

APPENDIX G
CHILD DEVELOPMENT CENTERS
~~121\ BIRTH - 5 YEARS /21/~~
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APPENDIX G
CHILD DEVELOPMENT CENTERS
~~21~~ Birth – 5 Years ~~21~~

1. GENERAL AND SPECIFIC CRITERIA.

a. Applicability. The specific criteria contained in this appendix are applicable to the design of Child Development Centers (CDC). The general criteria contained in the preceding chapters are applicable, except when modified by this appendix. Therefore, this appendix must be used with the chapters contained in this document.

~~21~~ b. ~~Previous AEI. All previous Architectural and Engineering Instructions issued by HQUSACE (CEMP-E) for CDC are superseded by this appendix.~~ ~~21~~

~~21~~ b. e. ~~21~~ Standardization. The Center of Standardization (COS) for CDC is the Huntsville Engineering and Support Center.

2. PLANNING GUIDANCE.

a. Site Planning Criteria.

(1) Site Selection. To site a CDC on an Army installation include the following parameters.

(a) Locate the facilities to be convenient to on-post family housing areas and off-post dependents.

(b) Consider sites adjacent to a school, community center or recreation area for joint use of play facilities or turfed areas.

(c) Hectare (Acreage) And Frontage Requirements. Table G-1 indicates the minimum hectare (acreage) and frontage required to accommodate the CDC facility and the developmental play program as designed in the standard design to include the building, parking, service area, outdoor play area, and vehicular circulation (references G-1 through G-7).

TABLE G-1 HECTARE (ACREAGE) AND FRONTAGE REQUIREMENTS		
CDC CAPACITY	MINIMUM SITE	FRONTAGE
60 children	0.84 ha (2.1 acres)	89 m (290 ft)
99 children	0.96 ha (2.4 acres)	104 m (340 ft)
122 children	1.20 ha (3 acres)	124 m (405 ft)
145 children	1.24 ha (3.1 acres)	89 m (290 ft)
198 children	1.64 ha (4.1 acres)	122 m (400 ft)
244 children	1.84 ha (4.6 acres)	120 m (395 ft)

TABLE G-1 HECTARE (ACREAGE) AND FRONTAGE REQUIREMENTS		
CDC CAPACITY	MINIMUM SITE	FRONTAGE
303 children	2.08 ha (5.2 acres)	122 m (400 ft)

(2) Site Population. The maximum number of children to be located in one area is 303 children.

(3) CDC Adjacency. CDC facilities should be sited in separate areas. It is not recommended to locate CDC facilities adjacent to each other because of impacts on traffic safety and noise requirements.

(4) Limited Site Requirements. In the event the site is limited and does not meet the acreage shown, the site design will require site adaptation and the developmental play program will require modification by the MACOM Child **Y21\ & Youth Services Program Manager Development Services (CDS CYS) Coordinator /21/**, installation **Y21\ CDS CYS /21/** Coordinator and CDC Director to meet the site constraints.

(5) Noise. CDC facilities will be sited consistent with the requirements of the noise environment in accordance with **Y21\ Chapter 7 of the Environmental Noise Management Program (ENMP) the Installation Compatible Use Zone Program /21/**, AR 200-1 (reference G-8).

b. Space Criteria.

(1) General.

(a) CDC may be established as required to provide childcare for children ages **Y21\ birth six weeks to kindergarten/5 years 42 years /21/** of age for full-day, part-day, and hourly care.

(b) Space allowances indicated below provide for food service; infants, toddler, preschool age activity modules and spaces; isolation areas; laundry; waiting and reception; administrative areas, staff lounge; storage; and toilet facilities. The installation may add additional square meters (square footage) to accommodate administrative requirements for CDS including Family Child Care (FCC) and Supplemental Programs & Services (SPS).

(2) Authorized Sizes.

(a) The minimum and maximum size of any one facility will accommodate no less than 25 children or no more than 303 children, respectively.

(b) When the planned capacity of a project exceeds 303 children, multiple facilities must be provided, none of which may exceed 303 children.

(c) CDC capacities of less than 60 children will be designed for that specific approved size and will incorporate the features of the DA Standard Design Package **Y21\ for infant – 5 years of age /21/** (references G-1 through G-7). All other CDC facilities, except for projects in modernized facilities, will be designed for the approved sizes using the standard designs either 60, 99, 122, 145, 198, 244, or 303 children.

(3) Experience Data. The capacity of a facility will be based on historical experience when applicable. Where previous experience data are available, the number of anticipated children will be determined by one of the following methods:

(a) The number of married military families receiving direct installation support, multiplied by 20 percent, plus the number of children of single parent military families receiving direct installation support; and 2.5 percent of the number of civilian employees assigned. Or

(b) A needs assessment (DA Forms 5562-R and 5561-1-R) that includes a survey of the installation military and civilian population and an examination of the installation demographics (DA Form 5563-R), to include historical data as well as waiting lists (DA Form 3561-R) and the un-met demand; projected installation population; changes in mission; and an extrapolation of eligible target users.

(4) New Facilities. Except as noted here, the standard designs (references G-1 through G-7) indicated in table G-2 are mandatory for use and will be used without revision, except as provided in this appendix, in new construction. The DA Standard Design Package may be obtained from the Huntsville Division Engineer Office. Space criteria for new CDC are shown in table G-2.

TABLE G-2 STANDARD CHILD DEVELOPMENT CENTER SIZES			
CAPACITY (NUMBER OF CHILDREN SERVED)	DOCUMENT NUMBER	GROSS AREA ¹	
		square meters	(square feet)
60	DEF 740-14-01	520	(5,600)
99	DEF 740-14-02	761	121 (8,230) (8,190) /21/
122	DEF 740-14-03	884	(9,520)
145	DEF 740-14-04	1041	121 (11,350)(11,210) /21/
198	DEF 740-14-05	1431	(15,400)
244	DEF 740-14-06	1778	121 (19,590)(19,140) /21/
303	DEF 740-14-07	2198	121 (24,050)(23,660) /21/

¹ The required mechanical, electrical, and electronic equipment room space is included in the building gross areas shown. Additional space will not be added when determining a single gross area figure for each facility; except, for USAREUR facilities, the square footage shown will be increased by 10 percent.

~~121 (5) Combined (Joint Use) Facilities. For new CDC that are to be combined with other facility types, such as Religious Education Facilities (REF), CDC modules shown on the standard designs will be used for all CDC child activity spaces (dedicated and joint use) without revision. Where a facility will contain less than 60 children, table G-3 will be used for determining a single gross area figure for the facility. Where a facility is to contain 60 or more children, the size and module distribution for the CDC will be one of the seven standard sizes shown in table G-2. /21/~~

~~121 (5) (6) /21/ Existing Facilities.~~

(a) Modernization Projects. For CDC that are to be provided in existing facilities to be modernized, the size and module distribution will be one of the seven standard sizes listed in table G-2 above to the greatest extent possible. The objective of all modernization projects is to approximate new construction standards to the maximum extent possible within the programmed amount (PA). The standard CDC modules may be modified to accommodate the existing structure. However, all proposed modifications to the standard modules must be sent to the Center of Public Works (CECPW-F) for review and HQDA (CFSC-~~121\ CYS FSC /21/~~) for approval prior to the initiation of concept design. Table G-3 will be used for determining the gross areas for all facility sizes in modernization projects.

(b) Space Allocations per Child.

1/ A minimum of 3.3 net m² (35 net ft²) per child of usable activity space will be provided within child activity modules. Usable activity space includes only areas used exclusively for child development activities. Usable activity space does not include areas for built-in furniture, infant cribs, storage closets, and toilet facilities.

2/ Infant modules will have a minimum of 5.1 to 5.6 m² (55 to 60 ft²) gross area per child to accommodate cribs.

(c) Occupant Load Based on Fire and Life Safety Requirements. See Section 4.~~121\ h e /21/~~, Fire Protection Criteria, of this document.

TABLE G-3 SPACE CRITERIA FOR CHILD DEVELOPMENT CENTERS		
CAPACITY (NUMBER OF CHILDREN SERVED)	GROSS AREA PER CHILD ¹	
	square meters	square feet
25 to 60	8	90
61 to 100	7	80
101 to 305	7	75

¹ Mechanical, electrical, and electronic equipment room space as required will be added to the gross areas shown when determining a single gross area figure for each facility.

~~121\ (6) (7) /21/~~ Childrens' Outdoor Play Area. The outdoor play area should be provided with a play space of 9.3 m² (100 ft²) per child.

c. Restriction. No new CDC will be programmed by the installation until the Family Child Care (FCC) program and the Supplemental Programs and Services (SPS) program are fully implemented by the installation.

~~121\ 3-COMBINED (JOINT-USE) FACILITIES.~~

~~a.—Definitions.~~

~~(1) Joint-Use Space. Space which is regularly programmed on not less than a weekly basis for use by both CDC and REF programs.~~

~~(2) Dedicated Space. Space that is intended for sole use by either the CDC or REF program primarily, but on an ad hoc or contingency basis by the other program.~~

~~(3) Peak Load. The maximum number of users who will occupy a facility, or specified portion thereof, at any one time.~~

~~b. General.~~

~~(1) Maximum Joint Usage. Project designs will be developed to make maximum use of joint-use spaces and facilities; however, the special requirements of the CDC and REF programs result in certain dedicated space requirements with which the design must comply, including conformance with NFPA 101 (reference G-9) and other codes.~~

~~(2) Joint-Use Spaces. The following rooms and facilities will be considered for joint usage:~~

~~(a) Multi-age, composite, and preschool-age modules in the CDC may also be used for children up to eight years of age in the REF program. The number of CDC modules required for the REF program will be based on the local participation (peak load) of that age group in the religious education program. For example, if the REF peak load for the six-week to eight-year age up is 160 children, sufficient multi-age, composite, and preschool-age modules will be allocated to accommodate 160 children, based on the maximum group sizes allowed for the CDC. The space required for the modules will be joint-use space. For REF programs, children less than three years old will be accommodated in the multi-age modules, and children three to eight years of age will generally occupy composite modules. For REF programs in which there is a peak load requirement for 20 or more children between three and eight years of age, preschool-age modules may be used to supplement the composite modules as necessary to respond to the total REF requirement for children three to eight years of age.~~

~~(b) Certain waiting areas and lobbies may be used jointly. However, facilities larger than 1,394 m² (15,000 ft²) gross area in combined areas will be provided with separate entrances for primary access to the CDC and REF program areas, in accordance with NFPA 101 (reference G-9) and other codes.~~

~~(c) Bathrooms for children in modules allocated for joint use, as well as other toilet facilities, such as those used by adult workers and physically handicapped individuals, should also be considered as joint use. Toilet facilities in dedicated CDC modules and toilet facilities for REF students eight years of age or older will not be identified as joint use space.~~

~~(d) Kitchens for functions other than child development may be provided in joint-use facilities of minimum size to support those functions.~~

~~(e) Corridors shared by dedicated and joint-use areas will be considered to be joint-use areas. Lockable doors will be provided to isolate the CDC from the REF areas which are not shared with the CDC, in accordance with NFPA 101 (reference G-9) and other codes.~~

~~(f) All air conditioning and heating equipment will be designed for joint usage. Zoned air conditioning and heating will be considered for those areas that are not used daily or are used during odd hours.~~

~~(3) Dedicated CDC Spaces. The following areas and rooms will be dedicated for use of the child development program:~~

~~(a) Corridor space serving building wings not open to joint use with the REF.~~

~~(b) CDC administrative space and offices for child development personnel.~~

~~(c) CDC institutional kitchen facilities.~~

~~(d) CDC storage (0.37 m³ (4 ft³) per child).~~

~~(e) Laundry facilities.~~

~~(f) Child activity areas not required for use by children under the age of eight years in the REF program.~~

~~(g) Primary access area and lobbies for adults and children using child development services.~~

~~(4) Dedicated REF Spaces. The following areas and rooms will be dedicated for the use of the chapel and religious education program:~~

~~(a) Administrative spaces, counseling rooms and offices for chaplains, religious education employees and workers.~~

~~(b) All activity spaces located in basements or above the first floor.~~

~~(c) Blessed Sacrament chapels and rooms designated for that purpose.~~

~~(d) Bride's room.~~

~~(e) Chapel nave.~~

~~(f) Chapel kitchen facilities, including Kosher kitchens and efficiency kitchens for small groups.~~

~~(g) Chapel storage rooms.~~

~~(h) Choir room.~~

~~(i) Classrooms for adults and children over the age of eight years.~~

~~(j) Multi-purpose activity rooms adjacent to the nave that double as an overflow room.~~

~~(k) Primary access area and lobbies for adults and children participating in the religious education program.~~

~~(l) Sacristies.~~

~~(5) Contingency or Intermittent Use Spaces. The following dedicated spaces will be made available for contingency or intermittent use on an ad hoc basis:~~

~~(a) Large multi-purpose activity spaces dedicated to the REF may be made available for indoor play by the CDC during inclement weather.~~

~~(b) Dedicated staff lounges and REF classrooms may be used for training and large meetings of parents and staff members.~~

~~(6) The building design will be one or two stories high; however, all CDC and joint-use functions must be located on the first floor (ground level).~~

~~(7) If a chapel is involved in the project, the combined CDC and REF building should complement the design of the chapel while maintaining a non-institutional character as much as possible. Where a chapel is not involved in the project, a residential, non-institutional character should be achieved.~~

~~(8) Building elements and entrances will be designed to facilitate identification of and access to the separate chapel, REF, and CDC activity areas.~~

~~(9) Operational Policy. The criteria outlined above are based on an operational policy established jointly by HQDA (CFSC-FSC) and HQDA (DACH). If operational conflicts are indicated at the installation level, the development of designs will be suspended pending coordination and resolution of the issues with the HQDA staff elements through MACOM channels.~~

~~c. Site Selection And Design Requirements. Site selection requirements are discussed in paragraph "Site Planning Criteria," above. Site design requirements for joint-use facilities are discussed in paragraph "Site Design Criteria," below.~~

~~(1) Circulation and Parking. The requirements for circulation and parking at joint-use facilities are discussed in paragraph "Site Design Criteria," below.~~

~~(2) Childrens' Outdoor Play Area. The requirements for the children's outdoor play area at joint-use facilities are discussed in paragraph "Site Design Criteria," below.~~

~~d. Functional Requirements.~~

~~(1) Accessibility. Joint-use spaces generally will be located between the dedicated CDC and REF spaces and will be capable of being separately sealed off to facilitate usage at times when adjacent spaces are closed.~~

~~(2) Minimum Standards. Joint-use spaces will conform to the minimum standards required for CDC as indicated in this appendix.~~

~~(3) Kitchen Facilities. A separate efficiency kitchen will be provided for the REF that is adequate for use by the staff and small groups. /21/~~

~~121\ 3. 4. /21/ DESIGN REQUIREMENTS.~~

~~a. General.~~

~~(1) Current Criteria. Except as modified here, the design of new CDC and existing facilities to be modernized will be in accordance with the following:~~

- ~~(a) The Approved DA Standard Design Packages for CDC (references G-1 through G-7).~~
- ~~(b) AR 415-10 (reference G-10).~~
- ~~(c) AR 415-16 (reference G-11).~~
- ~~(d) AR 415-20 (reference G-12).~~

- (e) AR 415-35 (reference G-13).
- (f) AR 608-10 (reference G-14).
- (g) TM 5-803-11 (reference G-15).
- (h) This ~~21\~~ **Technical Instructions (TI) AEI /21/** and appendix, including all references.

(2) Obsolete Criteria. ~~21\ AEI, /21/~~ DG 1110-3-134, Child Development Services Facilities, unpublished, will not be used as design guidance for CDC.

(3) Conflicting Criteria. In the event of conflicting technical architectural and engineering criteria between AR 608-10 (reference G-14) and this document, this document will take precedence.

(4) Standardization.

(a) Requests to deviate from the DA Standard Design Packages for CDC (references G-1 through G-7) for economical, functional, or operational reasons during the design process must be submitted for approval in accordance with ER 1110-3-113 (reference G-16).

(b) When site adapting a DA Standard Design Package for CDC, design agencies are authorized by ER 1110-3-113 (reference G-16) and ER 1110-345-100 (reference G-17) to modify the drawings to meet local climatic, foundation, seismic, siting, and topographic conditions, and other reasons. However, modifications that affect the functional and operational requirements of the designs are not authorized. See the preceding paragraph.

(c) DA Standard Design Package. For CONUS and OCONUS projects except in Europe for 60-, 99-, 122-, 145-, 198-, 244-, and 303-child development centers, DEF 740-14-01 through DEF 740-14-07 (references G-1 through G-7) respectively, must be used as a basis of design. These designs provide options for exterior finishes, mechanical systems, electrical and electronic systems, and structural materials and load conditions. The options selected for final design will be those shown in the DA Standard Design Package that will assure an adequate, cost effective, and safe design for each project. Acceptable modifications to the DA Standard Design Package are limited to the requirements described in the preceding paragraph.

(d) Center Ratios and Group Sizes. For planning purposes, child development center ratios and group sizes within standard design modules will be based on table G-4.

(e) OCONUS Locations in Europe. The Transatlantic Programs Center (Europe) will prepare full regional DA Standard Design Package for CDC Army installations located in Europe based on references G-1 through G-7. These designs will be completed for each standard size and will be designed to accommodate metric dimensions, and standard structural member sizes and materials commonly available in Europe.

(5) Coordination. Coordination at all stages of design development of CDC new construction projects, including modernization projects in excess of \$150,000, is required with the MACOM engineer and MACOM Child ~~21\ & Youth Services Program Manager Development Services (CDS CYS) Coordinator /21/~~; the installation facilities engineer and using service ~~21\ CDS CYS /21/~~ coordinator; and HQDA (CFSC-~~21\CYS FSG/21/~~). HQUSACE (CEMP-MA) will be notified immediately when project cost estimates exceed the DA approved programmed amount (PA). Coordination for renovation of existing facilities will be the same as above except that coordination with CEHSC-F will also be required.

(6) Functional Requirements. Administration and Waiting Area Requirements. Administration and support

area requirements will be provided as shown on the DA Standard Design Package. The following spaces will be provided in CDC facilities:

(a) Patron Reception Area. A reception area with soft interior design elements (e.g., carpet, fabric wall coverings, etc., and no elements will have sharp angles) will be provided adjacent to the main building entrance. The waiting area should include a low receptionist unit; comfortable adult seating for visitors; bulletin boards and display space for parent education and information; and child-oriented toys or activity centers.

(b) Director's Office. Office space for the center and program director or directors will be provided.

(c) Administration Support Space. Work areas for ~~121\ Training & Curriculum Specialist (TACS) Education Program Specialist (EPS) /21/~~ and support personnel will be provided as required. This area should be and open office type space with modular type furniture.

(d) Staff Lounge. A staff lounge area (which can also be used as a staff workroom) that is buffered visually (no direct view into the room) from child activity areas and out of public view will be provided.

TABLE G-4 CENTER RATIOS AND GROUP SIZES				
MODULES	AGE GROUPS	ADULT TO CHILD RATIO	MAXIMUM GROUP SIZE	MAXIMUM CHILD SPACES
Infant	6 weeks to 12 months	1:4	8	21\ 20 16 /21/
	Pre-toddlers (12 to 24 months) ²	1:5	10	
Toddler	24 months to 3 years	1:7	14	32
	Pre-toddlers ²	1:5	10	
Preschool	3 years to 5 years	1:10	20	40
Composite	3 years to 5 years	1:10/1:15	20	30
	5 years to 8 years	1:15	30	30
Small Multi-age	6 weeks to 5 years			23
	Infants	1:4	5	
	Pre-toddlers ³	1:5	-	
	Toddlers	1:7	18	
	Preschool-age ¹	1:10	-	
Large Multi-age	6 weeks to 5 years			46
	Infants	1:4	8	
	Pre-toddlers ³	1:5	-	

TABLE G-4 CENTER RATIOS AND GROUP SIZES				
MODULES	AGE GROUPS	ADULT TO CHILD RATIO	MAXIMUM GROUP SIZE	MAXIMUM CHILD SPACES
	Toddlers	1:7	14	
	Preschool-age	1:10	20	

- 1 Combined with toddlers.
- 2 Pre-toddlers can be accommodated in either/or infant or toddler modules.
- 3 Combined with infants or toddlers.

(e) Isolation Area. A separate area with direct access to a sink and toilet facilities will be provided to isolate and observe children who become ill after arrival at the facility. This space must be a separate area located near the reception area and separated from child activity rooms and modules. Reception desk personnel should be able to observe, supervise, and control the access to this isolation area.

(f) General Storage. A centrally located space with provisions for controlled management access will be provided for storage of audiovisual equipment, resource materials, and shared program materials. The storage area will be based on 0.37 m³ (4 ft³) per child and a minimum capacity for 40 children.

(g) Kitchen.

1/ A kitchen is required as a separate room from child activity spaces when children are to remain for meals, unless the food is prepared outside of the facility. The kitchen will be located close to a delivery entrance. The kitchen will include vegetable preparation, pots and pans cleanup, food preparation, hand washing, and receiving areas. Commercial grade kitchen equipment will be provided.

~~121\ 2/ When food is catered or only short duration part-day programs occupy the facility, kitchens may be limited to a residential cabinets for storage; microwave oven or small range for cooking; refrigerator; sink; and dish washing machine if reusable items are utilized. /21/~~

~~121\ 2 3/ /21/ For planning purposes, including food storage requirements, meals served in the facility will be based on the U.S. Department of Agriculture (USDA) National Research Council's Recommended Dietary Allowances (reference G-18) and the USDA 121\ Child & Adult Care Food Program Child Care Feeding Program /21/ (reference G-19).~~

~~121\ 3 -4/ /21/ Adequate circulation will be provided to transport food carts from the kitchen to the modules. Storage for food carts will be provided near or within the kitchen.~~

~~121\ 5/ Kitchens for functions other than child development may be provided in joint-use facilities of minimum size to support these functions. /21/~~

(h) Laundry. A laundry room separated from child activity spaces and kitchens, and with adult controlled access will be provided. This area will contain a secured storage space for laundry supplies and a storage space for clean and soiled laundry. For safety reasons, washers and dryers will not be located within modules with child bathrooms. For health and sanitation reasons, washers and dryers will not be located within

kitchen areas.

(l) Janitor's Closets. A lockable janitor's closet will be provided for the secure storage of maintenance related supplies and equipment. Janitor's closets will not be located within child activity spaces and modules including toilet facilities for children.

(j) Toilet Facilities. Adult toilet facilities, separate from the children's toilets, will be provided for the staff and general public. Toilet facilities need not be designated by sex if no more than 15 employees are in the facility at any time. Provisions for the physically impaired are addressed in following paragraph 4.c.(2).

(7) Special Requirements.

(a) A covered entry with a vestibule will be provided at the main entrance when required due to the geographical location of the facility.

(b) The administration module will be located near the main entrance to enable visual control and security of the facility.

(c) The kitchen, mechanical and electrical equipment rooms will be located near the CDC building service entrance.

(d) Counter tops of cabinets that are in child activity rooms and modules at child height (914 mm (36 inches) and below) and exposed to children, will have rounded/radius corners and edges.

(e) Child activity areas and furnishings will be arranged to allow space for developmentally appropriate learning experiences for young children. These areas include open floor space for crawling, exploration, and active play; and protected areas for rest, study, and quiet activities. Space arrangements will aid independent functioning by allowing children to choose activities, and to locate and replace toys and materials with minimal adult aid.

(8) Non-Authorized Building Features. The following features are not authorized in CDC: ~~121\ and will not be provided, except in wings wholly dedicated to other non-CDC activities /21/~~

~~121\ (a) Cartoon or religious character murals. /21/~~

(b) Signage identifying the CDC as anything other than a "Child Development Center". Terms such as "nursery", "child care center", and "preschool" will not be used to designate this type of facility. Child unique names, such as "Kiddie Kastle", will not be used. EXCEPTION: The installation or community name, or geographic location of the facility may be used for public identification purposes (for example, "Fort Lee Child Development Center").

(b) Ceiling heights in excess of 2.4 m (8 ft) or less than 2.25 m (7.5 ft)), except in music motor rooms where the ceiling height maximum is 3.0 m (10 ft). Exterior walls will be of residential scale and character.

(c) Central children's toilet facilities.

(d) Central dining rooms.

(e) Central multi-purpose rooms.

(f) Combined kitchen and laundry areas.

(g) Divisions between modules by partial height partitions furniture. ~~21\ Modules will be acoustically and physically separated. /21/~~

(h) ~~21\ Modules will be acoustically and physically separated. /21/~~

~~21\ (i) (h) /21/~~ Draperies.

~~21\ (j) (h) /21/~~ Lead-based paint is ~~21\ not-authorized forbidden /21/~~ throughout all buildings (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).

~~21\ (k) (j) /21/~~ Materials containing asbestos are forbidden throughout all buildings.

~~21\ (l) (k) /21/~~ Special decorative materials, such as pictorial or high-relief tiles and carpets, are forbidden throughout all buildings.

~~21\ (m) (h) /21/~~ Drinking fountains adjacent or close to diaper changing areas.

b. Site Design Criteria.

(1) Approved Site. Before proceeding with a site design, the requirements of the CDC program and the developmental play program should be verified to assure that the site meets user needs. The selected site should meet site approval procedures as discussed in Chapter 3. The selected site should meet the site planning guidance discussed in paragraph "Site Planning Criteria," above. When these verifications are complete, a site design should be developed in accordance with the requirements of Chapter 3 to include the development of a site analysis, sketch site plan and concept site plan. Additional site design guidance is provided in TM 5-803-14 (reference G-20).

(2) Installation Design Guide. The guidance provided in the Installation Design Guide, as discussed in Chapter 3, should be used to design the CDC.

(3) Accessibility for Physically Handicapped Individuals.

(a) Adults. The standard design (references G-1 through G-7) provides for disabled adults in accordance with the Uniform Federal Accessibility Standards (UFAS) (reference G-21).

(b) Children. The current national guidance concerning accessibility for the disabled is based on anthropometric standards for adults and does not accommodate the needs of children with disabilities. The UFAS does not address the requirements for children (reference G-21). The guidance for children with disabilities is provided in the standard design (references G-1 through G-7). Accessibility to the play elements will be in accordance with ASTM F 1487 (reference G-23)

1/ Infant. For the purpose of the standard design, infants are not considered to be self-mobile wheelchair users.

2/ Toddler. For the purpose of the standard design, toddlers are not considered to be self-mobile wheelchair users. Most physically disabled toddlers would not have sufficient strength or coordination skills for independent wheelchair mobility. Toddlers will be assisted and transferred by caregivers.

3/ Preschool ~~21\ And School Age /21/~~. For the purpose of the standard design, preschool ~~21\ and school-age /21/~~ children are considered to be self-mobile wheelchair users. A surface material negotiable by

wheelchairs is provided in the standard design for transfer access to at least one side of the play events. The standard design, "Play Equipment Design Guide, Volume II, provides information concerning the accessibility requirements of specific play events (references G-1 through G-7).

(c) Play Environment. The standard design provides a play environment that is as barrier free as possible that promotes the integration of children with and without disabilities. Children with disabilities must be accommodated in the same setting with other children. A playground safety surface has been provided for accessibility to play events. Accessibility should be fully facilitated by the staff.

(d) Dimensions. Under no circumstances are there to be changes to the dimensions in the designs without consultation with the COS for CDC, Huntsville ~~21\ Engineering and Support Center Division-Engineer /21/~~ Office.

(4) Circulation And Parking.

(a) Site Traffic Impact Study. A site traffic impact study should be prepared to determine the traffic patterns and the peak demand for parking. Access for fire equipment, garbage removal and other essential services must ~~21\ be me /21/~~ provided. ~~21\ The parking demand analysis should consider adjacent parking areas for joint use. /21/~~ **21\ All parking should be arranged in accordance with the current Force Protection Standards. /21/**

(b) The circulation and parking demand includes the turnover for the hourly care program and the part-day care program. The entrance and exit drives should be designed to accommodate the flow of traffic generated by this demand.

(c) A drop-off lane for one bus is to be provided when required by the CDC program.

(d) The circulation and parking demand is impacted by the security requirement for the parent to drop off the child inside the facility and to pick up the child inside the facility.

(e) Safety Requirement. Circulation, parking areas and entrance drives will be designed to meet the safety requirements for children. Separation of vehicular and pedestrian circulation as required in TM 5-803-14 (reference G-20) should be provided. Pedestrian crossing of traffic lanes shall be minimized.

(f) Long-term staff parking should be separate from short-term patron parking.

(g) 21\ Force Protection/Antiterrorism. All circulation, parking and service entrances will comply with the latest version of the Department of Defense Antiterrorism Standards for Buildings (reference H-31). /21/

(5) Parking Space Allocation.

(a) Space Allocation For Patrons. In accordance with chapter 3, provide a minimum number of parking spaces for patrons at the rate of 1 parking space for each 4 children. An increase in the parking allocation for patrons should be supported by the required site traffic impact study.

(b) Space Allocation For Staff. In accordance with chapter 3, provide parking spaces for the maximum number of staff personnel on duty at one time. An increase in the parking allocation for staff should be supported by the required site traffic impact study.

(6) Utilities.

(a) Transformers and other above ground utilities should be made inaccessible to children.

(b) To meet child safety requirements concerning entrapment and fall attenuation, it is recommended that storm drainage inlets, utility clean outs, valve covers, and manhole covers be located outside the children's outdoor play area.

(c) Under no circumstances are the utilities to be sited within the fall zones of play equipment.

(d) In the event utilities must be located within the outdoor play area, the surface openings should be less than 8 mm (5/16 inch) to prevent finger entrapment in accordance with USCPSC guidelines (reference G-22) and ASTM F 1487 (reference G-23).

c. Childrens' Outdoor Play Area.

(1) Design Team. The design team for the outdoor play area should include the MACOM **\21\ CYS CDS Coordinator PM /21/**, installation **\21\ CYS CDS /21/** Coordinator and CDC Director. They are responsible for the developmental play program and the selection of play equipment to meet that program. Under no circumstances are the designer, engineer or contractor to be allowed to determine the selection of play equipment or play activities.

(2) CDC Developmental Play Program. The design of an outdoor play area will be based on a developmental play program for each age group occupying the CDC. The developmental play program is developed by the MACOM **\21\ CYS CDS PM Coordinator /21/**, installation **\21\ CYS CDS /21/** Coordinator and CDC Director in accordance with guidance from the U.S. Army Community and Family Support Center, (CFSC-**\21\ CYS FSCY /21/**). The standard design for children's outdoor play areas, supports a CDC developmental play program which encourages children to interact with the environment, each other, and the care-giver either in a free play experience or through planned and structured activities (references G-1 thru G-7). The play area is designed to support the CDC program and to provide a stage set for creative play. It provides diversity and safe challenge. Developmental activities are selected which promote the intellectual, social, emotional and physical growth of the children in accordance with AR 608-10 (reference G-14).

(3) Manufactured Play Equipment. An outdoor play area which consists of a site filled primarily with manufactured play equipment is not recommended and does not meet the requirements for child development in accordance with AR 608-10 (reference G-14).

(4) Age Groups. Table G-4 provides a description of the age groups that the CDC Program requires outdoor activities to accommodate. Each age group has an appropriate play area that provides a variety of activity zones that are selected to accommodate that specific age range. There are significant design differences between the play areas that are based on the developmental and safety needs of that particular age group.

(5) Supervision Requirement. The CDC outdoor play area is a supervised developmental play area in accordance with AR 608-10 (reference G-14). Provide unobstructed views of entire play areas from more than one location. There should be no enclosed or hidden parts of play areas or play elements; both the play elements and inside the play elements should be completely visible by the staff.

(6) **\21\ Certification License /21/**. The CDC Program requires a center to be **\21\ DOD certified/accredited licensed. /21/** Shade is a requirement for the CDC to receive **\21\ certification/accreditation a license /21/**. Provide permanent shade structures in infant and multi-purpose areas for protection from the sun.

(7) Drinking Fountain. Drinking fountains for toddler and preschool age group will be provided at a child height of 600 mm (2 ft) maximum.

(8) Seating. Seating for adults should be provided in the infant area only. The CDC Program does not allow adult seating in the toddler, preschool, and **21\ school-age /21/** play areas.

(9) Outdoor Storage Sheds. Analyze the play program to determine the type of play equipment requiring storage. There should be requirements for child accessible storage at child height, pram storage and trike storage. **21\ Storage sheds must not create any blind spots in the Outdoor Activity Area that would impede the supervision of the children. /21/**

(a) Child Accessible Storage Shed. As a minimum, one **21\ child-accessible /21/** storage shed shall be provided for loose parts in each play area for each age group. This storage should be at child height. The dimensions are shown in the standard designs (references G-1 through G-7) and the door should meet the requirements for preventing finger entrapment.

(b) Tall Storage Shed. When required, an outdoor storage with a clear headroom for an adult shall, be provided. The sheds may be constructed of wood with plywood siding. The interior should not be finished or insulated. Bins and racks should be provided for storage. The floors should be concrete or asphalt with positive drainage. The roofing design should be compatible with the surrounding architecture. The storage sheds should be ventilated.

(c) Secured Storage. The storage shed should be secured by an outward swinging door with vandal-proof hardware and lock.

(10) Evacuation Of Infant Cribs. Analyze the area to determine the requirements for the evacuation of infant cribs to an open safe area (Section, Fire Protection Criteria, Exit Criteria). Provide an appropriate hard surface material for the cribs evacuation. There is an exterior circulation corridor adjacent to the building, wheeled toy paths through the play area and gates in the perimeter fence that meet this requirement.

(11) Fences And Gates. Prevent entrapments in or around the fence in accordance with the USCPSC and ASTM guidelines (references G-22 and G-23). Fencing shall be provided that prevents animals from entering the play area.

(a) Perimeter Fence. Unless otherwise indicated on the standard design, enclose the perimeter of the outdoor play area with a vinyl coated chain link fence that is a minimum 1200 mm (4 ft) high from the ground surface (references G-1 through G-7).

(b) Area Fence. Fences that subdivide the play area within the perimeter fence should be a vinyl coated chain link fence less than 1200 mm (4 ft) in height.

(c) Slats. Fences with horizontal slats are prohibited. The horizontal arrangement encourages climbing.

(d) Openings. Openings between the bottom fence rail and the ground surface should be less than 75 mm (3 inches).

(e) Gates. Gates shall be provided that permit occupant egress to include infant crib egress from the play area and from the building (Section, Fire Protection Criteria). At least one access gate will be provided for emergency or maintenance vehicles. **21\ Gates shall be equipped with locking devices that will restrict**

exiting and entry by children without supervision. Gates with an adult-controlled securing device are required. /21/

(12) Landscape Planting Design. The landscape planting design will be accomplished in accordance with the requirements of the standard designs (references G-1 through G-7) and TM 5-803-13 (reference G-25). A variety of plants with seasonal change, color, texture, fragrance and interpretive value should be provided in the outdoor play area to accommodate the programming requirements for the learning experiences of children. The standard design, Play Element Design Guide - Planting, Volume II, should be used to select plant materials for play value and low maintenance (references G-1 through G-7). Plants with thorns are not permitted. Plants that produce fruit are not permitted. Poisonous or toxic plants are not permitted. The selected plant material should be verified 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 play area.

d. Outdoor Play Area Child Safety Requirements. The standard design provides a design that accommodates the current standard for child safety (references G-1 through G-7). The **/21\ U.S. Consumer Product Safety Commission (USCPSC) /21/** guidelines (reference G-22), ASTM F 1487 (reference G-23) and ASTM F 1292 (reference G-24) are used as a reference for applicable child safety guidance. These guidelines were developed for unsupervised public play areas that accommodate children two through twelve years of age. In some cases, the standard designs exceed the guidelines while in other cases there may be a conflict. These differences occur because the standard designs are developed for a supervised developmental play program that accommodates children from infant through **/21\ 5 years of age/kindergarten school-age /21/**, as shown in table G-4.

(1) Dimensions. Under no circumstances are the dimensions to be changed in the standard design without consultation with the COS for CDC, Huntsville **/21\ Engineering and Support Center Division-Engineer /21/** Office.

(2) Age Appropriate Scale. Age appropriate scale is a term used to describe equipment which will allow safe and successful use by children of a specific chronological age, mental age and physical ability. Play equipment height and complexity will not exceed the user's ability. Recommendations for equipment which meets the appropriate scale for each age group are provided in the standard designs (references G-1 through G-7).

(3) Crush, Pinch, and Shearing Points. Crush, pinch, or shearing points are junctures which could cause contusion, laceration, abrasion, amputation, or fracture during use. These points are created when components move in relationship to each other or to a fixed component **/21\ when the equipment moves through its anticipated use cycle /21/**. Provide play equipment that meets USCPSC and ASTM guidelines (references G-22 and G-23) for crush, pinch and shearing points.

(4) Head Entrapment. **/21\ A component or a group of components should not form openings that could trap a child's head. Generally, an opening presents an entrapment hazard if the distance between any interior opposing surfaces is greater than 3.5 inches and less than 9 inches. When one dimension of an opening is within this range, all dimensions of the opening should be considered together to evaluate the possibility of an entrapment. /21/** Only play equipment that meets USCPSC and ASTM guidelines (references G-22 and G-23) for head entrapment shall be provided.

(5) Finger Entrapment. The range for finger entrapment is a space from 8 mm to 25 mm (5/16 inch to 1 inch) in width. To prevent finger entrapment the space should be smaller than 8 mm (5/16 inch) or larger than 25 mm (1 inch) width. Only play equipment that meets USCPSC and ASTM guidelines (references G-22 and G-23) for finger entrapment shall be provided.

(6) Protrusions **/21\ or Projections /21/**. **/21\ Protrusions or projections on playground equipment**

should not be capable of entangling children's clothing, because such entangling can cause death by strangulation. /21/ All play equipment must meet USCPSC and ASTM guidelines (references G-22 and G-23) for protrusions.

(7) Sharp Edges or Corners. Sharp edges are any surface that may cut or puncture a child. A sharp corner is any edge that is not rounded sufficiently to prevent injury. **\21\ There should be no sharp points, corners, or edges on any components of playground equipment that could cut or puncture children's skin. Frequent inspections are important to prevent injuries caused by sharp point, edges and corners that could develop as a result of wear and tear on the equipment./21/** All play equipment must meet USCPSC and ASTM guidelines (references G-22 and G-23) for sharp edges or corners.

(8) Paint. All painted surfaces in the play area should meet the requirement for paint in accordance with USCPSC and ASTM guidelines (references G-22 and G-23).

(9) Wood Preservatives. Treated wood in the play area should meet the requirements for wood preservatives in accordance with USCPSC and ASTM guidelines (references G-22 and G-23).

(10) Use Zones. In accordance with ASTM F 1487 (reference G-23), 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 (reference G-23). The standard designs (references G-1 through G-7) show the appropriate use zones. These zones require a playground safety surface as discussed below. All use zones for play equipment must be shown on the site plan to ensure there is no conflict between play activities on the ground and swinging or jumping from the equipment. For situations other than the exceptions discussed below, there should be no overlapping use zones. Requirements for use zones vary for the age group and for different pieces of equipment as discussed in this appendix. Table G-5 shows the heights by age group that require a use zone. The standard designs (references G-1 through G-7) show the requirement on the site plans and in the details. Plant material is not to be planted in the use zone for play equipment.

TABLE G-5 DETERMINING THE REQUIREMENT FOR THE USE ZONE	
AGE GROUP	MINIMUM HEIGHT ABOVE THE GROUND SURFACE
Toddler	500 mm (20 inches)
Preschool	500 mm (20 inches)
\21\ Kindergarten School-Age /21/	600 mm (24 inches)

(a) Infant Area. As a minimum, the infant crawl space to include a 1200 mm (4 ft) distance outside the infant crawl curb is to be designed as a use zone.

(b) Overlapping Use Zones. Overlapping of use zones for platforms or deck heights that meet or exceed the heights shown in table G-5 shall be prevented. EXCEPTION: Overlapping use zones are permitted between rocking/springing equipment, balance beams that are at ground level, and play houses which are not intended for climbing.

(c) All hard surface material must be located outside of all use zones.

(11) Playground Safety Surface. A playground safety surface is constructed of a material that meets the

shock absorbency criteria recommended by the USCPSC **\21\ , ADAAG, /21/** and ASTM guidelines (references G-22 thru G-24 **\21\ and G-34 thru G-35 /21/**). Playground safety surfaces shall be provided throughout all use zones and under all play equipment that meets or exceeds the heights shown in table G-5. The standard design details show the types and depths of the playground safety surfaces (references G-1 through G-7).

(a) Specifications. It is important that the commercial playground safety surface manufacturer's warranty and liability be provided as submittals in the specifications and transferred to the Using Service. The requirement for providing the manufacturer's liability statement must be included in the submittal section of the specifications.

(b) A written verification by the manufacturer that the playground safety surface meets the requirements of the USCPSC and ASTM must be included in the submittal section of the specifications.

(c) The playground safety surface in the infant area shall meet a fall height of 1200 mm (4 ft).

(d) Loose fill material, such as sand or wood chips, should be installed a minimum depth of 300 mm (1 ft) within the use zone of the play equipment.

(e) Swings and Slides. Loose fill material should be installed to a minimum depth of 600 mm (2 ft) under swing seats and at slide exit zones. These areas are high activity areas where the impact of feet move the loose fill material from the area where the protection is required.

(f) Chopped Tire. Under no circumstances should chopped tires be used in the CDC play area. Chopped tires may have steel belts in them which injure the child or they may be ingested by the child.

e. Outdoor Play Area Equipment. Play equipment required for the developmental play program, as determined by the MACOM **\21\ CYS Project Manager GDS Coördinator, /21/** installation **\21\ CYS GDS /21/** Coordinator and **\21\ CYS CDC /21/** Director, will conform to the requirements as shown in the standard designs (references G-1 through G-7), and the USCPSC **\21\ , ADAAG, /21/** and ASTM guidelines (references G-22 thru G-24 **\21\ and G-34 thru G-35 /21/**).

(1) Composite Play Structure. A composite play structure has two or more play structures attached or functionally linked, to create one integral unit that provides more than one play activity (reference G-23). The attached play events may include such activities as an arch climber, clatter bridge, net climber, ring trek, slide, tunnel or tunnel slide.

(a) Recommended Layout. The standard design shows the recommended layout for a composite structure (references G-1 through G-7). This layout should be provided to the manufacturer to receive the activities shown.

(b) Hazard. A hazard for children on the composite structure is jumping from one play activity to another on the side of the multiple deck or platform structure(s). Prevent the opportunity for jumping from one play activity to another by selecting only one activity on the side of the multiple deck or platform structures. There should be only one play event on the same side of the deck or platform.

(c) Swings. Swings are not to be attached to a composite structure.

(d) Height Requirement. Composite structure designs will not exceed the height requirements shown in table G-6.

(2) Multiple Exits. All play equipment should have a minimum of two exits. Climbers, such as rung ladders, climbing nets and arch climbers should not be used as the sole means of access to equipment intended

for children under five years of age.

(3) Protective Barriers For Play Equipment. A protective barrier is an enclosing device around an elevated surface that prevents both inadvertent and deliberate attempts to pass through the device and shall be provided in accordance with ASTM F 1487 (reference G-23).

TABLE G-6 DETERMINING HEIGHTS ABOVE GROUND FOR COMPOSITE STRUCTURES			
AGE GROUP	MAXIMUM HEIGHT FOR THE DECK	MAXIMUM HEIGHT FOR THE VERTICAL SUPPORT	MAXIMUM HEIGHT FOR THE TOP OF THE SHADE ROOF
Toddler	900 mm (3 ft)	2400 mm (8 ft)	2400 mm (8 ft)
Preschool	1200 mm (4 ft)	2400 mm (8 ft)	2400 mm (8 ft)
21\ Kindergarten School-Age /21/	1800 mm (6 ft)	2400 mm (8 ft)	Shade roof not recommended

(4) Equipment that whirls is PROHIBITED. This equipment comes in many different forms, such as, merry-go-round, gate, log roll.

(5) Rocking/Springing Equipment. Each piece of rocking/springing equipment will accommodate two or more children for space utilization and social play. The spring will be of a design that prevents jerking or whipping action (reference G-23).

(6) Traditional "To-Fro" (single axis) and tire swings shall meet the safety requirements of the ASTM guidelines (reference G-23).

(a) The "To-Fro" swing should be designed in accordance with ASTM F 1487 (reference G-23). A rubber belt type seat will be provided, hard seats are prohibited. To-fro swings shall be located at the perimeter of the play area to eliminate conflicts between swinging and running, walking or wheeled toys and the use zone shall be shown on the drawings in accordance with the standard design details (references G-1 through G-7).

(b) Tire Swing. The tire swing should be designed in accordance with ASTM F 1487 (reference G-23). The tire shall not touch the vertical support structure in accordance with the ASTM guidelines. The use zone shall be shown on the drawings in accordance with the standard design details (references G-1 through G-7).

(7) Slides. The slide shall be designed in accordance with ASTM F 1487 (reference G-23). Only slides with a one piece slide bed with no seams shall be provided. The slide bed slope shall be limited to a maximum of 30 degrees. A use zone for exiting shall be provided at the end of the slide in accordance with ASTM F 1487 (reference G-23).

(8) Specifications. CEGS 02791, Playground Safety Surfacing and CEGS 02880, Playground Equipment are available on the World Wide Web at <http://hnd.usace.army.mil/techinfo>. It is important that

the manufacturer's warranty, liability and requirements for obtaining spare parts be provided as submittals in the specifications and transferred to the Using Service. Ensure the installation of the play equipment meets the requirements of the manufacturer's liability by requesting a written verification from the manufacturer that the equipment is properly installed. To receive this verification will require a manufacturer's representative to be present during installation of the equipment.

f. Architectural Criteria.

(1) Design Restraint. Design restraint must be applied to all projects. Architectural embellishments to the DA Standard Design Packages (references G-1 through G-7) are not authorized.

(2) Provisions for Physically Handicapped Individuals. All CDC will be fully accessible to physically impaired adults and children in accordance with reference G-21, chapter 7 of this document, the supplemental guidance provided herein, and the CDC standard designs (references G-1 through G-7).

(a) Public Toilets. Accessible toilet facilities for physically impaired patrons will be provided in the public toilet rooms. In CDC having a capacity of 145 children or less, one accessible unisex toilet is required for public use. In all of the larger centers, one accessible public toilet is required for each sex. Each public toilet will be designed for single-occupant use, except in the 303-child centers. In the 303-child centers, the men's public toilet should be designed for single-occupant use to accommodate the handicapped; and the women's public toilet should be a multi-occupant room, with one complete set of required toilet fixtures and accessories designed and positioned to accommodate handicapped individuals.

(b) Staff Toilets. The adult toilets located in ~~21\ the infant home-base /21/~~ activity modules are for the sole use of ~~21\ CYS Program Assistants CDS care-givers /21/~~ who, by job description, are required to be able bodied. Consequently, these toilets are not required to be accessible ~~21\ to e /21/~~ the handicapped in any of the facility sizes.

(c) Children's Toilets. In addition to the above public handicapped toilets, one single-occupant unisex toilet will be provided in each facility size for the use of physically impaired children. This toilet will be adjacent to the children's isolation area to provide the toilet facilities required in above paragraph 4.a.(6)(a)5/ for the isolation function. Handicapped requirements for pediatric fixtures and fixture mounting heights are provided in the referenced standard designs. The open children's toilets in the activity modules need ~~21\ to not /21/~~ be accessible in accordance with reference G-21.

(d) Patron Reception Area. The receptionist counter in this area, in all facility sizes, will be designed to accommodate at least one handicapped patron in a wheelchair. Wheelchair knee space and work surface clearances will be in accordance with reference G-21 criteria.

(3) Architectural Style. The architectural style for CDC should be residential in character, scale, and materials. The roof should be a simple gable or hip without multiple levels. Residential size and type of doors and windows should be provided.

(4) Materials and Finishes.

(a) Interior and exterior colors, finishes, and materials will conform to the DA Standard Design Packages (references G-1 through G-7) when specified. Where the DA Standard Design Package allows for alternative finishes and materials, the most economical alternative should be selected.

(b) Wall treatments provided within child activity rooms and modules, toilet facilities, and traffic areas for children will be soil resistant and easily cleaned, such as vinyl or Formica wall coverings,

paneling, or extension of seamless vinyl, or epoxy coating to a 1220 mm (4 ft) high wainscot.

(c) Tack-boards shall be provided at adult height and tackless strips at child height for display of materials and information in modules, corridors, offices, and lobbies.

(d) Acoustical treatment will be provided in the modules and adjacent areas to ensure a sustained noise level of not more than 45 decibels in the modules.

(5) Interior Design. Interior design packages will be developed and funded in accordance with ER 1110-345-122 (reference G-26). See chapter 6 of this AEI document. Neutral colors will be selected for major wall ~~21\ areas. and bright colors for banding and highlighting. The signage package should include colorful graphic symbols for visual orientation of preschool-age children. /21/~~

(6) Built-in Furniture. The amount of built-in furniture will be limited to that shown on the DA Standard Design Packages (references G-1 through G-7). In those cases where the estimated project costs exceed the DA approved programmed amount (PA), the built-in furniture, including work counters and cabinets, will be an additive bid item to the construction contract. A safety rail of 152 mm (6 in.) or 76 mm (3 in.) minimum above the infant diaper pad) for the Diaper Changing Station) will be provided as indicated on the CDC Standard Design Package.

(7) Exterior Windows.

(a) Exterior windows will be aluminum, double-hung, or equivalent, multiple glazing or insulating glass, with insect screens. Only the top half of the window will be operable and the bottom half of the window will be fixed. Insect screens will be secured with interior metal clips to preclude children from removing the clips.

(b) Exterior windows will be placed at heights appropriate for use by the age of the children occupying the room. All exterior windows will have shatter-proof glazing (tempered glazing) or barriers to prevent injury to children.

(c) Exterior windows shall be furnished with color coordinated horizontal blinds, which are operable by cord or hardware that can be adjusted in length to be out of the reach of children.

(d) Exterior windows in child activity modules shall not be furnished with draperies.

(8) Interior Windows and Vision Panels.

(a) All interior windows at child height (915 mm (36 inches)) will have shatterproof glazing (tempered glazing).

(b) Horizontal blinds or shades for interior windows shall be provided in child activity rooms and modules, and administrative spaces and offices. Horizontal shades are required for interior vision panels in the Director's ~~21\ and Deputy Director's offices. isolation and multi-purpose rooms. /21/~~

(9) Doors and Hardware.

(a) Hardware for interior doors in child activity rooms and modules will be operable from either side. Hardware for interior doors and cabinets will be free from dangerous protrusions. Note: All cabinets at child height, i.e., base type, shall be lockable by using keyed locks in-order to eliminate protruding handles.

- (b) Doors for toilet facilities, except unisex adult toilets, shall be non-locking.
- (c) All exit door hardware shall be located 1118 mm (44 inches) above the finish floor.
- (d) Janitor closet doors will swing out, rather than into janitor closet rooms. Janitor closet doors will not be located in child activity spaces. All janitor closet doors will be equipped with door closures and keyed locksets.
- (e) All interior doors, except adult toilets and fully shelved closets, will be equipped with vision panels. The minimum size for vision panels in doors will be 0.84 m² (9 ft²). Vision panels in fire rated doors shall be provided that maintain the integrity of the fire rating.
- g. Structural Criteria. See chapter 8 of this document for structural design requirements. In the event of conflicts between structural criteria and standards contained in this document and other publications issued within the Army, this document (AEI with appendices) will apply to the design and construction of CDC. Structural design and standards will be issued by HQUSACE (CEMP-E) only.
- h. Fire Protection Criteria. The general criteria for CDC is NFPA 101, Life Safety Code (LSC) (reference G-9). However, the LSC is based on a staff-to-child ratio which is less than that of Army CDC. The LSC 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 (AHJ) will be necessary. The AHJ for CDC is HQUSACE/CEMP-E. The fire protection criteria of this document include those additional safeguards required to compensate for staff-to-child ratios less than that prescribed by LSC. Fire protection criteria will be issued by HQUSACE/CEMP-E only.
 - (1) Occupancy Classification. CDC are classified as Day-Care Occupancy when applying the NFPA 101, Life Safety Code (reference G-9) and as Educational Occupancy, Division 3, when applying the Uniform Building Code (reference G-34).
 - (2) Occupant Load. The allowable occupant load for fire and safety considerations will be based on NFPA 101, Life Safety Code (LSC) (reference G-9). The allowable occupant load is based on the capacity of the exit components not on floor area. LSC does establish minimum exit capacities, based on an assumed maximum probable number of occupants which is based on gross floor area. However, if the capacity of the exit components exceeds the minimum, the allowable occupant load increases. The determining factor for occupant load with respect to safety is the clear width of the exits and exit access.
 - (3) Construction Type. Construction for CDC facilities will comply with the construction requirements of the Uniform Building Code. Noncombustible construction (Type I and II) is the preferred method of construction, since noncombustible construction enhances the fire safety of CDC, allows for omission of sprinklers in the attic, and reduces clearance requirements of heat producing equipment, such as kitchen exhaust ducts. The use of combustible construction (Type III, IV or V) must be approved by the major command before being allowed for any CDC.
 - (4) CDC will be constructed on grade. CDC will not be located in basements or above the level of exit discharge.
 - (5) Corridors: Corridors will comply to requirements of the Life Safety Code (reference G-9). Exit corridors will have a minimum width of 1.8m (6 feet).
- i. Fire Protection System. The following fire protection systems and equipment will be provided:

(1) Complete automatic sprinkler protection in accordance with NFPA 13 (reference G-27) for new CDC facilities

(a) Wet pipe sprinkler protection is the preferred sprinkler system because of high reliability and low maintenance requirements of these systems. However, care must be made to avoid freezing of sprinkler piping located in the attic spaces. If piping is subject to freezing, the sprinkler system in area subject to freezing will be either a dry-pipe or pre-action sprinkler system.

(b) Sprinkler waterflow alarms will be provided. Waterflow alarms will sound the building alarm and summons the fire department.

(c) Inspector's test connections will discharge directly to a safe, outside location and onto a hard surface. Location of inspector's test will be indicated on the drawings.

(d) Sprinkler heads will be quick-response type.

(2) An unobstructed fire department connection for the sprinkler system.

(3) At least one hydrant within 75 m (250 feet) of the facility.

(4) An automatic fire alarm evacuation system in accordance with NFPA 72 (reference G-27).

(a) The system will be activated by manual pull stations, smoke detectors and activation of fire protection systems.

(b) A manual pull station will be provided at each exit door which discharges directly to the outside.

(c) Smoke detectors shall be provided in all areas except in the kitchen and in spaces that are not air-conditioned, such as attic spaces and the main mechanical equipment room.

(d) The fire alarm system will be connected to the installation fire department for emergency response and for system monitoring.

(e) The alarm notification will be both audio and visual. Audio alarms will be textual audible appliances or chimes conforming to NFPA 72, National Fire Alarm Code (reference G-27).

(5) Portable fire extinguishers in accordance with NFPA 10, *Standard For Portable Fire Extinguishers* (reference G-27). Fire extinguishers will be in locations accessible to adults only.

j. Fire Area Separation. Fire-rated walls will be provided in accordance with NFPA 101, Life Safety Code (LSC) (reference G-9). Fire-rated walls will be equipped with fire-rated doors at openings.

k. Exit Criteria. Exits will comply with NFPA 101, Life Safety Code (reference G-9), and the following:

(1) Each child activity module will have at least two remote exits, one of which will lead directly to the outside and the other will lead directly to a exit access corridor. Neither exit will require travel through any other room or program area. Exit access corridor will have a minimum clear width of 1.8 m (6 feet).

(2) Doors from modules and outside exit doors will swing in the direction of exit travel. Outside exit doors will be equipped with flush type push-bar panic hardware mounted 1120 mm (44 inches) above the finish floor.

(3) Each child activity module for children under three years of age will have a direct outside exit conforming to the following:

(a) Exits will be wide enough to accommodate a crib. The door opening will have a minimum clear width of 864 mm (34 inches). The minimum clear width may be reduced to 813 mm (32 inches) if evacuation cribs are no wider than 737 mm (29 inches) including any projections. Single-action hold-open devices will be required on exterior exit doors in infant areas to prevent automatic closing of the door. Hold-open devices will not be provided on other exit doors.

Note: Exterior doors and frames should be designed to allow the door to swing open wide and achieve the required clear opening. The exterior veneer of finish must not prevent the exit doors from providing a required clear opening. For example, improper position of the pivot point of the door hinges with respect to the surface of the exterior can prevent the exit door from opening to the required clear opening width.

(b) Ramps with non-slip surfaces for emergency evacuation of wheeled cribs will be provided for exits openings. Ramps will lead to a smooth hard-surfaced evacuation route, which leads to a public way or to a safe area. The maximum slope of the ramp will be 1:12. Ramps will be provided with guard rails whenever a ramp exceeds one-foot above ground level. The minimum width of the ramps and hard-surface evacuation route is 1220 mm (48 inches). At turns and bends, the hard-surface evacuation route will be wider to account for the turning radius of the evacuation cribs.

(c) Door thresholds and hardware will be designed to facilitate the exit of a crib containing several infants by a single adult. The thresholds will have a low profile.

(4) Required fire exits from the building will lead to a public way or to a clear safe area which is a minimum distance of 15.2 m (50 feet) from the building.

l. Kitchen Equipment and Exhaust Systems. Kitchen equipment and exhaust systems will meet the requirements of NFPA 96 (reference G-28). The grease removal devices, hoods, duct system and the cooking equipment served by the hood will be protected by a wet chemical system or a water spray system approved for protecting kitchen equipment. The extinguishing system will be monitored by a separate zone on the fire alarm control panel and will activate the building fire alarm system upon discharge. Activation of the extinguishing system will cause automatic shut off all sources of fuel and heat to the equipment per NFPA 96 (reference G-28).

m. Protective Construction Criteria. See chapter 10 of this document protective construction design requirements.

n. Energy Conservation Criteria. See chapter 11 of this document for energy conservation design requirements. **21\ Sustainable Design and Development is required for FY 02 and beyond construction in accordance Engineering Technical Letter 110-3-491 January 31, 2000. Effective immediately all military facilities shall incorporate Sustainable Design or Green Building concepts in their design and construction. All Army facilities shall strive to achieve SPIRIT Bronze level as defined by ETL 1110-3-491. /21/**

o. Electrical Criteria.

(1) Design Requirements. See chapter 12 of this document for electrical design requirements.

(2) Hazards. To meet child safety requirements the location of utilities shall be accommodated as discussed above in paragraph, Site Design Criteria, Utilities.

(a) To meet child safety requirements for entrapment, protrusions and fall attenuation make transformers and other above ground utilities inaccessible to children.

(b) To meet child safety requirements concerning entrapment and fall attenuation locate manhole covers and transformers outside the childrens' outdoor play area (reference G-23).

(3) Receptacles.

(a) Electrical receptacles in child activity spaces will be child safety types and installed at a minimum of 1.4 m (4 ft 6 inches) above the finish floor. Easily removable caps or plugs do not meet this requirement. Receptacles in infant areas will not be located adjacent to cribs. The number of receptacles will be limited to the minimum when safety receptacles are required.

(b) If required, receptacles may be mounted in the vertical wall space between a counter-top and the cabinets above, within a child activity space, at less than 1.4 m (4 ft 6 inches). Receptacles provided at this location are to be duplex, 20 A, 120 V and located at least 460 mm (18 inches) horizontally from the counter-top edge to assure that they are not easily accessible by children. If the receptacles serving the counter-top are within 1830 mm (6 ft) of a sink, they are to be GFCI type, otherwise, they are to be child-safe. Receptacles for refrigerators are to be child-safe and mounted 460 mm (18 inches) above the floor in a location that will be blocked by an installed refrigerator.

(c) Ground-Fault Circuit Interrupter (GFCI) protection will be provided for all 120 volts AC receptacles installed in wet areas including kitchens, toilets and exterior receptacles. In laundry rooms GFCI will only be provided for general use 120 volts receptacles, but not for the fix installed equipment.

(4) Lighting.

(a) Internally illuminated exit signs and emergency lights will be provided for all emergency exits and passageways as required by the NFPA 101 (reference G-9) and TM 5-811-2 (reference G-30). Attention will be given to the type and location of fixtures selected so that they will be a type to resist vandalism and firmly anchored.

(b) Natural and artificial light will be combined to provide adequate task and general lighting that can be modified to respond to changing needs. A mixture of fluorescent and natural lighting will be used in child activity spaces. Toilet facilities, infrequently used storage rooms, and janitor's closets will be provided with incandescent fixtures. Kitchens will be provided with color-corrected fluorescent fixtures that allow for an accurate assessment of food coloration.

(c) Fixtures will be furnished with shatter-proof lenses.

(d) 538 lx (50 foot-candles) illumination will be provided in all child activity rooms and modules, administrative areas, kitchen, and in the lounge. Dimmer controls will not be provided on fluorescent fixtures. Parking areas and walkways will be provided with 5 lx (0.5 foot-candle) illumination by photoelectric cell controlled circuits. Lighting levels will be in accordance with chapter 12 of this document, unless otherwise specified in this appendix.

(e) Night security lighting will be provided within lobbies and cash storage areas that are visible from the exterior, and near exterior walkways used for entering and leaving a facility.

(5) Communications.

(a) Outlets, cabling, instruments, and telephone raceway systems, including terminal cabinets, will be provided in coordination with the local Director of Information [\21\ Management \(DOIM\) /21/](#) systems. The main telephone terminal cabinets will be located in environmentally appropriate electrical equipment rooms or separate dedicated communications rooms. Telephone outlets will be provided in offices and at reception desks. The building telephone service will be underground.

(b) Cable connections for television will be provided only in the staff workroom, and composite and full day preschool-age modules. The television sets will be furnished by the using service with funds other than MCA.

(c) Conduit will be provided for a silent alarm system (flashing red light, etc) at the reception desk for connection to the local military police station. The alarm system will be furnished by the using service with funds other than MCA.

(d) A two-way intercom system with hands free capability will be provided with the master console located at the reception desk. A public address system will not be provided.

p. Air-Conditioning, Dehumidification, Evaporative Cooling, Heating, Mechanical Ventilation, and Refrigeration.

(1) Design Requirements. HVAC designs will be in accordance with chapter 13 of this document.

(2) Hazards. To meet child safety requirements the location of utilities shall be accommodated as discussed above in paragraph, Site Design Criteria, Utilities.

(a) To meet child safety requirements for entrapment, protrusions and fall attenuation make above ground utilities inaccessible to children.

(b) To meet child safety requirements concerning entrapment and fall attenuation locate manhole covers and transformers outside the childrens' outdoor play area (reference G-23).

(3) Temperature and Humidity Control.

(a) Temperature. Temperature in all child activity areas will be designed for 20 °C (68 °F) in the winter and for 26 °C (78 °F) in the summer, where air-conditioning is authorized, measured within 300 mm (one foot) of the finish floor. Tamper-proof temperature sensors and thermostats with night and weekend setback capability will be provided and located 1.5 m (5 ft) above the finish floor. Air-conditioning will be provided where authorized in accordance with chapter 13 of this document.

(b) Humidity Control. A minimum relative humidity of 35 percent will be maintained in CDC during the heating season to prevent drying of mucous membranes and to control the spread of diseases. Humidity requirements should be limited to child activity areas only. A cost analysis of vapor barrier versus energy should be conducted to determine if other areas should be designed to meet minimum humidity requirements.

(4) Ventilation. Exhaust ventilation will be provided in the following areas:

(a) Diaper changing areas.

(b) Kitchen areas. Ventilation systems will be provided, as necessary, for all kitchen equipment. Spot air-conditioning or general air-conditioning will be considered in order to maintain acceptable temperature and humidity levels throughout kitchen areas. See Chapter 13 of this document and TM 5-810-1 (reference G-31) for specific guidance relative to ventilation and air-conditioning requirements.

(c) Toilet facilities.

(5) Mechanical Equipment Rooms. Mechanical equipment rooms must open directly to the exterior for access by maintenance personnel with no access into any interior or exterior child activity spaces.

q. Plumbing Equipment Criteria.

(1) Design Requirements. See chapter 15 of this document for plumbing equipment design requirements.

(2) Hazards. To meet child safety requirements the location of utilities shall be accommodated as discussed above in paragraph, Site Design Criteria, Utilities.

(a) To meet child safety requirements for entrapment, protrusions and fall attenuation make above ground utilities inaccessible to children.

(b) To meet child safety requirements for entrapment, protrusions and fall attenuation locate manhole covers, clean outs and valve covers outside the childrens' outdoor play area (reference G-23).

(3) Plumbing Fixtures.

(a) Toilet facilities for children in each module will be provided and mounted at heights appropriate for use by the intended age group. Toddler and preschool age toilet room fixtures and accessories will be child-sized (pediatric) and located within a height range appropriate to the age group. These include water closets (WC), door hardware, lavatories, mirrors, and paper and soap dispensers. Automatic shut-off type faucets will be provided in bathroom areas for children. Provide "Goose Neck" faucets with wrist control handles at all diaper changing stations.

(b) WC and lavatories will be provided as follows:

1/ One WC and one lavatory per eight toddlers in the toddies modules and multi-age modules.

2/ One WC and one lavatory per 15 children in composite modules.

3/ One WC and one lavatory per 10 preschool-age children in preschool-age modules and multi-age modules.

4/ An adult WC and lavatory will be provided within the infant module and infant section of multi-age modules.

(4) Water Temperatures. The hot water temperature in kitchen areas will be a minimum of 60 °C (140 °F) and 82 °C (180 °F) for non-chemical sanitization process), in order to sanitize cooking and eating utensils in accordance with TB MED 530 (reference G-32). Hot water temperatures for lavatories used by

both adults and children, and in diaper changing areas will be 27 to 35 °C (80 to 95 °F) and must not exceed 43 °C (110 °F). Hot water temperature for laundries will be 60 °C (140 °F).

(5) Laundry. Laundry facilities will be provided with floor drains and the necessary utility connections and ducting for washers and dryers. The washers and dryers will be furnished by the using service with funds other than MCA. Heavy-duty equipment will be provided in CDC with a capacity of 125 or more children. One laundry sink will be provided in the laundry room. The dryers will be vented directly to the exterior. A booster fan will be provided in the dryer vent when the travel distance exceeds 6.1 m (20 ft) to the exterior. Utility connections for washers and dryers will not be provided in kitchen areas.

(6) Other Requirements.

(a) Hand-washing facilities with soap ~~and lotion~~ dispensers will be provided for staff personnel in infant, toddler, and multi-age diaper changing units.

(b) Disposable towel dispensers ~~or forced-air hand dryers with protective screws~~ will be provided for use of staff personnel and children.

(c) Floor drains will be provided in janitor closets, kitchens, laundry rooms, and toilet facilities for children.

r. Food Service Criteria.

(1) Portable food service equipment will be furnished by the using service with funds other than MCA. Food service equipment that is affixed to the facility and not readily removed will be MCA funded and contractor furnished.

(2) Commercial food service equipment will be provided in CDC. Commercial food service equipment will conform to the standards promulgated by the National Sanitation Foundation (reference G-33).

(3) Deep-fat fryers will not be provided.

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- G-2 DEF 740-14-02, Department of the Army Standard Design Package for a Child Development Center for 99 Children, March 1995 ~~21\~~ (<http://155.74.8.101/stdgdn/cdc/>) ~~21/~~
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- G-15 TM 5-803-11 (NAVFAC P-383, ~~\21\ AFJMAN 32-10139 AFM-88-30 /21/~~), Children's Outdoor Play Areas, ~~\21\ 30 May 1997 25-April-1988 /21/~~
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- G-16 ER 1110-3-113, Department of the Army Facilities Standardization Program, 27 September 1993
~~\21\ (<http://www.usace.army.mil/inet/usace-docs/eng-regs/er.htm>) /21/~~
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