration. Consider local soil and climatic conditions for structural requirements. Cast-in-place concrete over a well-compacted sub-grade is the most durable, maintenance-free paving material for hard surface areas.

6-5.4.3 **Other Hard Surface Areas.** These areas include sidewalks, seating areas, patios, and areas for hard-surface games. Use a variety of surface configurations and materials in these areas to increase the impression of “naturalness” in the play yard. Specifying and supervising during construction ensures excellent compaction. Compaction greatly affects the serviceability of the surface materials. Acceptable materials for sidewalks, seating areas, and patios include concrete and stone or masonry pavers. Use brick and other types of modular paving for sidewalks to reduce the scale of these environments. Design the edge of sidewalks to not create trip hazards, and taper for transitions. Design sidewalk surfaces to allow access by those in

wheelchairs—the slope of paved surfaces must comply with ADAAG requirements. The only acceptable material for areas for hard-surface games is concrete.

6-5.4.4 General. This encompasses any portion of the outdoor activity area not included in the other three defined areas. Use surfaces of grass or other natural landscaping. Use grass primarily in open, active play areas, passive play areas, and areas with low traffic levels. Do not use grass where wear and maintenance will become a problem. Locate grass in sunny areas where it will dry out quickly after rain. Artificial turf is not recommended for use as a playground surface; it can be abrasive and convey an unnatural impression. See below for more information on landscaping.

6-5.5 Landscaping. Use of trees and landscaping is very important to the overall design concept and the developmental needs of children. Ensure all plants within the play area and throughout the site are non-toxic and do not present choking hazards. Use planting materials for wind breaks, visual barriers and noise attenuation. Changes in the natural topography such as a grassy berm, are more appealing than randomly placed play equipment. See [Section 3-6](#) for more information on landscaping.

6-5.6 Plumbing. The outdoor play environment has many requirements for potable water. Sand and water tables and outside sinks require water access and an appropriate drainage system for disposing of wastewater. Install a provision to protect the water source from freezing at all exterior water connections in geographic areas where freezing occurs. An underground shut off valve is one safe way to protect the water source from freezing.

6-5.6.1 Drinking Water. It is essential that children at play have access to drinking water. Provide via a portable cooler and single-use cups managed by the caregiver. As an alternative, consider providing a minimum of one outdoor drinking fountain with mouth guard and angled jet in each play area that serves children older than 18 months. However, consider maintenance concerns regarding freezing and clogging. Provide outdoor fountains with frost-free operation and design to minimize clogging from sand or dirt. In particularly warm areas there will be a greater need for water fountains. Use an appropriate height for the age group served, but do not exceed 610 mm (24 in.).

6-5.6.2 Hose Bibs. Locate water outlets convenient to construction and nature areas. Provide a minimum of one hose bib in each play area for water play. Install hose bibs in a recessed wall box to prevent impact injury. Provide hose bibs with a frost-free water source and locate directly accessible to outside playgrounds.

6-5.6.3 Misters. Consider providing misters in hot, dry climates. Connect misters to the potable water system and provide code-compliant back-flow prevention devices.

6-5.6.4 Irrigation System. In the playground, include an irrigation system where grass is used. Consider safety factors such as tripping hazards and use zones in the design of the system. Locate controls for the irrigation system in the mechanical room. Locate back-flow preventers, risers, valves, etc., outside the outdoor activity area.

6-5.7 Common Areas of Play Zones.

6-5.7.1 **Entry.** Provide an entry to each play zone for transporting materials, wheelchairs, walkers, and infant strollers. Provide some covering such as an awning, canopy or porch for shade and partial shelter. (See Section 6-5.3 for more information on shade structures.)

6-5.7.2 **Circulation.** Design circulation within the play area to branch throughout the various play areas, using imaginative paths such as covered and uncovered walkways, curved and straight paths, etc. Provide dedicated pathways and routes for play with wheeled toys. The circulation pathway is the primary element that ties the entire play area together. Provide paths that link the play zones to ensure availability to all children. Locate storage convenient to areas where stored materials will be used. (See Section 6-5.4.3 and Section 6-5.4.4 for information on circulation route surfacing.)

6-5.7.3 **Active vs. Quiet Areas.** In addition to opportunities for active gross motor play, provide space and equipment to support quiet play such as art, reading, table games, sand, water, gardening, building, and nature study.

6-6 AGE-SPECIFIC PLAY AREAS.

6-6.1 **Infant and Pre-Toddler.** Separate this fenced activity area, but do not isolate it, from age groups older than 24 months. A low fence, hill or other natural feature can serve to separate crawling infants from more active toddlers, but transition across these areas will depend more on ability than on age. Design the separation to provide visual and audible connections but limited physical contact. Design this play area to provide a variety of stimuli. Provide access by the CDC path networks that allow caregivers to take infants out in strollers. Provide concrete surfaces for strollers and ride and push toys, which can also double function for emergency egress paths. Design play area surfaces to consist of soft, resilient materials that protect crawling children and provide a comfortable surface on which to sit. Include small steps, slopes, ground beams, climbing ramps, slight barriers and slides. Depending upon the pre-toddler's individual skill level, the pre-toddler will use the infant area or an area similar to the toddler area. Note the following considerations for this activity area:


6-6.1.1 **Shade.** Shade is particularly important for infants and young pre-toddlers. Ideally, shield infant play areas from the extremes of wind and sun, but offer exposure to the natural environment. See Section 6-5.3 for more information on shade.

6-6.1.2 **Exclusions.** Avoid excessive heights and abrupt surface level changes or rough surfaces. The following items are not permitted in the infant activity area:

- Treated wood
- Wood chips
- Pea gravel

- Pools of water

6-6.2 **Pre-Toddler Considerations.** As noted above, depending upon the pre-toddler's individual skill level, the pre-toddler uses the infant area or an area similar to the toddler area. Consider exploratory opportunities for this age group and space for equipment and related use zones.

6-6.3 **Toddlers.** This activity area serves is a fenced outdoor play area with many types of play spaces and activities for playing alone, playing in pairs, and playing in small groups. In activity zones, include a wheeled toy path, a quiet sand play area, a dramatic play area, a composite structure, swings, and a multi-purpose area.  The Navy does not allow swings in the toddler area. Provide toddlers with play areas for walking, jumping, climbing, running, drawing, painting, block play, group play, sorting, and exploring. Simple, versatile climbing equipment is more appropriate for toddlers than scaled down versions of older children's play structures. Toddlers crave and enjoy semi-enclosed spaces such as small play houses or climb-through tunnels. Other favorite play equipment for toddlers includes small slides. Note the following considerations for this activity area:

6-6.3.1 **Sand.** Consider providing a sandbox with a retaining border that does not pose a tripping hazard and allows drainage. Provide sand 460 mm to 610 mm (18 in. to 24 in.) deep. Locate the box so it is protected from the wind. Locate the box away from the entrance to the building and the drinking fountain to help alleviate concerns of tracking sand inside and clogging the fountain drain. Locate near storage. Turn over the sand to a depth of 460 mm (18 in.) annually and replace every two years. Provide raised troughs for wheelchair accessibility. If the sand area is less than 9.3 m² (100 ft.²) provide a cover. In cool, wet climates, locate sand areas in sunny locations and provide a sub-surface drainline system whenever possible to reduce dryout time. In hot, dry climates, large sand areas can radiate heat and glare and become hot to the touch, making play areas unpleasant. Provide adequate shade in these climates to reduce heat and glare problems.

6-6.3.2 **Exclusions.** Avoid excessive heights and abrupt surface level changes or rough surfaces. The following items are not permitted in the toddler activity area:

- Treated wood
- Wood chips
- Pea gravel
- Pools of water

6-6.4 **Preschoolers.** The preschool activity area is a fenced outdoor play area that is larger than that required for infants and toddlers, requiring more space for running and the need for larger, more complex equipment. In activity zones, include a wheeled toy path, a dramatic play area, a construction area, a multi-purpose area,

swings, a ball play area, a quiet place, a garden, and a composite structure for climbing. Design play areas for preschool children to support dramatic and constructive/creative play, active play and quiet play, sand and water play, and opportunities to explore nature. Provide pathways for wheeled toys and circulation and allow the play experience to flow through the play areas. Include facilities for play with sand and water and place adjacent to one another allowing these activities to intermingle. Include materials for creative play activities such as musical devices, painting materials, chalkboards, construction materials, and blocks. A covered porch area provides an ideal area for painting, drawing, etc. Note the following considerations for this activity area:

6-6.4.1 **ADAAG Considerations.** Consider preschoolers self-mobile wheelchair users. Therefore, for this age group, design to provide maximum accessibility.

6-6.4.2 **Dramatic Play Area.** Provide a larger, open-ended play superstructure offering many activities, but design to lend itself to dramatic play. Include elements such as playhouses, stages and props that encourage dramatic play. Position these elements within the play area to allow the dramatic play to spill out and flow into other spaces. Place dramatic play materials and equipment in close proximity to each other and to wheeled vehicle paths to facilitate integration of play themes.

6-6.4.3 **Building/Construction Area.** Include space for children to build freeform items and structures. Locate area near storage for access to building materials. These materials include blocks, wood boards, PVC pipe, paint, carpentry tools, ropes, balls, etc.

6-6.4.4 **Swings.** Locate swings in a separate area. Take care to provide adequate safety areas around swings to prevent conflicts with other activities.



Note: The Navy only permits tire swings—see Section 6-6.4.4.3 below.

6-6.4.4.1 Provide a continuous impact absorbing surface according to the CPSC Handbook.

6-6.4.4.2 Use a flexible material for swing seats, such as the rubber belt-type, to avoid impact injuries from hard seats and to discourage standing on seats. Use belt-type baby seats with restraints for children under two years old. Hard seat swings are not allowed.

6-6.4.4.3 Tire swings allow two or more children to swing together, increasing the opportunity for social development. Do not allow the tire to touch the vertical support structure according to CPSC and ASTM guidelines.

6-6.4.4.4 Design swing top rails to not exceed 2.4 m (8 ft.) for children under four years old. Locate swings at the perimeter of the play area to eliminate conflicts between swinging and running, walking or wheeled toys.

6-7 **EQUIPMENT CONSIDERATIONS.** Refer to the CPSC Handbook and ASTM guidelines for information on equipment selection. Refer to ASTM F 1487 for criteria for use zones. Show all use zones for play equipment on the site plan to ensure there is no conflict between play activities on the ground and swinging or jumping from the equipment. Do not overlap use zones. The minimum height above ground surface requiring a use zone is 500 mm (20 in.). Please note, if young school-age children are using the playground, different use zone criteria apply. As a minimum, design the infant crawl space, to include a 1.2 m (4 ft.) distance outside the infant crawl curb, as a use zone. Accommodate ADAAG in the selection of playground equipment.

6-7.1 **General Considerations.** Consider the following when selecting equipment.

6-7.1.1 **Range.** Provide a sufficient range of equipment to accommodate every type of play—exercise, dramatic, construction, organized games, social—engaged in by the age group served.

6-7.1.2 **Novelty.** Select interesting play equipment with both simple and complex features. Grouping play equipment together to provide a sequence of play opportunities is preferred to single, large, fixed-in-place structures. Provide for both solitary and social play. Select equipment that can be modified.

6-7.1.3 **Flexibility.** Specify equipment to provide a variety of play events or functions. Use composite units or super-structures that stimulate a wide range of motor functions. While activities such as swinging, sliding and climbing are still popular, provide in conjunction with other physical, social and cognitive play opportunities. Equipment that can be used equally well by one child or by several children simultaneously increases opportunities for cooperative, social play. Items designed to look too much like animal forms or other recognizable objects such as rocket ships, fire engines, etc., do not stimulate children's imaginations or satisfy their need for cognitive play. Use dramatic play props that are adaptable to a range of make-believe roles or themes.

6-7.1.4 **Challenge.** Children who use well-equipped playgrounds develop very rapidly in motor skills, creating a need for increased complexity and challenge. Use equipment that provides clear, graduated stages of accomplishment. For example, variable-height steps or climbing equipment with landings at different heights allow children to test their skills and set future goals. Also, select a range of equipment that can be modified. As children master the challenges of a "younger playground" they are moved to an "older playground".

6-7.1.5 **Scale.** Size equipment to match the age and development of child users.

6-7.1.6 **Aesthetics.** Design children's playgrounds for beauty as well as function. Select equipment colors and styles that are appealing to children and compatible with the facility exterior. Integrate equipment with natural vegetation and landforms.

6-7.1.7 **Installation.** When purchasing equipment, include in the contract an agreement for the manufacturer to inspect the equipment after installation and confirm in writing that installation conforms to manufacturer's instructions and to CPSC and ASTM Guidelines. For additional security, have a contractual agreement for a skilled, certified, independent playground safety consultant to inspect the entire playground after the installation is completed. Have experienced playground installers conduct or supervise installation.


6-7.2 **Exclusions.** Do not use the following elements Outdoor Activity Areas, regardless of CPSC or ASTM approval.

- Animal swings, metal and otherwise.
- Wood equipment. Wood equipment is not permitted due to maintenance concerns.
- Metal slides. Metal slide surfaces are not allowed.
- Merry-go-rounds.
- Hard-seat swings.
- Trampolines.
- See-saws.
- Zip lines.

6-7.3 **Exceptions and Modifications.** Observe the following exceptions and/or modifications to previous military policy or CPSC Handbook and ASTM requirements when selecting equipment for CDC Outdoor Activity Areas.

- Spring toys are allowed if meeting CPSC Handbook and ASTM standards. However, this equipment is discouraged due its limited potential for creative play.
- Tunnel slides require view panels. Specify only on preschool playgrounds.
- Use climbing structures that allow for free fall.
- Balance beam criteria vary by age group. Specify the CPSC Handbook standard for balance beams only on preschool playgrounds. For toddler playgrounds, the maximum height for a balance beam is 150 mm (6 in.).

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- Use swings on toddler playgrounds consisting of 50 percent bucket-type swings and 50 percent single axis swings.  The Navy only allows tire swings in the preschool playground.

CHAPTER 7

TECHNICAL SPECIFICATIONS

7-1 INTERIORS.

7-1.1 **Interior Construction.** As a general note, use solid-surface countertops in all wet areas in lieu of plastic laminate.

7-1.1.1 **Diapering Station.** Provide a diapering station and diaper storage area in each activity room to allow flexibility. See [Section 5-8](#) for general criteria on the diapering station.  The Navy does not permit diaper changing in the preschool activity room. Specific equipment at the diaper station includes:

7-1.1.1.1 **Changing Table.** Use a changing table made of a solid-surface material; plastic laminates are not permitted. Provide a changing surface 865 mm (34 inch) high and 610 mm (24 inch) deep. With the changing surface of each unit being a minimum of 914 mm (36 in.) in length for infants and pre-toddlers, and 1220 mm (48 in.) in length for toddlers, plus an additional 455 mm to 560 mm (18 in. to 22 in.) for the sink. Provide a changing unit with integral storage underneath the changing surface. Consider providing a wall and base cabinet adjacent to the unit. Ensure that the caregiver standing at the changing table has a clear view of the room. For renovation work, consider portable diaper changing units. In the pre-toddler, toddler and preschool activity rooms, provide a diaper changing unit with integral retractable steps that lock-in place for the caregiver to assist the children to climb up to the changing surface. Steps are also particularly helpful for caregivers whose backs may be challenged by excessive lifting. Provide a safety device on either side of the changing surface area consisting of a raised edge to provide side restraint for 75 mm (3 in.) *above the surface of the mat*. Since mats are typically 25 mm (1 in.) thick, this means that the top of the rail or raised edge should be approximately 100 mm (4 in.) above the surface of the changing table.

7-1.1.1.2 **Proximities.** Locate all equipment and storage needed for this area, including the sink, within easy reach for the caregiver at the changing table, without requiring him or her to remove both hands from the child being changed.

7-1.1.1.3 **Sink.** Provide a sink integral with the changing table, deep and designed to drain thoroughly with no standing water left in the sink. Use sinks with goose neck faucets, that are hands-free, and have an automatic shut-off of no less than 30 seconds. Include a swivel head/spout.

7-1.1.1.4 **Dispensers.** Locate paper towel, soap, plastic or rubber glove, and plastic bag dispensers within reach of the caregiver at the changing table. Use towel dispensers that are hands-free and designed to dispense only one towel at a time, such as a cone-shaped, center dispensing rolled towel unit.

7-1.1.1.5 **Storage.** Design open compartmentalized cabinets to be 230 mm (9 in.) wide, 230 mm (9 in.) high, and 305 mm (12 in.) deep per child to provide storage for

diapers, disposable wipes, baby products, and extra clothing. Do not allow these cabinets to block the view of the room or inhibit the child from standing on the changing station. Provide space for two foot-operated, covered metal containers: one for storage of soiled disposable diapers and one for laundry. Consider space provisions for dispensers of disposable paper sheets to cover the changing surface and plastic bags for disposal of diapers. Provide waste storage for disposable diapers in a waterproof, washable container with a disposable plastic liner. Cover the waste storage container with an airtight lid. Locate it within reach of the caregiver at the changing table. Use type that is operable without utilizing both hands. Consider a pedal-operated waste container, placed under the counter out of reach of children. Consider providing open shelving that is 611 mm (24 in.) deep and 3.7 m (12 ft.) long for storage of diaper bags.

7-1.1.1.6 **Miscellaneous.** Provide exhaust ventilation for the diapering station and design it to be free from drafts. Recommended finishes include impervious flooring and millwork, countertops, and wall splash. Use impervious finished on wall surfaces adjacent to the changing table. Because sanitizing solutions are used to clean the changing table surface, use finishes unaffected by cleaning products. Consider providing a dry erase board for display of notices to parents.

7-1.1.2 **Art sink Area.** Include art supply storage, display, and drying areas for finished work or work-in-progress. Provide a counter 450 mm to 500 mm (18 in. to 20 in.) deep, allowing children to reach the faucet. Provide 915 mm to 1220 mm (36 in. to 48 in.) of open counter length adjacent to the sink. Provide sheet impervious floor coverings with sealed seams and provide a floor drain in this area. Use floor finishes that are non-slip.

7-1.2 **Doors.**

7-1.2.1 Vision panels are required at adult and child viewing heights in all doors, including closets and storage rooms but excluding doors to school-age or adult toilets. This is a child abuse prevention measure. Use a minimum size vision panels of .56 m² (6 ft.²), and place so a person opening the door can see if children are standing or on the floor in front of the door. Use vision panels in fire-rated doors that maintain the integrity of the fire rating; however, please note that fire-rated doors are only required at the laundry room. **SE** The Navy and Marine Corps require a full-height vision panel in all closet and storage room doors. Use panels 100 mm to 200 mm (4 in. to 8 in.) wide, a minimum 150 mm (6 in) from the lock-side of the door, and extend vertically from 150 mm (6 in.) from the top of the door to 300 mm (12 in.) from the bottom of the door.

7-1.2.2 **SE** The Navy and Marine Corps require full-lite doors at all activity rooms.

7-1.2.3 Provide janitor closet doors that swing outward. Do not locate janitor closet doors in child activity spaces.

7-1.2.4 Do not compromise the fire ratings in these doors.

- 7-1.2.5 Dutch doors are not permitted in CDCs.
- 7-1.2.6 Do not use folding or sliding partitions or doors in children's activity rooms.
- 7-1.2.7 Sliding glass doors are only allowed at the main entry and will be automated. If used, plainly mark the doors at both adult and child levels to prevent someone walking through the door by accident. Automated, sliding doors facilitate entry and exit of parents carrying children and supplies. Ensure the doors meet the Life Safety Code requirements for emergency and non-powered operation.
- 7-1.2.8 Install finger-pinch protection devices wherever doors are accessible to children.
- 7-1.2.9 Cover the hand contact and splash areas of doors and walls with a finish that is easily cleaned. Enamel paint is acceptable.
- 7-1.2.10 See [Section 2-15](#) for exit door and hardware requirements.
- 7-1.3 **Windows.** Provide windows from activity rooms to the outside and from activity rooms to corridors. Consider large windows between the corridors and the activity rooms to allow both children and adults to see through. Consider the height and scale of windows, type of glass, clear view (no horizontal members blocking view of either adults or children), control of light, and safety factors. Ensure the design of the facility addresses climatic concerns when designing the amount of glazing on all elevations. Concurrently, be cognizant of the importance of maximizing natural day lighting in the care areas.
- 7-1.3.1 **General Window Criteria.**
- 7-1.3.1.1 Construct, adapt or adjust all windows in areas used by children under 5 years of age to limit the exit opening accessible to children to less than 90 mm (3.5 in.), or be otherwise protected by guards that do not block outdoor light.
- 7-1.3.1.2 Screen all openings used for ventilation.
- 7-1.3.1.3 Adhere to the following safety glass standards:
- Consumer Product Safety Commission, 16 CFR, Part 1201, *Safety Standard for Architectural Glazing*.
 - ANSI Z97.1, *Safety Performance Specifications and Methods of Testing for Safety Glazing Materials Used in Buildings*.
 - Refer to [Section 1-5](#) for Antiterrorism/Force Protection (AT/FP) requirements.
- 7-1.3.2 **Child Activity Room Window Criteria.**

- 7-1.3.2.1 Provide child activity rooms with glass exterior walls from a maximum sill height of 280 mm (11 in.) above finished floor. Consider placing the sill bottom on the finished floor for infant rooms. However, do not place sill heights between 75 and 255 mm (3 and 10 in.). Sills at those heights present falling hazards. Please note that the ideal length to width ratio for the activity rooms is 3:2.
- 7-1.3.2.2 Consider providing up to 25 percent of the total number of windows as operable, as long as children will not be able to operate them, or as long as no noxious fumes from the building mechanical system or any other source are introduced into the interior. Provide all operable windows with draft deflectors, screens, and safety locks, and of a safety type to keep children from falling through. If operable windows are used in the child activity rooms, install to be operable by staff only, opening at the top, rather than accessible to children.
- 7-1.3.2.3 Locate or recess casement and other projecting types of windows or awnings to preclude dangerous protrusions at child and adult heights at both the interior and exterior.
- 7-1.3.2.4 For windows and doors with glass lower than 915 mm (36 in.) above the finished floor, install safety guards or construct of safety-grade glass/polymer, and equip with a vision strip. If cost permits, replace wire glass with an approved alternative.
- 7-1.3.2.5 Install window treatments in children's activity rooms that are resistant to damage.
- 7-1.3.2.6 Use sills of durable material such as solid surfacing materials, plastic laminate, etc. Ensure there are no sharp edges and that the sills project no more than 20 mm (.75 in.) from the wall.
- 7-1.3.2.7 If window seats are used, design to be between 250 and 300 mm (10 and 12 in.) above the finished floor and a minimum of 300 mm (12 in.) deep.
- 7-1.3.2.8 Use overhangs or tinted glass to prevent glare in children's activity rooms. Avoid excessive or heavy tinting.
- 7-1.3.2.9 If required, provide horizontal blinds to eliminate direct exposure to the sun. In the event blinds are used, equip with child safety cords or enclose between the panes.
- 7-1.3.2.10 Do not provide floor length draperies and vertical blinds in child activity rooms.
- 7-1.3.2.11 Provide screens for windows used for ventilation. Locate screens in child activity areas above child height.
- 7-1.3.2.12 If protruding 50 mm (2 in.) or more, do not locate horizontal window muntins (horizontal mullions) between 300 mm and 1100 mm (12 in. to 43 in.) above the finished floor because they could be used as climbing support.

7-1.3.2.13 Use insulated glass for exterior window glazing. Interior windows do not need to be insulated, although interior spaces requiring acoustical separation may employ laminated glazing.

7-1.3.2.14 Provide light control and energy conservation features on all exterior windows in children's areas, either by exterior or interior methods. In new construction, include exterior overhangs or low E- type glass, or both, in many areas of the country because they may be highly cost effective over the life cycle of the building and may well justify a higher first cost, particularly on elevations with excessive heat gain. Overhangs are highly desirable but design in a way that does not excessively restrict natural light, especially during winter months.

7-1.4 **Hardware.**

7-1.4.1 Provide finger guards on the hinge edge of both the interior and exterior sides of all activity room doors up to 1520 mm (60 in.) minimum above finished floor. Finger guards protect children's fingers from being crushed or injured in the hinge space of a door or gate.

7-1.4.2 Specify hardware to be free of dangerous protrusions and eliminate the risk of pinching. Also note that young children are vulnerable to injury when they fall against the hinged side of gates. Do not use piano hinges to alleviate this problem as they tend to sag over time with heavy use. Instead, use an inexpensive device fitting over hinges available on the market to ensure safety.

7-1.4.3 On doors accessible to children, install hardware operable from both sides. For doors that must be locked in childcare areas, such as door to storage places, choose doors that can be opened from inside without a key.

7-1.4.4 In child activity rooms, equip non-locking cabinet doors with child-proof latches, or preferably magnetic locks.

7-1.4.5 Use tamper proof window hardware.

7-1.4.6 Provide lever-type door handles appropriate for use by the disabled for all door locks, latch sets and on the opposite side of the door leaf with panic hardware device.

7-1.4.7 Install closer on all exterior child activity room doors to restrict the rate of closure.

7-1.4.8 Install full-width panic hardware on all exit and exterior doors (except mechanical/electrical rooms) conforming to NFPA height standards, regardless of the location of the facility (i.e. in non-U.S. locations). With exception to main entrance doors and kitchen exterior entrance doors, equip exterior doors that do not open to a fenced area with an alarm buzzer to alert staff of unauthorized entry or exit. Select regular-use egress doors that require the maximum amount of force to operate as allowed by ADAAG and applicable codes. Use panic hardware that is full-width flush-mounted

pressure bar type, sometimes referred to as "low profile" or "touch bar". Use hardware that does not inhibit the exiting of evacuation cribs.

TABLE 7-1. HARDWARE SCHEDULE


	Main Building Entrances	Main Admin. Area	Child Activity Rooms Exterior Exits	Child Activity Rooms Interior Exits	Child Activity Rooms Interior Doors	Kitchen, Laundry, Janitor, Building Storage	Outdoor Storage
Passage Latch-set				•	•		
Storage Lock-set						•	•
Office Lock-set		•					
Flush Panic Devices/ exterior lock cylinders	•		•				
Door Closers	•	•	•	•	•	•	
Door Hold-Open Devices			•			•	
Door Stops		•	•	•	•	•	
Kick-Plates	•		•	•	•	•	
Pinch Guards/Hinge Cups	•		•	•	•		•

7-1.5 **Walls.** Provide soil and water resistant, easily-cleaned wall treatments at least up to 1220 mm (48 in.) above the finished floor in children's activity rooms, toilets, and child traffic areas (corridors). Vinyl wall coverings or hard, durable surfaces are examples of acceptable treatments. **SE** The Air Force and Marine Corps do not permit paint below 1,220 mm (48 in.) The Navy will allow epoxy painted walls, but prefers vinyl wall coverings at this height. Choose wainscot cap of a material other than painted wood. Provide heavy vinyl bumper corners and continuous vinyl chair rail bumpers to protect against cart damage. Use Class A fire-rated wall treatments in corridors. Use Class A or Class B wall treatments in other areas..

7-1.5.1 **Tile.** Glazed ceramic tile is appropriate for adult toilets and kitchens. Use ceramic tile that is durable, non-porous, and cleanable. Recommend using dark, epoxy grout material. Do not use ceramic tile in areas where sound deflection may be a problem.


7-1.5.2 **Paint.** Do not use lead- or oil-based paint. Use chromate-free paint. Test existing paint for lead content (either by direct read-out, instrumentation, or chemical analysis). In renovated facilities, remove lead paint in accepted manner or enclose in new impervious construction. Use paint certified by the manufacturer to be non-toxic with 200 grams/liter of VOC or less. Use paint containing a minimum of 50 percent post consumer waste paint taken from community collections. In high-wear areas, use durable and scrubable paint, i.e., a low maintenance solution.

7-1.6 **Flooring.** Utilize hard surfaced flooring materials such as quarry tile, porcelain tile or vinyl composition tile in interesting patterns. Carpeting is not recommended in lobby and vestibule because of increased traffic and exposure to mud, rain, snow, etc. Consider built-in foot grilles or mats at vestibule to minimize water and dirt being carried into the lobby. Use glazed ceramic (non-slip type) tile in adult restrooms only. White grout is not permitted. Use quarry or porcelain tile in kitchen—use epoxy grout rather than simply using dark grout.

7-1.6.1 **Child Activity Rooms.** For floors in child activity areas, use a combination of carpeting/large area rugs and hard surfacing as appropriate for the specific activity areas. Specify hard surfaces under areas used for eating, painting/art, water play, wheel toy play, access to the outside play areas, etc. and carpeting/large area rugs elsewhere. Ensure there is enough carpeted area for sleeping mat placement. Carpet/area rugs are not permitted in toilet areas.  The Navy requires large area rugs/area carpet in lieu of carpet.

7-1.6.1.1 **Hard Surface Flooring.** Since children spend much of their time on the floor, design floors to be warm to the touch. In certain cold climates, consider using radiant heat, especially in the infant/toddler spaces. Use Class I or Class II fire-rated floor coverings. Use seamless, impervious, non-skid, non-textured, and non-grouted hard surface flooring. Provide seamless sheet vinyl with edges turned up a minimum of 150 mm (6 in.) up the wall in children's toilet rooms. Ensure that seams at corners are chemically or heat welded, not seamed through adhesive.

7-1.6.1.2 **Soft Floor Coverings.** Select soft floor coverings impervious to bacteria, fungus growth, and odor retention. Use carpets and area rugs complying with fire and sanitation requirements. Use coverings that have anti-microbial backing, are stain and soil resistant, 100 percent solution-dyed nylon to withstand frequent chlorine cleaning solutions, easily cleaned, and fast drying. Do not select carpet with large patterned designs, for example, games or alphabets. Consider carpet consisting of several different yarn colors. Use backup material of synthetic or inorganic material. For carpets, use direct glue type with an attached cushion/pad for additional life of the carpet and the cushion it adds for children falling. Ensure adhesive or binding components of the carpet do not emit toxic fumes. Use heavy commercial wear classification carpet of level loop construction to minimize snagging. Ensure there are no tripping hazards at carpet/vinyl transition—securely fasten area rugs/area carpet and include transition strips. Do not use area rugs with rolled edges.

-  Air Force requires all carpeting comply with the Air Force Carpet Standards as written in the most current Engineering Technical Letter (ETL). The most current ETL is located at the following Internet address: <http://www.afcesa.af.mil/Publications/ETLs/default.html>.
- Replace carpet when it's useful life is over. When frayed, worn, permanently stained, or presenting a safety hazard (buckling, delamination, etc) or health hazard (no practical means to satisfactorily be

cleaned), immediately replace the carpet. Continual cleaning, foot traffic, spills, moisture, etc. all contribute to the hastening of deterioration of carpet in a CDC environment. Unlike carpet in an office environment, carpet installed in a CDC has a shorter life.

7-1.6.2 Flammability Codes and Standards. Use textiles and upholstered components complying with the applicable interior finish requirements stated in the *Life Safety Code* and any other local, state, or federal standards that apply. In addition, compliance with the following is mandatory:

7-1.6.2.1 Use carpets tested for Volatile Organic Compounds (VOCs) and that bear a green label from the Carpet and Rug Institute indicating that the carpet emissions are within the acceptable range.

7-1.6.2.2 Use products containing less than 0.05 parts per million (ppm) of formaldehyde. Any product purchased with formaldehyde levels above 0.05 ppm must bear a label in accordance with 29 CFR 1910.1048.

7-1.7 Ceilings. Generally limit ceilings in children's areas to no more than 2750 mm (9 ft) above the floor. Other areas may warrant higher ceilings and larger volumes. However, design the finished ceiling in the reception areas and corridors not to exceed 3650 mm (12 ft.) in height. Well-designed and intermittent ceiling features are encouraged as long as acoustical requirements are met, see [Section 2-12](#) and Section 7-1.8 below for more information on acoustical requirements.

7-1.7.1 For economy of cost, it is recommended that children's activity and associated areas receive acoustical ceiling tile (ACT), 20 mm to 25 mm (.75 in. to 1 in.) thick, with effective acoustical ceiling treatment. Painted gypsum board is appropriate for use in areas with soffits, ceiling height changes, vaults, or wet areas. Recommend NOT using gypsum board for ceiling areas where service access is required in the ceiling plenum for plumbing, HVAC, or other equipment.

7-1.7.2 Other than in activity rooms, exposed (painted) structural ceiling elements provide an interesting environment for children, and may increase the perceived height in low spaces. Additional acoustical treatment such as the addition of acoustical baffles is encouraged.

7-1.7.3 Consider recessed fluorescent fixtures, integral with the ceiling grid in areas with low ceilings. 600 x 600 mm (24 x 24 in.) fixtures will render a less institutional appearance and offer greater flexibility. Consider the benefits of incorporating other materials that render a more home-like environment, such as gypsum board bulkheads and soffits where practical, as well as a variety of lighting types. See [Section 7-2](#) for more on lighting requirements.

7-1.7.4 Do not use luminous ceilings in areas occupied by children.

7-1.8 Acoustical Requirements.

7-1.8.1 **Interior.** Limit the reverberation time to 0.6-0.8 seconds, generally. Design for less than 0.6 seconds in smaller spaces. The administrative space's and activity room's anticipated peak noise level is 70-80 dBA. The preferred sound criteria is 35-40 dBA, maintained for at least 80 percent of the time. Limit the ambient noise level from mechanical systems, outside noises, and adjacent spaces to 30-40 dBA. Design walls separating children's activity rooms to have a STC rating of 50 or better. Do not allow mechanical peak noise level to exceed 85 dBA.

7-1.8.2 **Exterior.** Maximum acceptable noise levels at the center's exterior are as follows:

7-1.8.2.1 **Outdoor Play Yards:**

- Continuous: 70 dBA
- Intermittent: 80 dBA


7-1.8.2.2 General exterior at centers with sleeping and quiet areas placed next to outside wall

- Continuous: 60 dBA
- Intermittent: 65 dBA

7-1.8.2.3 General exterior at centers with sleeping and quiet areas protected and not located along outside walls.

- Continuous: 65 dBA
- Intermittent: 70 dBA

7-1.8.2.4 If greater than maximum allowable environmental noise levels exist, then acoustical treatment is required. Under these circumstances, the following is recommended:

- Use acoustically laminate glass with a Sound Transmission Coefficient (STC) rating of 35 to 45, having an air space of 50 mm to 100 mm (2 in. to 4 in.) for all window and door glazing. (Conventional double-glazing and thermal glazing is not effective in this case.)
- Use high-quality commercial doors with a minimum STC rating of 30 for exterior doors.
-  Air Force requires that if any exterior sound generation exceeds these figures, the design must include a multipurpose room or an internal covered atrium with playground surfacing.

7-2 **SERVICES.**

7-2.1 **Plumbing.**


7-2.1.1 **General.** Design domestic hot and cold water, sanitary and storm drainage, plus propane, fuel oil, or natural gas systems to meet the requirements of the most current edition of the *International Plumbing Code (IPC)* or the *Uniform Plumbing Code (UPC)*. Provide metering as required by individual installation. Consider enlarging the sewer pipe size beyond the minimum required to reduce the occurrences of back up. See Section 7-2.1.6, Section 7-2.1.7, and Section 7-2.1.8 for specific requirements for each child activity room. See Table 7-2 for water temperature requirements.

TABLE 7-2. WATER TEMPERATURE REQUIREMENTS

Location	Water Temp
Isolation lavatory	43°C (110°F) max
Toilets	N/A
Lavatories	43°C (110°F) max
Bubblers	unchilled
Child activity rooms, all sinks	43°C (110°F) max
Kitchen	60°C (140°F)
Laundry	60°C (140°F)
Pots and pans sink *	82°C (180°F)
Dishwasher machine *	82°C (180°F)

* The temperature criteria may be met via boosters, as required. Chemical sanitizers may be used in lieu of meeting the temperature criteria if required by local water chemistry.

7-2.1.2 **Activity Room Toilets.** Do not locate adult toilet areas within child activity rooms. Provide them nearby, in the corridor, but not in the care room itself. Locate child toilet areas in the activity rooms on or near the exterior wall of the activity rooms, allowing access from the playground. This allows the caregiver to view a child in the toilet area and the children on the playground. Keep in mind, however, the goal to maximize window area in the activity rooms (see Section 7-1.3). Construct toilets as part of the fixed elements, and share plumbing walls with other areas requiring plumbing connections to the extent possible. Physically separate toilet areas from food preparation and eating areas and partially screen from the view of remaining spaces. Do not design so two activity share a toilet.

7-2.1.2.1 **Layout.**  The Navy and Marine Corps require lavatories to be located in the same space as the water closet, but open and visible to the rest of the room. The Air Force requires lavatories be located adjacent to, but outside of, the toilet room (water closet space). The intent of these approaches is to force the child to pass the lavatory when reentering the activity room from the toilet room. Regardless, design to accommodate easy supervision and the amount of congestion that can occur in the toilet, especially before meal times.

7-2.1.2.2 **General Features.** The required features of the toilet area include the following:

- Floor drain.
- Toilet tissue dispenser next to water closet. Mount 350 mm (14 in.) above the finished floor within children's reach.
- Exhaust ventilation.
- Flush controls. Mount 500 mm to 750 mm (20 in. to 30 in.) above the finished floor on the wide side of toilet areas.
- Design so children using the water closet are visible from within the activity room but not the hallway or any other room.

7-2.1.2.3 Water closets. For ease of cleaning, use wall hung water closets fixtures. Do not install water closets facing each other. Use water conserving type. In toddler and preschool toilet areas, install durable, water-resistant finishes and bright, cheerful lighting. Refer to [Section 7-1](#) for more information on finishes.

7-2.1.2.4 Lavatories and sinks. In general, required features of the hand washing sink and lavatory area include the following:

- Use pre-mixing, automatic shut-off faucets with single-action controls in child toilet areas. Do not place faucet controls mounted on the face or rim of the counter surface more than 355 mm (14 in.) from the leading edge.
- Place hot water heaters where they are not accessible to children.
- Provide one paper towel dispenser per sink area. Install paper towel dispensers with hands-free operation to avoid cross contamination. Do not use dispensers with a serrated edge that could cut children. Cone-type dispensers are preferred.
- Provide one free standing pedal-operated waste receptacle per sink area. Do not use metal receptacles with any sharp edges.
- Do not use built-in waste receptacles.
- Mount mirrors over the sink with the bottom edge no higher than 750 mm (29.5 in.) above the finished floor. Provide one full-length mirror with the bottom edge a maximum of 450 mm (18 in.) above the finished floor. Use only shatter-proof mirrors.
- Provide a shut-off valve for each fixture so that maintenance procedures do not affect multiple plumbing facilities.

- Provide easily reached clean-outs for waste piping.

7-2.1.3 **Art Sink.** Use a stainless steel sink with gooseneck faucet and wrist handles mounted on a 550-mm-high (22 in.) counter for children to use in art and other activities requiring water and cleanup (such as sand and water play). Use a gooseneck faucet to allow teachers and children to get a bucket under the faucet. Use traps easily accessible for cleanout.

7-2.1.4 **Floor Drains.** Provide floor drains in all toilets, laundries, kitchens, kitchen storage areas, janitor closets, and water play areas to prevent flooding. Provide deep seal traps in areas that do not normally stay wet.

7-2.1.5 **Drinking Fountains.** Provide a drinking water source for children in all toddler and preschool activity areas such as child-height drinking fountains or bubbler units with guarded angular stream drink heads attached to sinks. Mount fountains a maximum of 610 mm (24 in.) high with a mouthguard and angled jet. Provide front or side operable drinking fountain controls. Provide knee clearance space 400 mm (16 in.) above the finished floor, 450 mm (18 in.) deep and 760 mm (30 in.) wide. Check drinking fountains to insure they are not contributing to high levels of lead or asbestos in water. Use lead free solder for domestic water piping. Do not install drinking fountains adjacent or close to diaper changing areas or within child toilet areas. See [Chapter 6](#) for outdoor drinking fountain criteria.

7-2.1.6 Infant and pre-toddler activity area special plumbing requirements.


7-2.1.6.1 Provide a minimum of one water closet, with water closet seat height of approximately 250 mm (10 in.), including seat.

7-2.1.6.2 Provide one child-height, hand washing sink mounted at 550 mm (22 in.) above floor with a minimum 475 mm (19 in.) clearance for knee space. Provide counters, 450 mm to 500 mm (18 in. to 20 in.) deep to children to reach controls.

7-2.1.6.3 Provide a minimum of two adult height sinks, one for diapering and one for food preparation/hand washing. Physically separate these two sinks to avoid cross-contamination.

7-2.1.7 Toddler activity area special plumbing fixture requirements.


7-2.1.7.1 Do not install floor-to-ceiling walls around the toilet area.

7-2.1.7.2 Provide a minimum of two water closets, with seat height approximately 280 mm (11 in.), including seat. Provide partitions between the water closets, that do not exceed 914 mm (36 in.) in height. Install so the bottom of the partitions are 230 mm (9 in.) above the finished floor. Do not provide stall doors.  The Air Force does not allow partitions between the water closets in toddler toilet rooms.

7-2.1.7.3 Provide two child-height hand washing sinks mounted at 550 mm (22 in.) above floor with a minimum 475 mm (19 in.) clearance for knee space. Install counters, 450 mm to 500 mm (18 in. to 20 in.) deep to allow children to reach controls.

7-2.1.7.4 Provide one drinking fountain.

7-2.1.7.5 Provide a minimum of two adult height sinks, one for diapering and one for hand washing. Physically separate these two sinks to avoid cross-contamination.

7-2.1.7.6 Provide a minimum of one art sink.  The Air Force does not require an art sink.

7-2.1.8 Preschooler activity area special plumbing fixture requirements.


7-2.1.8.1 Do not install floor-to-ceiling walls around the toilet area.

7-2.1.8.2 Provide a minimum of two water closets, with water closet seat height of approximately 280 mm (11 in.), including seat. These toilet areas are used by both girls and boys, and are partially screened but without doors. This offers some privacy, but still allows adult supervision. Install partitions between the water closets that do not exceed 1065 mm (42 in.) in height and are no more than 150 mm (6 in.) above the finished floor.

7-2.1.8.3 Provide two child-height hand-washing sinks, mounted at 550 mm (22 in.) above floor with a minimum 475 mm (19 in.) clearance for knee space. Install counters, 450 mm to 500 mm (18 in. to 20 in.) deep, that allow children to reach controls. Or use junior-height wash fountains with a washbasin rim height of approximately 635 mm (25 in.).

7-2.1.8.4 Provide one drinking fountain.

7-2.1.8.5 Provide a minimum of two adult-height sinks, one for diapering and one for hand washing. Physically separate these two sinks to avoid cross-contamination.

7-2.1.8.6 Provide a minimum of one art sink.  The Air Force does not require an art sink.

7-2.1.9 **Barrier Free Accessible Plumbing Design Requirements.**

- Design public/staff toilets to be barrier free accessible.
- Include one barrier free accessible toilet for toddlers and preschoolers.

7-2.1.10 **Laundry and Janitor Sinks.** Provide a mop sink in the janitor's closet and a laundry tub in the central laundry room. Use integral molded sinks rather than drop-in sinks to prevent water infiltration into counter tops.

7-2.2 **Heating, Ventilating, and Air Conditioning (HVAC).** Design the HVAC system to comply with the recommendations of the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) and to be responsive to the needs of children. However, the HVAC system must also meet the exceptions provided in this UFC. Provide air conditioning in all spaces (including kitchen) for all geographic locations except Iceland.

7-2.2.1 **General Requirements.** Table 7-3 contains HVAC requirements for CDC component spaces.

TABLE 7-3. HVAC REQUIREMENTS

Location	Humidity	Air Changes	Exhaust	Air Temp
Isolation/Health Room		10-12		
Toilets			10.16 l/s/sm (2 cfm/sf)	
Child Activity Rooms	30-50%		2.36 l/s/sm (5 cfm) per person	20°C (68°F) min 26°C (78°F) max (summer)
Dry Food Storage	20%			10-21°C (50-70°F)
Kitchen		10-12		17°C (62°F) min
Laundry		3-5	as required	
Other Occupied Spaces			4.06 l/s/sm (0.8cfm/sf) or 2.36 l/s/sm (5 cfm) per person	

7-2.2.2 **Energy Conservation.** Site the building for passive energy conservation, insulate fully, and design for active solar gain when authorized. Capitalize on day-lighting to reduce energy use. Incorporate free cooling with economizing cycle HVAC in mechanical systems. Use renewable energy technologies in facility projects whenever feasible and cost effective. Consider ground-source heat pumps, high-temperature solar, geothermal, wind, biomass and bio-gas energy sources. See [Section 2-18](#) for more information on energy conservation.

7-2.2.3 **Heat Generation.** In child accessible areas, select, locate, and protect heating devices to prevent children from coming in contact with surfaces having temperatures in excess of 43 degrees C (110 degrees F). Locate heating units that utilize flame only in the mechanical rooms or other areas where children do not have access. Vent properly to the outside and supply with sufficient combustion air. Do not use open fireplaces, portable combustion space heaters, or portable electric heaters as heat sources. Do not specify equipment that interrupts continuous and flat wall space at child levels that may accommodate perimeter activity areas.

7-2.2.3.1 For additional comfort in the infant and Pre-toddler activity rooms, consider utilizing radiant floor heating as a primary or supplemental heating source. Do

not encase the tubing in concrete slabs if hot water radiant floor heating is utilized. Consider recovered heat from sources such as refrigerant desuperheaters, water-source heat pumps (including ground-source), air-source water heaters, and heat from exhaust air heat recovery coils, if available, for the radiant floor system.

7-2.2.4 HVAC Distribution. Provide uniform air velocities of no more than 9.14 m per minute (30 ft. per minute) 300 mm (12 in.) from the floor in all child activity spaces, unless otherwise noted. Supply each space with a minimum of 15 liters/second (32 ft.³/minute) of outdoor air per each occupant to control odors.

7-2.2.5 HVAC Instrumentation and Controls. Design and construct the HVAC system for easy maintainability with all controls on as few panels as possible in the mechanical room. Design so CDC personnel maintain control for individual care area temperatures. Consider providing for connection to installation EMCS for monitoring purposes. **SE** The Navy may require a connection to installation EMCS in which EMCS overrides local thermostat controls. Exceptions to this rule will be considered on a case-by-case basis.

7-2.2.5.1 Design for temperature in all child activity areas to be 20 to 24 degrees C (68 to 75 degrees F) in the winter and 20 to 26 degrees C (68 to 78 degrees F) in the summer. Since children spend a great deal of time on the floor, temperature control is very important. Monitor temperature within 300 mm (12 in.) of the finished floor by means of a remote mounted bi-metallic thermometer. Use room thermostats that adjust accordingly to maintain the appropriate temperature as measured by the bi-metallic thermometer.

7-2.2.5.2 Design to maintain a minimum relative humidity of 35 during the heating season to prevent drying of mucous membranes and to control the spread of diseases. Design to maintain a maximum relative humidity of 50 percent during the cooling season. Limit humidity requirements to child activity areas only.

7-2.2.5.3 Provide thermostats 1370 mm (54 in.) above the floor. Incorporate night and weekend setback capability. The optimum temperature control is zoned and should be appropriately adjusted for different activity areas. For instance, infant areas may be more comfortable at a 1 to 3 degrees C (2 to 5 degrees F) warmer temperature than other areas. Consider this issue and make recommendations for the optimal solution to heating and cooling distribution at the concept development stage. Install thermostats accessible to the center director or other designated staff members.

7-2.2.6 Other Special HVAC Systems and Equipment. Consider noise level, service, and efficiency when locating equipment. Whenever possible, provide HVAC separate from the other building systems. Apart from other advantages, this will facilitate better filtration of the dust and molds that many children are particularly sensitive to. In addition to heating and cooling equipment, consider a humidifier/dehumidifier to meet required levels. Also note the following:

- Provide proper exhaust venting for range and clothes dryer.

- Install air diffusers that minimize drafts on children.
- Use non-chemical purifiers in childcare spaces serving non-toilet trained children and in toilets where air circulation is limited.
- Provide mechanical exhausts for all kitchens, food preparation spaces, toilets, diapering areas, and laundries. Install kitchen equipment and exhaust systems that meet the requirements of NFPA 96.

7-2.3 **Fire Protection.**

7-2.3.1 **Fire Safety Review.** Submit CDC projects for fire protection engineering review according to Table 7-4, below.


TABLE 7-4. CDC HEADQUARTERS FIRE SAFETY REVIEW REQUIREMENTS

Design Stage	Service's Reviewing Agencies		
	Navy	Air Force	Marine Corps
Preliminary Design	NAVFAC EFD/EFA Fire Protection Engineer	N/A	HQ (Fire and Safety)
35% Design	NAVFAC EFD/EFA Fire Protection Engineer	HQ AFCESA/CES	HQ (Fire and Safety)
65% Design	N/A	N/A	HQ (Fire and Safety)
95% Design	NAVFAC EFD/EFA Fire Protection Engineer	HQ AFCESA/CES	HQ (Fire and Safety)

7-2.3.2 **Fire Hydrants.** Provide at least one fire hydrant within 45 m (150 ft) of the fire department connection.

7-2.3.3 **Fire Separation.** Neither rated fire separations nor smoke barriers are required in a typical one-story CDC fully protected with an automatic sprinkler system and direct exits from each activity room except around the laundry room. Provide a one-hour fire resistive fire barrier around the laundry room. Exception: In cold climates where horizontal exiting is used see Section 7-2.3.7 below.

7-2.3.4 **Fire Extinguisher Cabinets.** If fire extinguishers are required, recess fire extinguisher cabinets.

7-2.3.5 **Fire Suppression Systems.** Provide complete automatic sprinkler systems according to NFPA 13 for all CDCs.  The Navy also requires that sprinkler systems be in accordance with MIL-HDBK 1008. Wet pipe sprinkler systems are the preferred system type because of the high reliability and low maintenance requirements. Take care to avoid freezing sprinkler pipes located in attic spaces. Portions of the sprinkler system subject to freezing may be pre-action sprinkler systems. Note the following criteria:

- Design the sprinkler system water flow indication to activate the building fire evacuation system.
- Discharge inspectors' test connections to a safe, outside location onto a hard surface outside of areas where children play or congregate. Show location on drawings.
- Use quick response type sprinkler heads.
- Make fire department connection accessible without entering or transiting a children's play area or crossing a discharge path.
- Provide a wet chemical or water spray hood duct and cooking surface fire extinguishing system according to NFPA 96.

7-2.3.6 **Fire Detection and Alarm System.** Provide an automatic fire detection and evacuation alarm system according to NFPA 72 and complying with the installation's requirements. Note the following requirements:

7-2.3.6.1 Locate the fire alarm control panel in an environmentally controlled location in the facility.

7-2.3.6.2 At a minimum, meet the following for circuits in the systems:

- Initiating circuits – Class B, Style C
- Notification circuits – Class A, Style Z
- Signaling Circuits – Class B, Style 3.5

7-2.3.6.3 Recommend using fully addressable control panels with addressable detectors, supervisory sensors, pull stations, notification devices and other devices.

7-2.3.6.4 Provide either textual audible devices or uncoded chimes. Use textual audible devices in the public areas and service areas listed for "fire alarm service, public mode" (75 dB(A) at 3050 mm (10 ft.)) and chimes in the public areas and service areas listed for "fire alarm service, private mode (45 dBA at 3050 mm (10 ft.)). Use textual audible devices and chimes in the activity rooms listed for "fire alarm service, private mode" (45 dBA at 3050 mm (10 ft.)). Loud and jarring devices, especially bells, horns, and klaxons, in activity rooms have been known to severely frighten young children causing them to hide or panic.

7-2.3.6.5 Provide visual notification devices/strobes.

7-2.3.6.6 Provide manual pull stations inside the facility at each exterior exit door.

7-2.3.6.7 Provide smoke detection in all areas including closets over 1.86 m² (20 ft.²) except the kitchen and spaces not climate controlled such as the attic, walk-in

coolers, and the mechanical equipment room. (Note: Heat detectors are not required in any area because the facility is fully sprinklered.)

7-2.3.6.8 Provide either a graphic or alphanumeric annunciator at the front desk or vestibule.

7-2.3.6.9 Provide and install a fire alarm transmitter compatible with the installation fire alarm receiving equipment to transmit fire alarm and system supervisory signals to the installation fire alarm reporting center. Consult with the installation Fire Chief or fire system maintenance activity. This may be a sole source item.

7-2.3.7 **Extreme Cold Weather.** If the facility location meets the criteria outlined in Section 2-15.2, provide for horizontal exiting within the facility according to NFPA 101. Note the following criteria:

7-2.3.7.1 Provide a two-hour area separation wall dividing the facility child activity areas roughly in half on either side of the wall. Locate the core administrative/support areas totally in one area or the other.

7-2.3.7.2 Design corridor/room doors in the two-hour area separation wall to recess into the wall providing a smooth continuous wall surface. Install magnetic latches to hold door open, which release when the fire evacuation signal sounds. Install swinging doors that swing in opposite directions.

7-2.3.7.3 Install magnetic latches to hold open other doors in the two-hour area separation wall that release when the fire evacuation signal sounds.

7-2.3.7.4 Seal and fire stop all penetrations of the two-hour separation wall for conduit, piping, HVAC and electric service to maintain the fire rating of the wall.

7-2.3.8 **Vestibules.** Where cold weather vestibules are provided at activity room exits and exits other than the primary entrance, use a non-latching type door held closed by a hydraulic door closer for inside door. Install panic egress hardware only on the exterior door.

7-2.4 **Electrical.** Provide electric service and distribution equipment, wiring receptacles and grounding, interior and exterior lighting and control, emergency lighting, telephone, communication systems, fire alarm, and intrusion systems according to NEC and the latest installation design requirements. See the latest edition of *Electric Current Abroad*, US Department of Commerce, to determine voltages and cycles in overseas locations. Ensure service grounding systems and all wiring methods meet the current National Electric Code (NEC) requirements. Use Underwriter's Laboratories (UL) listed service equipment. Alternately, provide published proof from an approved independent testing laboratory.

7-2.4.1 **Electrical Service and Distribution.**

7-2.4.1.1 Provide pad-mounted exterior transformers in dead front enclosures where necessary. Use PVC Schedule 40 for Secondary underground service.

7-2.4.1.2 Base service ampere capacity on the following minimum criteria for the building:

- Interior Lighting: 2.5 watts/92,900 mm² (1 ft.²)
- Receptacles: 1.0 watts/92,900 mm² (1 ft.²)
- Exterior Area Lighting: 0.1 watts/92,900 mm² (1 ft.²)

7-2.4.1.3 In general, provide wall duplex outlets or overseas equivalent, at approximately 2440 mm (8 ft.) on center. Provide one duplex outlet per wall on walls less than 2740 mm (9 ft.) long.

7-2.4.1.4 Provide duplex outlets in Child Activity Areas for items such as a small refrigerator, AV equipment, CCTV system, telephones, and computers for staff and children.

7-2.4.1.5 Provide special additional power needs for lobby/reception and staff spaces to support work equipment: appliances, office machines, time clock punch, vending machines, coffee makers, computers, video monitors, fire alarm panel, intercom, CCTV system, and telephones.

7-2.4.1.6 Provide for one clock outlet in each office, child activity space, kitchen, and building lobby. Synchronous clock systems are not required.

7-2.4.1.7 Provide electrical outlets or hard wired connections (as appropriate) in kitchen for microwave oven, range, garbage disposal, refrigerator, freezers, other appliances, and ordering computer as required.

7-2.4.1.8 Additionally, evaluate and include the following power needs to determine the electrical service capacity:

- HVAC system.
- Lighting.
- Plumbing Equipment.
- Food Service Equipment
- Laundry
- Other special equipment by user, and
- Consideration for expansion.

7-2.4.1.9 Locate outlets to eliminate the need for extension cords. In adult office areas, accomplish any electrical, telephone, or cable outlets provided for counter-top office equipment by outlets mounted 305 mm (12 in.) above the floor, with through-the-countertop grommets provided for cords. Use only grounding type receptacles. Provide ground-fault circuit-interrupter (GFCI) protection for all 120 volts AC receptacles installed in wet areas including kitchens, toilets and exterior receptacles. In laundry rooms provide GFCI only general use 120 volts receptacles, but not for fixed installation equipment. Provide dedicated circuits for cold storage, where applicable. Coordinate location of all equipment outlets. Note: Overseas facilities may not be 120 volts.

7-2.4.1.10 Locate all outlets accessible to children, including the corridors at a minimum height of 1370 mm (54 in.) above finished floor. In child accessible areas, including the corridors, install child safety type receptacles such as one that requires twisting the outer portion of the device to activate current and that also prevents a child from inserting any foreign object. Removable caps or plugs do not meet this requirement. Child accessible areas do not include offices, staff/training rooms, kitchen, laundry, storage, mechanical/electrical rooms, and janitor's closet. Do not locate receptacles adjacent to sinks in child activity rooms (including sinks at diaper changing stations). Consider the placement of cribs and the additional reach they provide the child occupant when locating wall outlets in the child activity rooms.

7-2.4.1.11 If required, mount receptacles in the vertical wall space between a counter-top and the cabinets above, within a child activity space, at less than 1370 mm (54 in.). At this location use duplex, 20 A, 120 V receptacles and locate at least 460 mm (18 in.) horizontally from the counter-top edge to assure that they are not easily accessible by children. For refrigerators, use child-safe receptacles mounted 460 mm (18 in.) above the floor in a location that will be blocked by an installed refrigerator. Use GFCI-protected receptacles within 1830 mm (72 in.) of a sink in the child activity areas.

7-2.4.2 **Lighting and Branch Wiring.**

7-2.4.2.1 **Lighting Levels.** Provide lighting levels according to the design criteria in the *Illuminating Engineering Society of North America (IESNA) Lighting Handbook*, except as shown in Table 7-5.

TABLE 7-5. LIGHTING REQUIREMENTS					
Location	Lux (ft. candle) Level	Multiple Switching	Dimming Requirement	Incandescent Bulbs	Fluorescent Bulbs
Corridors	215 (20)	Yes	No	Ambient	Accent
Lobby	320 (30)	Yes	No	Ambient	Accent (option)
Reception: Task Ambie nt	755 (70) 540 (50)	No	No	Either Ambient	Either No
Isolation	320 (30)	No	No	—	Ambient
Staff Offices/Staff Room	540 (50)	Yes	No	Ambient	—
Training Room	540 (50)	Yes	Yes	Ambient	—
Child Activity Rooms	540 (50)	Yes	No	Ambient	Ambient
Diapering	540 (50)	No	No	—	Task
Kitchen: Task Ambie nt	540 (50) 215 (20)	No Yes	No No	Task —	— Ambient
Toilets	320 (30)	No	No	Either	
Storage	320 (30)	No	No	Either	
Mech./ Elect. Rooms	215 (20)	No	No	—	Ambient
Exterior Walkways, Drives, Parking	54 (5)	No	No	—	—
General Outdoors	5.4 (0.5)	Automatic w/ manual override	No	—	—

7-2.4.2.2 **Dimming.** Provide dimming control according to Table 7-5.

7-2.4.2.3 **Light Quality.** Provide a mix of natural and artificial light in child activity rooms that can be adjusted by the staff to changing outside light levels and activities (e.g., naps). Where dimmer controls are used, provide lighting fixtures that do not oscillate visibly at low intensities. Consider a mix of indirect and overhead lighting in child activity spaces. Provide high shielding luminaires with a 30-degree cutoff angle for task light areas. Standard fluorescent are not desirable due to potential affects on children such as hyperactivity and seizures as a result of the flashing light. Preferred lights are energy conserving full-spectrum fluorescent, incandescent, and halogen lamps. If standard fluorescent lights are used, provide phase-shifted, high shielding fluorescent lamps. Do not specify narrow spectrum fluorescent bulbs.

- Provide adequate lighting in building entry spaces to permit gradual adaptation to outdoor/indoor lighting levels.
- Provide kitchens with color-corrected fluorescents that allow for an accurate assessment of food coloration.

7-2.4.2.4 **Fixtures.** Furnish fixtures with shatter-proof lenses.

7-2.4.2.5 **Controls.** Provide sufficient controls over the natural and artificial lighting sources to permit lighting flexibility by using a system such as any one of the following: multi-ballast switches, dimmer switches, track lighting, moveable light fixtures, etc. Use site baffles, roof overhangs, shades, etc. to control the natural light brightness ratios and eliminate glare. Control lateral differences in illumination, especially those created by strong side natural lighting in a child care space. Use sunshades, light attenuation devices, etc., and orient activity areas, work surfaces, and storage units so that lighting comes from behind most activities and children.

- Locate care room switches out of the reach of children, typically 1370 mm (54 in.) above finished floor.
- Rather than providing individual light switches to each room requiring lights within a care area, it is desirable to switch those rooms' lights with one or two single switches. Since minimum lighting levels are required at all times in all parts of the care area, it is possible to provide light switches controlling lighting in multiple areas. Confirm with an electrical engineer that the lighting design can be developed to accommodate this feature, especially when energy saving daylighting is used.

7-2.4.2.6 **Security Lighting.** Provide night security lighting at all exterior doors, within the lobby, and any areas where cash is stored that is visible from the outside.

7-2.4.2.7 **Emergency Lighting.** See [Section 2-15](#) and Section 7-2.3.

7-2.4.2.8 **Outdoor Lighting.** Provide for safe night visibility at all drives, parking lots, porches and walks according to Table 7-5. Do not light playgrounds unless nighttime play is required or anticipated. Provide parking areas and walkways with illumination by photoelectric cell-controlled circuits. Use solar powered exterior luminaires when they meet lighting requirements and are cost effective.

7-2.4.2.9 **Exit Signs.** Provide LED exit signs. See [Section 2-15](#) for more information.

7-2.4.3 **Communications and Security.**

7-2.4.3.1 **Telephone.** Provide telephones in kitchen, staff areas, reception, and each administration office. Do not provide public address (PA) systems. Provide adequate space and power for telephone equipment and telephone boards. Install telephone entrance service underground.

7-2.4.3.2 **Intercom.** Provide an internal, hands-free system that allows for individual room/area communication. The intent of such a system is for two-way communication rather than general announcements or music. The system provides communication between the remote and the main reception desk and may provide for communication between individual rooms. Locate system master panel at reception

desk. Locate system remotes in all child activity rooms, playgrounds, offices, staff areas, and kitchen.

- Mount remotes 1370 mm (54 in.) above finished floor or grade. Provide a variable volume control with a mean volume level of 15 dBA above ambient noise level at 3000 mm (10 ft.). Provide controls that allow private conversation.
- **SE** The Air Force requires a separate after-hours intercom system between the front entrance and the attending personnel.

7-2.4.3.3 **Communications Room.** See [Section 4-12](#) for information on the communications room.

7-2.4.3.4 **Fire Alarm.** See [Section 2-15](#) and Section 7-2.3.

7-2.4.3.5 **Building Security.** The purpose of designed security measures is to keep children safe within the center, to safeguard them from outside intruders, and to protect them from hazards to the fullest extent possible.

- Systems include equipment, base electrical power, and conduit as required. Design all security alarm systems to report to an alarm system or to a central monitoring station as an audible and visual alarm signal (or both). Install an audible device that is different from the fire alarm device.
- Provide mass notification capability according to AT/FP design criteria (see [Section 1-5](#)).

7-2.4.3.6 **Closed Circuit Television (CCTV).** **SE** Service requirements vary on CCTV systems for CDCs. Note the following criteria:

- **Navy.** Provide conduit (minimum 19 mm (.75 in.)) and cabling in all modules; locate central monitors at the main reception area. Use the conduit to accommodate government-furnished/government-installed, locally funded video equipment. This may require outlets higher in the ceilings, walls or both. Provide electrical service adjacent to anticipated location of cameras and monitors.
- **Air Force and Marine Corps.** Provide the entire CCTV system including cameras, monitors, conduit, cabling, power, and junction boxes for CCTV system.
 - o **Placement.** Place CCTV cameras in all child care areas so that complete and unobstructed surveillance of the areas is possible. CCTV camera placement for surveillance of outdoor play areas, while not required, is encouraged. Provide for CCTV monitors in the central administration reception area. Exact quantities,

locations, and types of CCTV cameras and monitors is project specific, so coordinate with the user.

- o **Size Requirements.** Provide .74 m² to 1.11 m² (8 ft.² to 12 ft.²) for CCTV recording and viewing equipment. Recording equipment is optional.
- o **System Selection.** Consider size of image, clarity of image, color of image, and distance to image on monitor during CCTV system selection. These issues all affect the design of the monitoring station. For example, if a split screen of nine images is color rather than black and white, the images may be discernible 1500 mm (5 ft.) away. But if the images are black and white, they may only be discernible from 900 mm (3 ft.) away. If the split screen has four-color images, it may be visible 2100 mm (7 ft.) away, and so on. Design the monitoring station with the specific CCTV system in mind to ensure effective usability.

7-3 **EQUIPMENT AND FURNISHINGS.** Table 7-6 provides a schedule of basic accessories for toilets and wet areas.

TABLE 7-6. ACCESSORY SCHEDULE

Fixture Type	Adult Toilets	Activity Room Child Toilets	Activity Rooms Lavatories	Diapering Counters	Activity Rooms Food Prep Counter	Isolation Room Toilet
Mirror	•		•			•
Paper Towel Dispenser	•		•	•	•	•
Trash Receptacle	•		•	•	•	•
Soap Dispenser	•		•	•	•	•
Coat Hook	•					
Sanitary Napkin Dispenser	•					
Toilet Tissue Dispenser	•	•				•
Handicap Grab Bars	•	•				•
Change Paper Dispenser				•		
Plastic Bag Dispenser with hands-free metal cover				•		•

7-3.1 **Trash.** Use metal trash receptacles with metal covers at diapering areas.

7-3.2 **Toilet.** Locate toddler and preschool age toilet room fixtures and accessories within a height range appropriate to the age group.

7-4 **BUILDING SITEWORK.**

7-4.1 **Site Preparation.** Position drainage slopes away from the building a minimum of 1:20, except areas designated to comply with provisions for the physically

handicapped. Do not exceed 1:3 for banks for transition from one area to another. Use a minimum slope of 2 percent for grass areas.

7-4.2 **Roadways.** Design two-way drives a minimum of 6.7 m (22 ft.) wide; design single lanes a minimum width of 3.7 m (12 ft.). For planning purposes, allow 29.3 m² (315 ft.²) of paving per car for circulation, parking, and drives, plus space for the drop-off.

APPENDIX A

POISONOUS AND NON-POISONOUS PLANTS

A-1 **POISONOUS AND NON-POISONOUS PLANTS.** Many popular house and garden plants are considered poisonous and can produce symptoms ranging from minor to severe. Table A-1 provides a non-comprehensive list of common plants that are known to be poisonous. Table A-2 provides a list of plants for which no evidence currently exists of a poisonous quality. These lists are provided by the Maryland Poison Center. Within the United States, check with local extensions of the US Department of Agriculture for more information about the nature of common plantings in specific locations. These lists are not intended to serve as a guide for plants to use or not use but are merely provided for informational purposes. See [Section 3-6](#) for more information on landscaping and plant selection. Refer to a comprehensive, commercial field guide for a complete lists of poisonous plants. Additional information can also be found at the Army web site: <http://chppm-www.apgea.army.mil/ento/plant.htm>.

TABLE A-1. COMMON POISONOUS PLANTS

Amaryllis	Jerusalem cherry
Azalea	Jimsonweed
Barberry	Jonquil
Black locust	Lily-of-the valley
Boxwood	Mistletoe
Caladium	Mountain laurel
Castor bean	Narcissus
Chinaberry	Nephthytis/Arrowhead
Chinese evergreen	Nightshade family
Chrysanthemum	Oak (acorns)
Crown of thorns	Peony
Daffodil	Philodendron family
Dumbcane/Dieffenbachia	Poison ivy/oak/sumac
English ivy	Pokeweed
Euonymous	Privet
Four o'clock	Rhododendron
Fruit pits or seeds	Snowball bush/Hydrangea
Gladiola	Water hemlock
Holly	Wisteria
Hyacinth	Yew
Iris	

**TABLE A-2. COMMON NON-POISONOUS
PLANTS**

African violet	Marigold
Christmas cactus	Mulberry (ripe berries only)
Coleus	Norfolk pine tree
Corn plant	Peperomia
Crocus	(spring) Petunia
Dandelion	Poinsettia*
Dogwood	Prayer plant
Dracaena	Pyracantha/Firethorn
Easter lily	Rose
Ferns	Rubber tree plant
Ficus*	Sansevieria/Snake plant
Forsythia	Scheffiera*
Fuchsia	Spider plant
Geranium	Swedish Ivy
Hibiscus	Tulip*
Honeysuckle	Wandering Jew
Impatiens	Wax plant
Jade plant	Wild strawberry/Snakeberry
Lilac	Zebra plant

* Sap may be irritating.

APPENDIX B

PROJECT FUNDING AND SUGGESTED COLLATERAL EQUIPMENT

B-1 PROJECT FUNDING.

B-1.1 **MILCON Funds.** Include all sitework, landscaping, building construction, outdoor storage buildings, and real property installed equipment as components of the project construction cost and are funded with Military Construction (MILCON) funds (see Table B-2).

B-1.1.1 **Outdoor Activity Area.** Outdoor activity area construction and equipment are MILCON funded, and are part of the project base bid. Do not consider playground equipment an additive bid item without guidance from the following Service contacts:

- Navy. NPC
- Air Force. HQ USAF/ILV.
- Marine Corps. HQ MCCA (MRY)

B-1.1.2 **Tables and Chairs.** Choose soft and comfortable adult seating in the infant and toddler activity rooms to provide a place where caregivers can nurture children. Child-scaled seating includes upholstered or exposed frame chairs or carpeted constructed seating. Choose upholstered chairs resistant to cigarette ignition. To avoid suffocation, do not use beanbags, cushions and pillows for infants. Scale tables and chairs to the child. Adjustable height tables are preferred. Provide at least one table per toddler and preschool age group with appropriate knee clearance for children in wheel-chairs, 600 mm (24 in.) above the finished floor by 600 mm deep by 750 mm wide (24 in. deep by 30 in. wide). Provide so top surface height is a maximum of 50 mm (2 in.) higher than knee clearance. Table B-1 provides child-scale dimensions for tables and chairs. See [Section 2-21](#) for more information on anthropometric dimensions.

TABLE B-1. CHILD-SCALE TABLE AND CHAIR DIMENSIONS

Child Age group	Tables		Chairs	
	mm	in.	mm	in.
Infant/Pre-toddlers*	300	12		
Toddlers	400	16	250	10
Preschoolers	500	20	300	12

* Infants and pre-toddlers require high-sided chairs.

B-1.1.3 **Appropriated Funds Equipment.** Table B-2 lists examples of equipment provided in a CDC and the appropriate funding source. Include only non-real property equipment as components of the project equipment cost. Consider non-real property equipment costs to be funded with Appropriated Funds (APF). Non-Appropriated Funds

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(NAF) will NOT be used for facilities construction or equipment items on CDC projects. For MILCON funded items, confirm with the following Service contacts:

- Navy. NPC PERS-659
- Air Force. HQ AVSVA/SV PAC
- Marine Corps. HQ USMC (MRY) and (MRD)

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TABLE B-2. EQUIPMENT AND FUND SOURCES

Equipment Item	MIL- CON ¹	APF ²	Equipment Item	MIL- CON ¹	APF ²
Kitchen Equipment			Admin/Staff/Support Equipment		
Walk-in Cold Storage	•		Intercom System	•	
Reach-in Refrigerator	•		CCTV Circuiting	•	
Reach-in Freezer	•		CCTV Monitor/Camera	•	
Ice Machine	•		Utility Systems	•	
Hand Sink	•		Int/Ext Signage	•	
Food Prep/Pot Sinks	•		Fire Ext Cabinet	•	
Hot/Cold Food Carts		•	Wall Clocks	•	
Range	•		Time Clocks		•
Braising Pan	•		Staff Lockers	•	
Baking Oven	•		Built-in Shelving	•	
Toaster		•	Moveable Shelving		•
Microwave Oven		•	Tackboard	•	
Milk Dispenser		•	Computers		•
Dishwasher	•		Cash Register		•
Dishwasher Hood	•		Desks and Chairs		•
Garbage Disposal	•		File Cabinets		•
Dishwasher Tables	•		Copier		•
Steamer	•		Telephone		•
Convection Oven	•		Telefax Machine		•
Jacketed Kettle	•		Lounge Seating		•
Exhaust Hood	•		Janitorial Cart		•
Ex Hood Fire Suppress	•		Child Development Area Equipment		
Food Mixer/Processor		•	Outdoor Playground	•	
Meat Slicer		•	Playground Storage	•	
Preparation Table	•		Cribs		•
Insect Control Equip	•		Compact Refrigerator	•	
Garbage Compactor		•	Toys		•
Electric Can Opener		•	Built-in Shelving	•	
Bussing Cart		•	Moveable Shelving		•
Built-in Shelving	•		Built-in Cubbies	•	
Mobile Shelving		•	Moveable Cubbies		•
Water Temp. Booster 82°C (180°F)	•		Display Boards	•	
Laundry Equipment			Dry Erase Boards	•	
Clothes Washer/Dryer	•		Wall Clocks	•	
Laundry Cart		•	Tables and Chairs		•
Laundry Sink	•		Cots and Mats		•
Built-in Counter	•				
Built-in Shelving	•				

¹ MILCON=Military Construction. Real property equipment, included as part of the construction costs

² APF EQ = Appropriated Fund Equipment, not included as part of the construction costs.

B-2 SUGGESTED COLLATERAL EQUIPMENT. The following equipment lists are suggested items, broken down by Service.

B-2.1 Navy.

B-2.1.1 Administrative Areas.

- File cabinet (4 drawers or 5 drawers)
- Office chair with arms, office desk, arm chair, typewriter(s)
- Time clock, safe
- Lounge table(s), Perry chair
- Lockers per/box, coat rack, magazine rack(s)
- Chair/table group(s), chair/couch group
- Color TV(s) ,VCR(s), TV cart(s)
- Clock
- Cash register, calculator, computer/printer
- Wastebasket
- Projection screen
- Film strip projector, slide projector, overhead projector
- Laminating machine
- Book shelves
- Credenza
- Microwave oven, refrigerator, vacuum cleaner, washers and dryers
- Video camera
- Storage unit, shelving units

B-2.1.2 Infant Room(s).

- Cribs/mattresses, crib sheets, blankets,

- Adult chairs with arms,
- Diaper/trash containers,
- Record player, record needles, tape player, music boxes
- Low shelves,
- High chairs,
- Table(s), cube/chairs,
- Infant climbers, pull toys, mobiles,
- Mirrors, banners, pictures/posters
- Clock, refrigerator,
- Air purifier,
- Diaper changing unit, diaper changing pads
- Bibs, sippy cups
- Activity boxes,
- Nesting /stacking toys,
- Record sets, tape sets,
- Puzzle racks, bins
- Pound boards, sorting boxes, balls,
- Books,
- Puppets,
- Area rug(s),
- Water play set,
- Smocks,
- Tactile materials, bristle blocks,
- Bye bye buggy.

B-2.1.3 Pre-Toddler Room(s).

- Cots, cot sheets, blankets,
- Toddler chairs, round tables, rectangular tables,
- Double sided, low shelving, book shelves
- Sand/water table,
- Climber playfoam,
- Art easels, art smocks, fence easels
- Play kitchen, play dishes, play food, play fruit, cultural food, cook set(s),
- Tricycles, bye bye buggy,
- Adult chairs with arms, couch/chair
- Trash containers,
- Record player, tape player, music boxes
- Sand toys, push pull toys, soft blocks
- Puzzles, interlocking manipulatives,
- Cars, trucks, dolls, doll carriages
- Mirrors, banners, pictures/posters
- Filing cabinet, clock, refrigerator,
- Air purifier,
- Diaper changing unit, diaper changing pads
- Activity boxes,
- Nesting/stacking toys,
- Sippy cups, Bibs
- Record sets, tape sets,
- Puzzle racks,

- Pound boards, sorting boxes, balls,
- Rhythm instruments,
- Cubbyholes, bins,
- Hats, dress ups
- Books,
- Puppets,
- Area rug(s),
- Water play set,
- Doll high chair(s), doll bed(s), doll house(s),
- Science set(s), aquarium(s), magnets, stethoscope(s), and kaleidoscopes
- Pegs, tactile materials, bristle blocks,
- Beads and lace

B-2.1.4 Toddler Room(s).

- Cots, cot sheets, blankets
- Toddler chairs, round tables, rectangular tables
- Double sided, low shelving, book shelves
- Sand/water table
- Climber playfoam
- Art easels, art smocks
- Play kitchen, play dishes, play food, play fruit, cultural food
- Tricycles, bye bye buggy
- Soft blocks
- Adult chairs with arms, couch/chair
- Trash containers

- Record player, tape player, music boxes
- Sand toys, push pull toys
- Puzzles, interlocking manipulatives
- Cars, trucks, dolls, doll carriages
- Mirrors, banners, pictures/posters
- Filing cabinet
- Fence easels
- Clock refrigerator, air purifier
- Diaper changing unit, diaper changing pads
- Bibs, sippy cups
- Activity boxes
- Nesting/stacking toys
- Record sets, tape sets
- Puzzle racks
- Pound boards, sorting boxes, balls
- Rhythm instruments
- Cubbyholes, bins
- Dress ups, hats
- Books
- Puppets
- Area rug(s)
- Water play set
- Doll high chair(s), doll bed(s), doll house(s)
- Cook set(s)

- Science set(s), aquarium(s), magnets, stethoscope(s), and kaleidoscopes
- Pegs, tactile materials, bristle blocks
- Beads and lace

B-2.1.5 **Preschool Room(s).**

- Cots, cot sheets, blankets
- Chairs, tables, couch/chair
- Double sided shelves, low shelving, book shelves
- Sand/water table, sand toys
- Art easels, art smocks
- Play kitchen, play dishes, play food, play fruit, cultural food
- Tricycles
- Workbench (s)
- Trash containers
- Record player, tape player
- Doll carriages, doll high chair(s), doll bed(s), doll house(s)
- Puzzles
- Cars, trucks, dolls
- Mirrors
- Clock, refrigerator
- Dress ups, hats
- Books
- 60 puppets
- Area rug(s)
- Woodwork set(s), water play set(s), cook set(s)

- Science set(s), aquarium(s), magnets, stethoscope(s), kaleidoscopes
- Pegs, tactile materials, bristle blocks
- Beads and lace
- Cubbyholes
- File cabinet
- Parachutes
- Playhouses, picnic tables

B-2.2 Air Force. Use child-scaled materials and equipment in the care areas, toilets, and other areas frequented by children. These child-scaled elements include climbing platforms, plumbing fixtures, mirrors, windows, drinking fountains, counters, cabinets, cubbies, furniture, and tack boards, etc. If adult-sized equipment is provided in care spaces that must be used by children, make provisions to accommodate this use. Use pre-manufactured items whenever appropriate. Use durable and easily cleaned materials for these items.

B-2.2.1 Reception.

- Built-in desks with lockable drawers and shelves, transaction counters for check-in, bill paying, etc.
- Lockable compact refrigerator for controlled medications
- File cabinets
- Personal computer(s)
- Cash register
- CCTV monitors in designed wall
- Intercom master controls
- Telephone
- Time clock

B-2.2.2 Offices.

- Desks, chairs
- File cabinets

- Personal computer
- Copy machine, Telefax machine (in Admin Workroom)
- Telephone
- Miscellaneous administrative equipment

B-2.2.3 Resource Lending Library.

- Bookshelves
- Audiovisual equipment storage
- Toy storage
- Miscellaneous resource/large equipment storage
- Supplies (paper, glue, etc.)

B-2.2.4 Isolation/Health Room/Toilet.

- Cot and/or porta-crib
- Storage for child's personal items
- Water closet, lavatory (hot and cold water), soap and towel dispenser, trash receptacle, mirror, grab bars (provide handicap items if used by visitors)

B-2.2.5 Staff Work Area/ Training Room/ Staff Room.

- Work counter with outlets
- Tables, chairs for training sessions
- Personal computer(s)
- Copy machine
- Scanner
- Lounge seating, table
- Telephone
- Coffee counter (base/wall cabinet w/sink)

- Microwave oven, refrigerator, coffee maker
- Rod and shelf for hanging garments
- Minimum one cubic foot for lockable staff personal storage
- Tack Board
- Shelving
- Wall clock

B-2.2.6 Infant/Pre-Toddler Rooms.

- Cribs and evacuation cribs
- Compact refrigerator (consider above counter for ease of access)
- Infant swings
- Child height tables and chairs
- Adult rocking chair
- Trash receptacle (metal receptacle with a metal cover shall be specified at diapering area)
- Plastic bag dispenser
- Towel dispenser
- Diaper changing paper/dispenser
- Soiled laundry container
- Child height shelving/toy storage
- Adult height shelving
- Tackboard/tackstrips
- Water/sand table
- Tape and/or CD player
- Wall clock
- Diaper bag storage/cubbies

- Moveable, low, soft barrier around crawl area
- Railing (handhold for walking)

B-2.2.7 Toddler Activity Rooms.

- Child height tables and chairs
- Low book display units and shelves
- CD, tape and/or record player
- Tackboards/chalkboards/tack strips
- Low equipment storage units
- Trash receptacle (metal receptacle with a metal cover shall be specified at diapering areas)
- Easels
- Cubbies
- Water/sand table
- Tool and instrument pegboards
- Low and open shelving
- Wall clock

B-2.2.8 Laundry Room.

- Washer(s), commercial or light commercial grade (1 per 100 children)
- Dryer(s), commercial or light commercial grade (1 per 100 children)
- Folding counter (minimum 4 feet long)
- Utility Sink (with hot and cold water)
- Securable storage cabinet for laundry supplies
- Laundry cart(s)

B-2.2.9 Janitorial.

- Shelving (minimum 20 lf)

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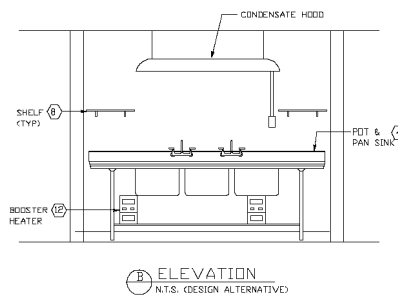
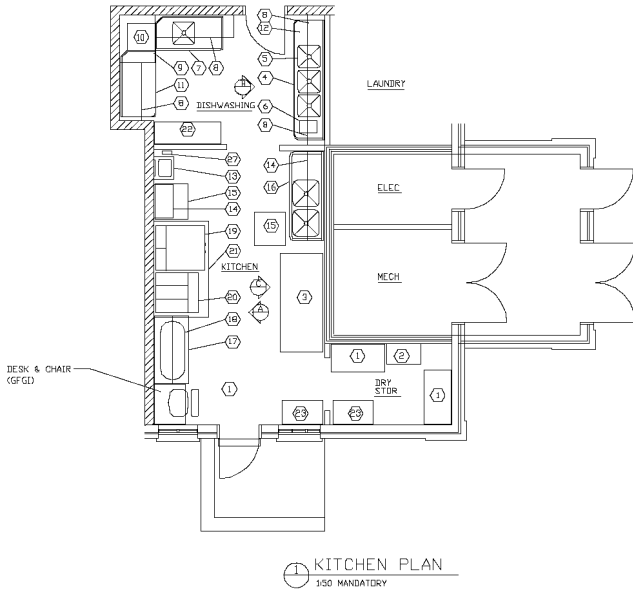
- Mop sink (with hot and cold water)
- Janitor's cart (approximately 12 sf)
- Mop/broom wall rack
- Mops, buckets, brooms, vacuum cleaners

APPENDIX C

SAMPLE KITCHEN LAYOUTS AND EQUIPMENT

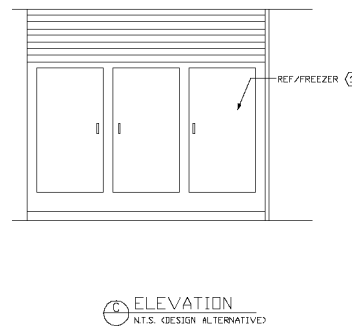
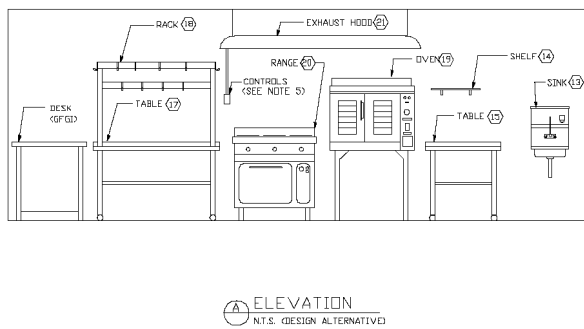
C-1 ARMY DESIGNS. The following designs and equipment schedules are from the Army's standard design packages and are representative sizes for small, medium and large CDC kitchen facilities.

C-1.1 Small CDC.



KITCHEN EQUIPMENT LEGEND
MANDATORY

- 1 SHELVING, MOBILE
- 2 SHELVING, MOBILE
- 3 REFRIGERATOR/FREEZER, REACH-IN
- 4 SINK, POT AND PAN
- 5 HOOD, CONDENSATER
- 6 HEATER, BOOSTER
- 7 DISHWASH, SOILED
- 7A SPRAY ASSEMBLY
- 7B GARBAGE DISPOSAL MACHINE
- 8 SHELF, WALL MOUNTED
- 9 HOOD, CONDENSATE
- 10 DISHWASHING MACHINE
- 11 DISHWASH, CLEAN
- 12 HEATER, BOOSTER
- 13 SINK, LAVATORY
- 14 SHELF, WALL MOUNTED
- 15 TABLE, MOBILE
- 16 SINK, VEGETABLE PREPARATION
- 17 TABLE, MOBILE
- 18 RACK, UTENSILS
- 19 OVEN
- 20 RANGE
- 21 HOOD, EXHAUST
- 22 TRUCK, SHELF
- 23 TRUCK, UTILITY
- 24 OPENER (NOT SHOWN)
- 25 TOASTER (NOT SHOWN)
- 26 AIR CURTAIN FLY CONTROL MACHINES
- 27 PAPER TOWEL DISPENSER

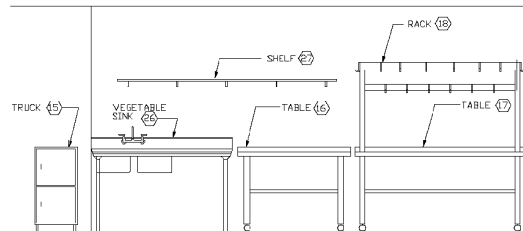
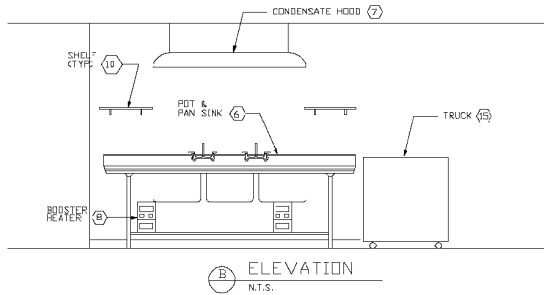
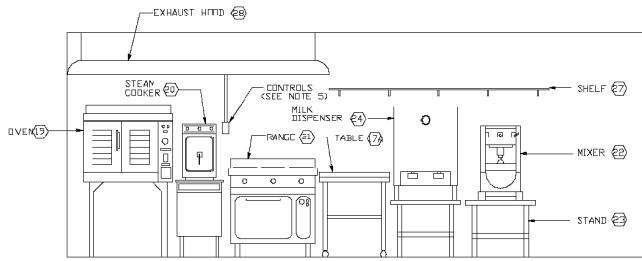
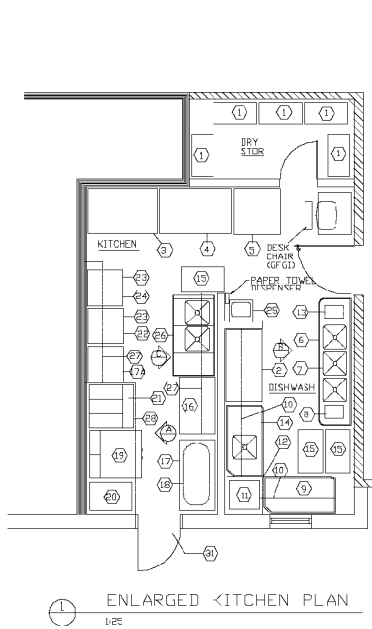


DESIGNER NOTES:

1. Kitchen equipment schedules are found in the supplemental booklets provided with the drawings.
2. Exterior kitchen door is 1050 mm x 2100 mm to facilitate movement of kitchen equipment into the facility.
3. Some of the trucks and tables are mobile type and will be used in other locations than shown. Location as shown is to indicate storage during non operating hours.
4. TB Med 530 allows chemical sanitizing of pots & pans. If this method is selected, the booster heater and condensate hood over pots and pans can be eliminated.
5. Control for exhaust hood shall be installed in accordance with manufacturers recommendation and within reach of kitchen staff.
6. All stainless steel kitchen equipment must meet the National Sanitation Foundation (NSF) standard of practice.
7. Ensure the refrigerators and freezer used in this facility are charged with a NON-CFC refrigerant which include R-22, R-134a and R-123.

ALL DIMENSIONS ARE IN MILLIMETERS
(MM) UNLESS OTHERWISE NOTED

C-1.2 Medium CDC.



KITCHEN LEGEND - 145

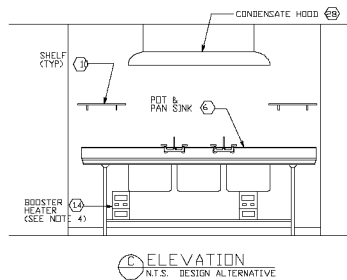
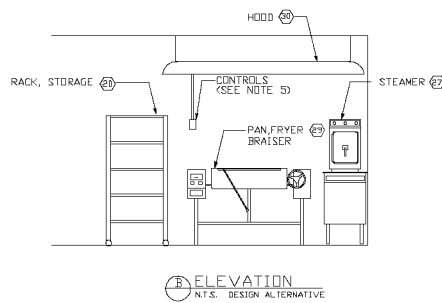
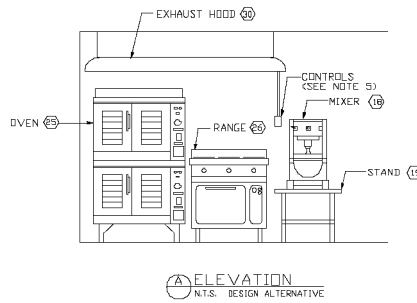
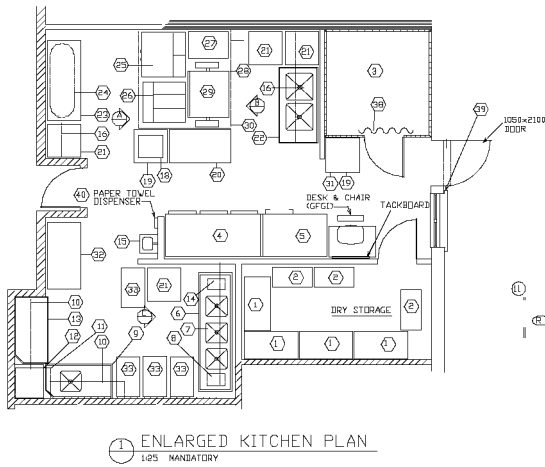
- 1) SHELVING, MOBILE
- 2) TRUCK, STORAGE
- 3) FROZEN FOOD CABINET
- 4) REFRIGERATOR, REACH-IN
- 5) REFRIGERATOR, REACH-IN
- 6) SINK, POT AND PAN
- 7) HOOD, CONDENSATE
- 8) HEATER, BOOSTER
- 9) DISHTABLE, SOILED
- 10) GARBAGE DISPOSAL MACHINE
- 11) SPRAY ASSEMBLY
- 12) SHELF, WALL MOUNTED
- 13) DISHWASHING MACHINE
- 14) HOOD, CONDENSATE
- 15) HEATER, BOOSTER
- 16) DISHTABLE, CLEAN
- 17) TRUCK
- 18) TABLE, MOBILE
- 19) TABLE, MOBILE
- 20) TABLE, MOBILE
- 21) RACK, UTENSILS
- 22) OVEN
- 23) COOKER, STEAM
- 24) RANGE
- 25) MIXING MACHINE
- 26) STAND
- 27) DISPENSER, BULK MILK
- 28) SINK, LAVATORY
- 29) SINK, VEGETABLE PREPARATION
- 30) SHELF, WALL MOUNTED
- 31) HOOD, EXHAUST
- 32) OPENER (NOT SHOWN)
- 33) TOASTER (NOT SHOWN)
- 34) AIR CURTAIN FLY CONTROL MACHINE

DESIGNER NOTES

1. Kitchen equipment schedules are found in the supplemental booklet provided with the drawings.
2. The kitchen door is 800 X 2100 (3'-6" x 7'-0") to facilitate movement of kitchen equipment into the facility.
3. Some of the trucks and tables are mobile type and will be used in other locations than shown. Location as shown is to indicate storage during non operating hours.
4. TB Mod 530 allows chemical sanitizing of pots & pans. If this method is selected, the booster heater and condensate hood over pots and pans can be eliminated.
5. Controls for exhaust hood shall be installed in accordance with manufacturer's recommendation & within reach of the kitchen staff.
6. Ensure the refrigerators and freezer used in the facility are changed with a NON-ODP refrigerant which include R-22, R-134a and R-123.

ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED

C-1.3 Large CDC.



KITCHEN EQUIPMENT LEGEND - 244

MANDATORY

- ① SHELVING, MOBILE
- ② SHELVING, MOBILE
- ③ REFRIGERATOR, WALK-IN
- ④ FROZEN FOOD CABINET
- ⑤ REFRIGERATOR, REACH-IN
- ⑥ SINK, POT AND PAN
- ⑦ HOOD, CONDENSATE
- ⑧ HEATER, BOOSTER
- ⑨ DISHTABLE, SCILED
- ⑩ SPRAY ASSEMBLY
- ⑪ GARBAGE DISPOSAL MACHINE
- ⑫ SHELF, WALL MOUNTED
- ⑬ HOOD, CONDENSATE
- ⑭ DISHWASHING MACHINE
- ⑮ DISHTABLE, CLEAN
- ⑯ HEATER, BOOSTER
- ⑰ SINK, LAVATORY
- ⑱ SHELF, WALL MOUNTED
- ⑲ NOT USED
- ⑳ MIXING MACHINE
- ㉑ STAND
- ㉒ RACK, STORAGE
- ㉓ TABLE, MOBILE
- ㉔ SINK, VEGETABLE PREPARATION
- ㉕ TABLE, MOBILE
- ㉖ RACK, UTENSILS
- ㉗ OVEN
- ㉘ RANGE
- ㉙ COOKER, STEAMER
- ㉚ HOOD, CONDENSATE
- ㉛ PAN, FRYING-BRAISING
- ㉜ FAUCET
- ㉝ HOOD, EXHAUST
- ㉞ DISPENSER, BULK MILK
- ㉟ TRUCK, STORAGE
- ⓫ TRUCK, UTILITY
- ⓬ OPENER, (NOT SHOWN)
- ⓭ TOASTER, (NOT SHOWN)
- ⓮ MEAT SLICING MACHINE, (NOT SHOWN)
- ⓯ SCALE, (NOT SHOWN)
- ⓰ BODYPWAY CLOSURES
- ⓱ AIR CURTAIN FLY CONTROL MACHINES
- ⓲ PAPER TOWEL DISPENSER

DESIGNER NOTES:

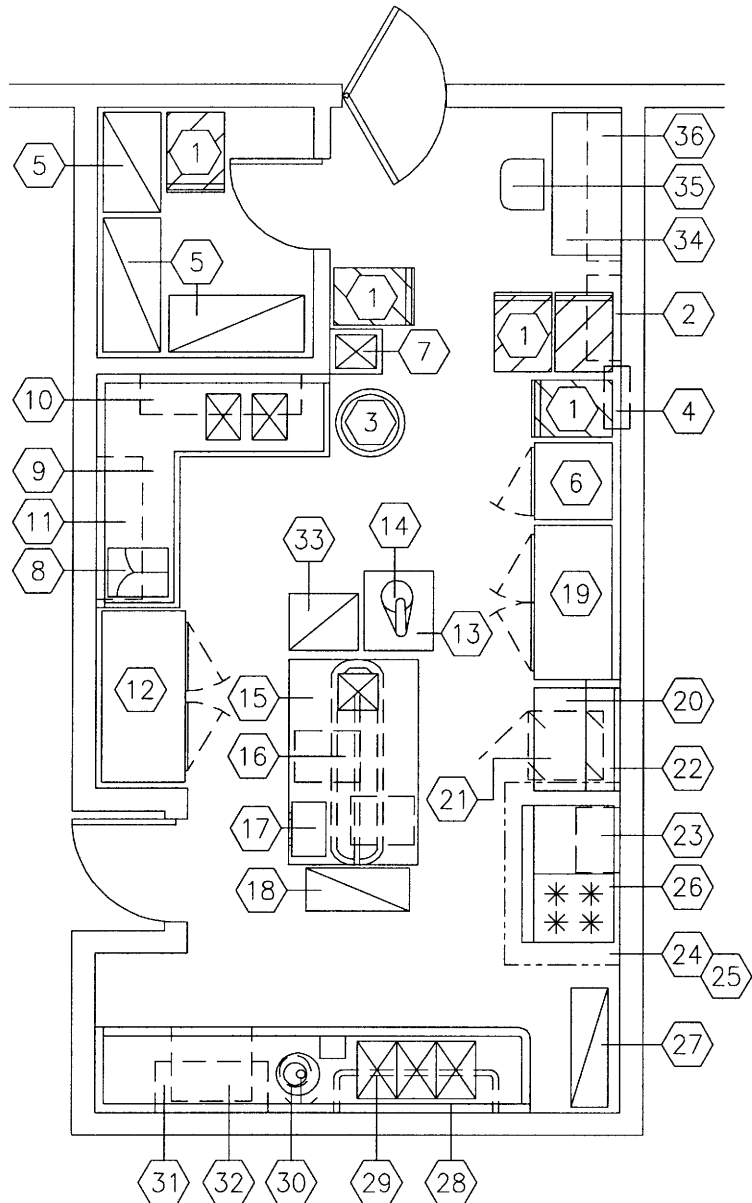
1. Kitchen equipment schedule are found in the supplemental booklet provided with the drawings.
2. Exterior kitchen door is 1000 mm x 2100 mm to facilitate movement of kitchen equipment into the facility.
3. Some of the trucks and tables are mobile type and will be used in other locations than shown. Location as shown is to indicate storage during non operating hours.
4. TB Med 530 allows chemical sanitizing of pots & pans. If this method is selected, the booster heater and condensate hood over pots and pans can be eliminated.
5. Control for exhaust hood shall be installed in accordance with manufacturer's recommendation and within reach of kitchen staff.
6. All stainless steel kitchen equipment must meet the National Sanitation Foundation (NSF) standards of practice.
7. Ensure that refrigerators and freezers used in this facility are charged with a NON-COP Refrigerant which include R-22, R-134a and R-123.

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

C-2 NAVY DESIGNS. The following are Navy-produced sample layouts for small, medium and large kitchens and corresponding equipment lists. The kitchen should be designed by a qualified kitchen designer. Note that the drawings are not to scale.

C-2.1 Small CDC.

1. Food delivery utility carts (NSF approved or equivalent standards), with three shelves (minimum shelf size 18 in. x 26 in.) and overall maximum height of 34 in.
2. Stainless steel wall shelf over food delivery utility carts (12 in. deep)
3. Trash receptacle (minimum 44 gallons) on mobile trash receptacle dollie
4. Fire protection system panel
5. Stationary shelving units (NSF approved or equivalent standards) for dry storage
6. Reach-in freezer, single door (19 cubic feet minimum)
7. Hand sink, wall mounted with support brackets
8. Slicer (NSF approved or equivalent standards)
9. "L" shaped food preparation stainless steel work table with turned-up rolled rim edges, 6 in. high back splash, drain boards, work sinks
10. Stainless steel wall shelf over prep work sinks
11. Stainless steel wall shelf over prep work surface
12. Reach-in refrigerator, two door (46 cubic feet minimum) for snacks
13. Mobile stainless steel mixer stand
14. Mixer, 12 quart (NSF approved or equivalent standards)
15. Cook's and snack preparation island stainless steel work table with counter work sink, undershelf, double sided over shelf
16. Ceiling mounted pot rack
17. Bulk milk dispenser with two 6 gallon single service containers, NSF approved or equivalent standards (optional)
18. Shelving unit (NSF approved or equivalent standards) for service



dishes

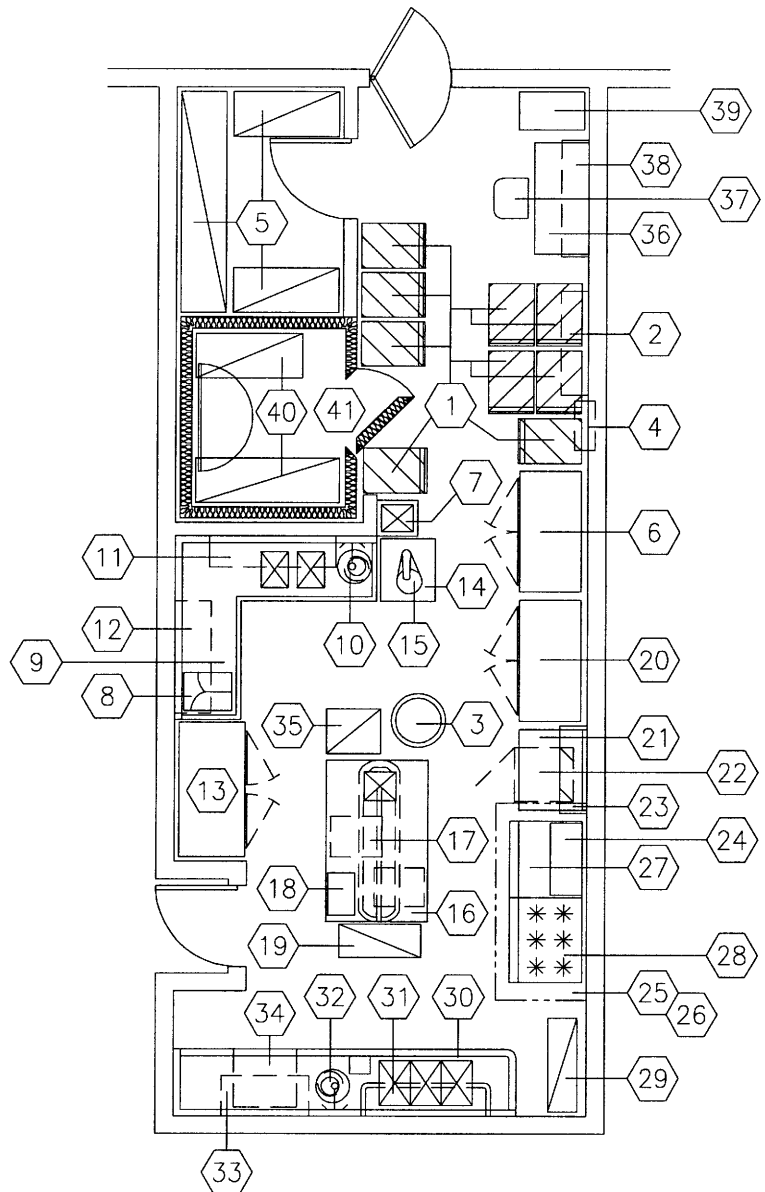
19. Shelving unit (NSF approved or equivalent standards) for service dishes
20. Reach-in refrigerator, two door (46 cubic feet minimum)
21. Stainless steel work table with cross bracing on back and sides
22. Mobile food warmer with universal rack slides and maximum height of 34¼ in. (NSF approved or equivalent standards)
23. Stainless steel shelf over cook's work table for spices, utensils and miscellaneous items
24. Stainless steel wall shelf over the griddle for spices, utensils and miscellaneous items (may be part of restaurant range)
25. Exhaust hood, low volume high velocity (remote make-up air, if necessary)
26. Fire protection system, either water mist or wet chemical agent
27. Restaurant range (4 ft. left of right) with convection oven base and cooking surface consisting of four burners and 2 ft. wide griddle
28. Shelving unit (NSF approved or equivalent standards) for clean pots and pans
29. Pot and pan and warewashing stainless steel table with turned-up rolled rim edges, 10 in. high back splash, three pot and pan washing sinks, drain boards, drain board mounted garbage disposal, vacuum breaker and open base with legs and cross bracing
30. Stainless steel wall mounted pot rack and shelf
31. Garbage disposal with back splash mounted pre-rinse
32. Wall mounted stainless steel dish rack shelf (42 in. left to right minimum)
33. Under counter dish washer (NSF approved or equivalent standards)
34. Stainless steel shelving unit (NSF approved or equivalent standards) for clean dishes, pitchers,

cups

35. Office desk, single pedestal
36. Office chair
37. Wall shelf over desk

C-2.2 Medium CDC.

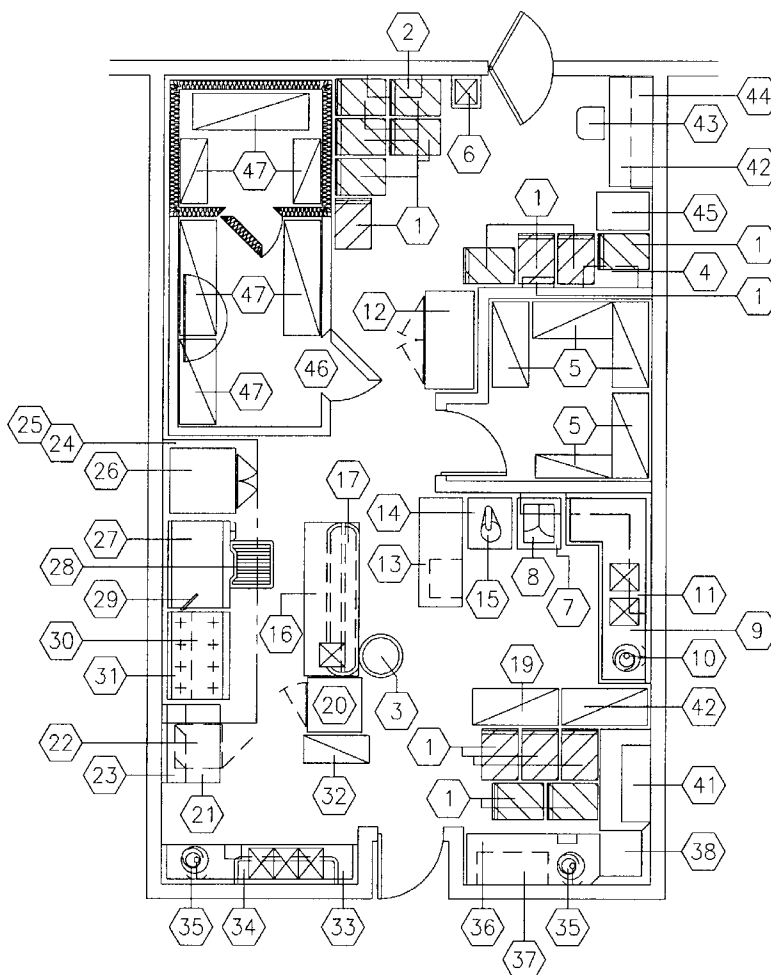
1. Food delivery utility carts (NSF approved or equivalent standards), with three shelves (minimum shelf size 18 in. x 26 in.) and overall maximum height of 34 in.
2. Stainless steel wall shelf over food delivery utility carts (12 in. deep)
3. Trash receptacle (minimum 44 gallons) on mobile trash receptacle dollie
4. Fire protection system panel
5. Stationary shelving units (NSF approved or equivalent standards) for dry storage
6. Reach-in freezer, double door (46 cubic feet minimum)
7. Hand sink, wall mounted with support brackets
8. Slicer (NSF approved or equivalent standards)
9. "L" shaped food preparation stainless steel work table with turned-up rolled rim edges, 6 in. high back splash, drain boards, work sinks, drain board mounted cone for garbage disposal and vacuum breaker
10. Garbage disposal, control panel and back splash mounted pre-rinse
11. Stainless steel wall shelf over prep work sinks
12. Stainless steel wall shelf over prep work surface
13. Reach-in refrigerator, two door (46 cubic feet minimum) for prepared snacks
14. Mobile stainless steel mixer stand
15. Mixer, 12 quart (NSF approved or equivalent standards)
16. Cook's and snack preparation island stainless steel work table with counter work sink, undershelf, double sided over shelf
17. Ceiling mounted pot rack
18. Bulk milk dispenser with three 6 gallon single service containers, NSF approved or equivalent standards (optional)
19. Shelving unit (NSF approved or equivalent standards) for serving dishes
20. Dual temperature reach-in refrigerator/freezer with two full length doors (each section 19 cubic feet minimum)
21. Stainless steel work table with cross bracing on back and sides
22. Mobile food warmer with universal rack slides and maximum height of 34¼ in. (NSF approved or equivalent standards)
23. Stainless steel shelf over cook's work table for spices, utensils and miscellaneous items



24. Stainless steel wall shelf over the griddle for spices, utensils and miscellaneous items (may be range option item)
25. Exhaust hood, low volume high velocity (remote make-up air, if necessary)
26. Fire protection system, either water mist or wet chemical agent
27. Griddle (3 ft. left to right) with convection oven
28. Six burner range (3 ft. left to right) with convection oven base
29. Shelving unit (NSF approved or equivalent standards) for clean pots and pans
30. Pot and pan and warewashing stainless steel table with turned-up rolled rim edges, 10 in. high back splash, three pot and pan washing sinks, drain boards, drain board mounted garbage disposal, vacuum breaker and open base with legs and cross bracing
31. Stainless steel wall mounted pot rack and shelf
32. Garbage disposal with back splash mounted pre-rinse
33. Wall mounted stainless steel dish rack shelf (42 in. left to right minimum)
34. Under counter dish washer (NSF approved or equivalent standards)
35. Stainless steel shelving unit (NSF approved or equivalent standards) for clean dishes
36. Office desk, single pedestal
37. Office chair
38. Wall shelf over desk
39. Vertical file, four drawer
40. Mobile shelving units (NSF approved or equivalent standards) for walk-in refrigerator
41. Walk-in refrigerator and medium temperature refrigeration system

C-2.3 Large CDC.

1. Food delivery utility carts (NSF approved or equivalent standards), with three shelves (minimum shelf size 18 in. x 26 in.) and overall maximum height of 34 in.
2. Stainless steel wall shelf over food delivery utility carts (12 in. deep)
3. Trash receptacle (minimum 44 gallons) on mobile trash receptacle dollie
4. Fire protection system panel
5. Stationary shelving units (NSF approved or equivalent standards) for dry storage
6. Hand sink, wall mounted with support brackets
7. Mobile, stainless steel slicer stand
8. Slicer (NSF approved or equivalent standards)
9. "L" shaped food preparation stainless steel work table with turned-up rolled rim edges, 6 in. high back splash, drain boards, work sinks, drain board mounted cone for garbage disposal and vacuum breaker
10. Garbage disposal, control panel and back splash mounted pre-rinse
11. "L" shaped stainless steel wall shelf over prep work sinks and drain board
12. Reach-in refrigerator, two door (46 cubic feet minimum) for prepared snacks
13. Mobile stainless snack work table with utensil drawer, undershelf and locking casters
14. Mobile, stainless mixer stand
15. Mixer, 20 quart, bench model (NSF approved or equivalent standards)
16. Cook's island stainless steel work table with counter work sink, utensil drawer, undershelf, double sided over shelf
17. Ceiling mounted pot rack
18. Bulk milk dispenser with four 6 gallon single service containers, NSF approved or equivalent standards (optional, not shown on drawing)
19. Shelving unit (NSF approved or equivalent standards) for serving dishes
20. Single selection, dual temperature reach-in refrigerator/freezer with two half length doors (each section 9 cubic feet minimum)
21. Stainless steel work table with cross bracing on back and sides
22. Mobile food warmer with universal rack slides and maximum height of 34¼ in. (NSF approved or equivalent standards)
23. Stainless steel shelf over cook's work table for spices, utensils and miscellaneous items
24. Exhaust hood, low volume high velocity (remote makeup air, if necessary)
25. Fire protection system, either water mist or wet chemical agent



26. Double full size convection ovens with cook and hold feature and glass doors
27. Tilting griddle/brazing pan (with 43 in. × 24 in. typical cooking surface)
28. Stainless steel floor trough for tilting griddle/brazing pan
29. Pot filler faucet. Mounted on the wall or as an option with tilting griddle/brazing pan
30. Eight burner range (4 ft. left to right) with convention oven base
31. Stainless steel wall shelf over the range for spices, utensils, and miscellaneous items (may be a range option item)
32. Shelving unit (NSF approved or equivalent standards) for clean pots and pans
33. Pot and pan and warewashing stainless steel table with turned-up rolled rim edges, 10 in. high back splash, three pot and pan washing sinks, drain boards, drain board mounted garbage disposal, vacuum breaker and open base with legs and cross bracing
34. Stainless steel wall mounted pot rack and shelf
35. Garbage disposal, control panel and back splash mounted pre-rinse
36. Soiled dish table with cone/drain board mounted garbage disposal and open base
37. Wall mounted stainless steel dish rack shelf over soiled dish table (42 in. left to right minimum)
38. Corner dish washer with booster heater (NSF approved or equivalent standards)
39. Clean dish table with open base
40. Wall mounted stainless steel dish rack shelf over clean dish table (42 in. left to right minimum)
41. Stainless steel shelving unit (NSF approved or equivalent standards) for clean dishes
42. Office desk, double pedestal
43. Office chair
44. Wall shelf over desk
45. Vertical file, four drawer
46. Combined walk-in refrigeration/freezer unit with medium and low temperature refrigeration systems
47. Mobile shelving units (NSF approved or equivalent standards) for walk-in refrigerator and freezer

APPENDIX D**GLOSSARY.**

- ADA.** Americans with Disabilities Act, Department of Justice, Office of the Attorney General.
- ADAAG.** Americans with Disabilities Act Architectural Guidelines, Department of Justice, Office of the Attorney General.
- AEI.** Architectural and Engineering Instructions.
- AFA.** Actual Floor Area: The number of square feet or meters required as measured from the inside face of walls, partitions, doors, and glazing. AFA includes area required for built-in case goods, fixtures, and equipment.
- AFCEE.** Air Force Center for Environmental Excellence.
- AFCESA.** Air Force Civil Engineer Support Agency
- AFI.** Air Force Instruction.
- AFSVA.** Air Force Services Agency.
- AIA.** American Institute of Architects.
- ASTM.** American Society for Testing and Materials. The organization that develops standards and provides related information on characteristics and performance of materials, products, systems, and services.
- ATFP.** Anti-Terrorism Force Protection.
- BEAP.** (Military) Base Exterior Architectural Plan.
- BUPERS.** See Navy Personnel Command.
- Capacity.** Also **Operational Capacity**. The total number of children that may be cared for at any one time. See also **Group** and **Ratio**.
- Caregiver.** Individuals providing direct care services to children in CDCs. The term, as used in this document, does not denote level of education, training, or staff status. Caregivers include head teachers, assistant teachers, aides, and all others who interact with children on a routine basis for a major part of each day.
- Caring for our Children: The National Health and Safety Performance Standards: Guidelines for Out-of-Home Child Care Programs.**
- CCTV.** Closed circuit television.
- CDC.** Child Development Center.
- CDH.** Child Development Home.
- CDPA.** Child Development Program Assistant.
- CDS.** Child Development Services.

Children's Activity Rooms. The architecturally defined areas in which care is provided for each group of children.

CNO. Chief of Naval Operations.

CPSC. US Consumer Product Safety Commission.

dBA. Decibels. A unit of measurement for the relative intensity of sound. From 0 (barely perceptible) to 130 (painfully loud), on average.

Dead End Corridor. A portion of the egress corridor which does not lead to an exit and which would require an occupant to retrace his or her steps to reach a safe exit in an emergency. The maximum allowable length is regulated by applicable codes.

DM. Design Manual.

DoD. Department of Defense.

EFA. Engineering Field Activity.

EFD. Engineering Field Division.

EMCS. Energy management and control system.

EPA. Environmental Protection Agency.

FADS. Fire alarm and smoke detection system.

FCC. Family child care.

FED-STD. Federal standard.

GFA. Gross Floor Area: The total area of all floors of a building including main building lobbies, elevator shafts, egress stairwells and exterior partitions measured to the exterior side of the exterior wall.

GFCI. Ground-Fault Circuit Interrupter

Group. The maximum number of children, as determined by age group, who are cared for in the same self-contained activity room. See also **Capacity** and **Ratio**.

HUD. Department of Housing and Urban Development.

HVAC. Heating, ventilating, and air conditioning.

ILE. Air Force Installations and Logistics, Engineering

ILV. Air Force Installations and Logistics, Services

Infant. A child 6 weeks through 12 months of age.

MAJCOM. Air Force Major Command.

MACOM. Army Major Command.

MCO. Marine Corps Order.

MILCON. Military construction.

MIL-HDBK. Military handbook.

Mixed-age Group. A group of children in a child development program drawn from more than one age group.

NAVFAC or NAVFACENGCOM. Naval Facilities Engineering Command.

NAEYC. National Association for the Education of Young Children: A professional organization of early childhood specialists concerned with the care and development of children. The national accrediting agency for quality early childhood programs.

NFPA. National Fire Protection Association.

NFA. Net Floor Area: The amount of occupiable space to accommodate a space requirement.

NPC PM. Navy Personnel Command Program Manager

OPNAV. Chief of Naval Operations.

Outdoor Activity Area. The Outdoor Activity Area is the exterior, fenced space adjacent to the building that provides for supervised outdoor play activities for the child occupants of the building. It is not simply a place for “recess” but is designed to support a program of activities and be conducive to creative play. It serves as an extension of the interior activity room space.

PA. Public address.

Parents. For the purposes of this UFC, “parent” is understood to include legal guardians responsible for a child.

Playground. Playground may refer to the age-appropriate areas within the outdoor activity area. The outdoor activity area is divided into at least three play areas: one for infants, one for toddlers, and one for Preschoolers. Pre-toddlers will use the infant play area or the toddler play area, as appropriate. The term playground may also refer generically to the outdoor activity area or any of its components.

Preschool Child. A child who is 3 to 5 years old and who does not attend kindergarten or a higher grade.

Pre-toddler. A child between the ages of 12 through 24 months. This age group may also be classified as toddlers, but in this document the category has been broken down into pre-toddler (ages one to two) and toddler (ages two to three). (See Toddler.)

Primary Caregiver. Principal person identified to be responsible for an assigned group of children.

RAMP. Requirements and Management Plan.

Ratio. The ratio of caregivers to children, i.e., the number of children one caregiver may be responsible for, varying by age of children. See also **Group and Capacity**.

R&R. Resource and referral.

RCCC. Navy Regional Child Care Center Coordinator

School-age Child. A child who is six years of age or older or who attends kindergarten or higher.

SPS. Special (or supplemental) programs and services.

STC. Sound Transmission Class. A sound rating for walls and partitions.

Toddler. A child between the ages of 24 and 36 months. Children as young as 12 month old may also be classified as toddlers, but in this document the category has been broken down into pre-toddler (12 – 24 months) and toddler (24 – 36 months). (See Pre-toddler.)

Toilet. This refers to the room or space and includes both the water closet and the lavatory (sink and counter)

UAS. Uninterrupted Activity Space. UAS is defined as space in a care area used exclusively for activity. It excludes all fixed equipment and furnishings (i.e. the diaper changing station, the food preparation station, the toileting areas, storage areas, etc.) and any dedicated circulation space.

UFAS. Uniform Federal Accessibility Standards.

USDA. United States Department of Agriculture.

USDA CACFP. United States Department of Agriculture and Child and Adult Care Food Program. Guidelines on food preparation, nutritional requirements, and kitchen and storage areas.

APPENDIX E

REFERENCES

GOVERNMENT PUBLICATIONS

1. Naval Facilities Engineering Command (NAVFAC)
Engineering Innovation and Criteria Office (EICO)
1510 Gilbert Street
Norfolk, VA 23511

www.efdlant.navfac.navy.mil/criteria

MIL-HDBK-1008

ITG Design Energy Target Reductions

2. Department of Defense (DOD)

<http://www.dtic.mil/whs/directives/>

Interim DOD
Antiterrorism/Force
Protection (AT/FP)
Construction Standards,
December 1999

DOD Antiterrorism
Construction Standards,
December 2001

DODI 6060.2, Child
Development Programs
(Cdps)

3. National Archives and Records Administration
700 Pennsylvania Avenue, N.W.
Washington, D.C. 20408
1-866-325-7208
<http://www.access.gpo.gov/nara/nara005.html>

Public Law 104-106, (10
USC 88) Military Family Act
and Military Child Care Act,
Feb 10, 1996

Public Law 104-113 (15 USC
272) Technology Transfer
and Advancement Act.

Public Law 90-480 (42 USC
4151 - 4157) Architectural
Barriers Act of 1968

Public Law 102-575, (16
USC 470) National Historic
Preservation Act of 1966, as
amended

American Disabilities Act

<http://www.access-board.gov/adaag/html/adaag.htm>

**UFC 4-740-14
1 August 2002**

<http://www.access-board.gov/ufas/ufas-html/ufas.htm>

<http://www.access.gpo.gov/nara/cfr/>

4. SECNAV/OPNAV Directives Control Office
N09B15
Washington Navy Yard, Bldg. 36
720 Kennon Street, SE Rm 203
Washington Navy Yard, DC 20374-5074

<http://neds.nebt.daps.mil/usndirs.htm>

5. Directorate of Defense Information
U.S. Marine Corps
Room 2E765, The Pentagon
Washington, District of Columbia 20301-1400
(703) 697-5131/5132/5133
fax: (703) 697-3501
<http://www.hqmc.usmc.mil/pubs.nsf>

6. National Center for Cultural Resources
Stewardship & Partnership Programs
National Park Service
1849 C Street, NW, NC330
Washington, D.C. 20240
Telephone: (202) 343-9583
E-mail address: hps-info@nps.gov
<http://www2.cr.nps.gov/tps/tax/rhb/index.htm>

7. Regional Historic Preservation and Fine Arts
Officer
GSA/NCR/WPT
Portfolio Management, Room 7600
7th & D Streets, SW

Accessibility Guidelines
(ADAAG)

Uniform Federal Accessibility
Standards (UFAS)

28 CFR Part 36, Americans
with Disabilities Act
Accessibility Guidelines for
Buildings and Facilities

36 CFR Part 1191,
Guidelines for Buildings and
Facilities; Play Areas

29 CFR 1910.1048

OPNAVINST 1700.9D, Child
Development Programs

OPNAVINST 11010.20F,
Facilities Projects Manual

MCO P1710.30D, Marine
Corps Children and Youth
Programs

Secretary of the Interior's
Standards for Rehabilitation
and Guidelines for
Rehabilitating Historic
Structures (current) (36 CFR
Part 67)

Preservation Note Series,
#34, Fire Safety Retrofitting
in Historic Buildings (Aug 89)

Washington, D.C. 20407

<http://ncr.gsa.gov/historicpreservation/html/doc/34FireSafetyFinal.asp>

8. Air Force

202-404-2758

<http://afpubs.hq.af.mil/>

AFPAM 32-1097, Sign Standards Pamphlet

AFH 32-7084, AICUZ Program Manager's Guide

9. US Dept Of Commerce
1401 Constitution Avenue, NW
Washington, DC 20230

<http://home.doc.gov/>

Electric Current Abroad

10. Department of the Navy Bureau of Medicine and Surgery
Freedom of Information Officer,
Bureau of Medicine and Surgery,
2300 E Street, NW,
Washington DC 20372-5300
<http://navymedicine.med.navy.mil/>

NAVMED P-5010, Manual Of Naval Preventive Medicine

11. Environmental Protection Agency
1200 Pennsylvania Avenue, NW,
Washington, DC, 20460.

www.epa.gov

FED-STD-795
Map of Radon Zones EPA
402-R-93-071

Model Standards and Techniques for Control of Radon in New Residences, U.S. Environmental Protection Agency, Air and Radiation (6604-J), EPA/625/R-92-016

Radon Measurement in Schools, EPA/402/R-92-014

12. U.S. Department of Agriculture
Washington, D.C. 20250

www.usda.gov

USDA Program aid Food Service Equipment Guide for Child Care Institutions

13. U.S. Food and Drug Administration
5600 Fishers Lane,
Rockville MD 20857-0001
1-888-INFO-FDA (1-888-463-6332)

US Food Code

<http://vm.cfsan.fda.gov/~dms/foodcode.html>

NON-GOVERNMENT PUBLICATIONS

1. National Fire Protection Administration
1 Batterymarch Park
Quincy, MA 02269-9101
Telephone: (617) 770-3000
Fax: (617) 770-0700
www.nfpa.org

NFPA 101, Life Safety Code

NFPA 13, Installation of Fire Sprinklers

NFPA 70, National Electrical Code

NFPA 72, National Fire Alarm Code

NFPA 80, Fire Doors and Windows

NFPA 96, Ventilation Control and Fire Protection for Commercial Cooking Operations

2. International Conference of Building Officials
5360 Workman Mill Road
Whittier, California 90601-2298
www.icbo.org

Uniform Building Code

Uniform Plumbing Code

International Plumbing Code

3. ASHRAE

4. Electronics Industries Alliance
2500 Wilson Blvd.
Arlington, VA 22201
Phone: (703) 907-7500
www.eia.org

EIA/TIA 569-A, Commercial Building Standard for Telecommunications Pathways and Spaces, 1 February 1998

5. Consumer Product Safety Commission (CPSC)
Washington, D.C. 20207-0001
4330 East-West Highway
Bethesda, Maryland 20814-4408
Tel. (301) 504-0990
Fax (301) 504-0124 and (301) 504-0025

Handbook for Public Playground Safety

www.cpsc.gov

6. ASTM International

ASTM F 1292, Standard

UFC 4-740-14
1 August 2002

100 Barr Harbor Drive,
PO Box C700,
West Conshohocken,
Pennsylvania, USA 19428-2959

www.astm.org

Specification for Impact
Attenuation of Surface
Systems Under and Around
Playground Equipment

ASTM F 1487, Standard
Consumer Safety
Performance Specification
for Playground Equipment for
Public Use

ASTM F 1951, Standard
Specification for
Determination of
Accessibility of Surface
Systems under and Around
Playground Equipment

7. Illuminating Engineering Society of North
America (IESNA)
120 Wall Street, Floor 17
New York, NY 10005
212-248-5000
fax: 212-248-5017/18

www.iesna.org

Lighting Handbook