



US Army Corps of Engineers
Little Rock District

**DA STANDARD DESIGN PACKAGE
YOUTH CENTERS
FOR MIDDLE SCHOOL YOUTH (AGES 11-15)
AND TEENS (AGES 16-18)**

SMALL	60 – 90 CAPACITY
MEDIUM	105 - 135 CAPACITY
LARGE	150 – 180 CAPACITY

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Executive Summary

Narrative of DA Standard Design Youth Centers
For Middle School Youth (Ages 11-15) and Teens (Ages 16-18)
Provided by Family Morale Welfare and Recreation Command

THE ARMY STANDARD FOR YOUTH CENTERS (Feb 08)

Description:

Youth Centers are designed primarily for use by middle school youth (ages 11-15) and teens (ages 16-18). These facilities provide safe, supervised, healthy, accountable and age-appropriate activities for youth and teens. The Youth Center supports opportunities for youth and teens to develop their physical, educational, social, recreational, and emotional needs. The Army Standards for Youth Centers are based on Army Baseline Standards and Department of Defense requirements for certification.

The standards support the framework for Army Youth programs in four Service Areas:

- *Academic Support, Mentoring, and Intervention Services* (i.e., Homework Centers),
- *Life Skills, Citizenship, and Leadership Opportunities* (i.e., Computer Labs, workforce preparation, youth councils)
- *Sports, Fitness and Health Options* (i.e., Multi-Purpose room and outdoor activity space for individual or group sports and fitness activities, skill building clinics; Snack Bar/Culinary Arts area for nutrition counseling and self help skills)
- *Arts, Recreation, and Leisure Activities* (i.e., Areas/activity rooms for self-directed activities, individual or group lessons).

CATEGORY CODE	DESCRIPTION
74066	Youth Center

Facilities covered in this standard are for youth centers for middle school youth (ages 11-15) and teens (ages 16-18). Youth Center capacities are as follows:

Small	60 – 90 capacity
Medium	105 - 135 capacity
Large	150 -180 capacity

Applicability

- The Army Standard applies to Army facilities worldwide.
- The Army Standard is mandatory for all construction projects effective in FY08 and beyond.
- All geographic districts shall incorporate the mandatory design criteria described herein in close coordination with the USACE designated Center of Standardization (COS) for Child and Youth Services.
- All Youth Center projects must be reviewed by the COS and IMCOM Center of Expertise to ensure conformance with the Army Standard.

Waivers:

- Only the Assistant Chief of Staff for Installation Management has authority to approve exceptions to the Army Standards.
- Waivers from the Army Standard must be requested in accordance with AR 420-1 and the Army Facilities Standardization Program Charter, latest edition.
- All waiver requests to the Army Standards require COS conflict resolution prior to submission by the Garrison Commander.

- Garrison Army Standard waiver request submissions must be received in sufficient time to allow complete review by the Facility Design Team and development of recommendations or courses of action for the AFSC to consider prior to implementation into project design.
- Late submissions and/or project delays are NOT sufficient stand-alone justification for accelerated review or other dispensation for not meeting the Army Standard contained herein.

THE ARMY STANDARD FOR YOUTH CENTERS

Item	Mandatory Criteria
Lobby/Central Counter/Reception Desk	Must have a lobby which contains a central counter for clerk to view/observe the youth entering and exiting the facility, as well as, parents and visitors. The configuration and functional relationship between the main entry and the central counter/reception desk must be maintained. Provide communication and data connectivity to include access control and central intercom system.
Patron/Visitor Waiting Area	Must have a waiting area for parents and visitors adjacent to the central counter/reception desk. Waiting area to contain seating and will also serve as an area where a few youth can gather and socialize when not in use by parents/visitors.
Director's Office	Must be located in close proximity to the central counter/reception desk and must be directly accessible from the waiting area. Provide communication and data connectivity.
Administrative Office Space	Administrative office space, with the exception of the Sports and Fitness Director office, is to be located in close proximity to the Director's office and in the vicinity of the facility entry. Provide communication and data connectivity.
Copy/File Room	This room to be within the administrative area. It houses copy machines, printers (other than those dedicated to specific individuals), filing cabinets and storage for general office supplies. Provide adequate electrical and LAN drops
Staff Lounge/Training Room	Must be provided in all facilities and located in the administrative portion of the facility. Provide a solid surface counter top with integral backsplash and single compartment sink/faucet. Provide GFCI electrical outlets above the counter for microwave and other appliances. Provide space for refrigerator and vending machine along with electrical outlets and a water line to support ice making capability in freezer. Must provide space within the lounge/training room for staff to secure belongings (e.g. individual lockers secured to the wall). Provide a minimum of two workstations with computers and internet connectivity and space for table and chairs for staff to work at or eat lunch. Provide communication and data connectivity.
Staff/Visitor Restrooms	Must have handicapped accessible restroom(s) in the entry/lobby of the facility for use by parents, visitors, and staff. Restroom(s) must be separate from those used by youth. Provide one (1) toilet for every 15 full time/full-time equivalent staff on duty at any one given time.

Item	Mandatory Criteria
Technology Lab	Must have technology lab strategically located in close proximity to the entry area. The technology lab is a functional and programming requirement in all Youth Centers. Minimum of 525 square foot area for 15 youth (35 sq ft per youth). This space must accommodate 15 computer workstations for youth. Lab to be arranged in a "U" shape for the purpose of full unobstructed monitoring by the Technology Specialist with LAN drops and four-plex electrical outlets along the wall. For the small facility, this area dual functions as a Technology Lab and Homework Center with 7 computer workstations for youth. Non-static, fire resistant, carpeting is required for this area.
Homework Center	Must provide for a self-contained area adjacent to the Technology Lab in all youth facilities except in the 60 – 90 capacity youth center. In the small youth center, the Homework Center will be incorporated within the Technology Lab. Provide for a minimum of 525 square foot area for 15 youth (35 sq. ft. per youth).
Activity Room(s) – General and Specific	There are two categories of activity rooms: General Activity Room and Special Activity Rooms. <i>General Activity Room(s)</i> for gatherings, club meetings, arts and crafts (with the addition of a sink to include a plaster trap), or for other general uses. For these types of activities, room to accommodate up to 30 youth. <i>Specific Activity Room(s)</i> allow for a variety of indoor activities. Room to afford flexibility in use and designed for more active functions such as dance, yoga, or martial arts. This room is not intended to accommodate team sports. For these types of activities, room to accommodate up to 15 youth.
Commons/Gathering Area	This area is the heart of the program area and a prime gathering place for youth. Space to accommodate 15 youth and depending on the size of the youth center the facility shall have as few as 1 (for the Small facility) and as many as 2 (for the Medium and Large facility). One of the commons areas must be adjacent to the snack bar/culinary arts learning center. Each commons area to be sized a minimum of 675 sq ft. Provide an additional 2 feet of space along circulation routes for locations of moveable cabinets to hold program equipment. A commons area may be used for table games such as pool, ping pong, foosball or air hockey or as a place for youth to gather in a comfortable setting promoting socialization. Install four recessed duplex electrical floor outlets in each common area for electronic table games such as air hockey. Provide for a platform, approximately 16 ft X 18 ft with two risers and a ramp with handrails for handicapped accessibility in the main commons area adjacent to the snack bar. Include vision windows in the wall between the commons area and the multi-purpose room to provide full unobstructed view for youth of activities in the multipurpose room. Vision windows to be at different heights above the finished floor to enable children of various heights the opportunity to view what is happening. Size and material of vision windows to meet fire requirements. The commons area must be provided with diffused or indirect natural lighting to the maximum extent possible. Skylights are not an acceptable means of meeting the natural lighting requirement. Ceiling to be no lower than 15 ft in the main commons area. Provide sound absorbing materials (e.g. noise panels) in this area to prevent echoing and to reduce the noise level.
Snack Bar/Culinary Arts Area	Snack Bar equipment to be NSF commercial grade approved equipment. Culinary Arts area to emulate a "home-type" kitchen environment - equipment for this area to be approved by Center for Health Promotion and Preventive Medicine. Counters to be made of a solid surface polymer, such as "Corian". Both counters to enable youth to sit on stools looking into this area to view staff

Item	Mandatory Criteria
	<p>preparing snacks and participate in cooking activities (lifetime skill). One section of the counter to include a cook top with a sink at the end of the counter to enable youth to wash hands before eating or learning how to prepare food items. Provide for a minimum of 3 duplex outlets underneath the 36" high counter to plug in small appliances such as mixer, blender, etc. The counter on the opposite side, which is to be used for serving snacks, should be raised to 42" high with overhang for knee clearance. Cabinets should be constructed of high end/quality plywood for durability. Particle board not acceptable as plastic laminate does not last- the substrate fails in a short period of time. Must provide for a dry storage area to store food items not refrigerated. Floor drain must be provided.</p> <p>Provide space for 2 vending machines and electrical outlets to support in close proximity to the snack bar area.</p> <p>Preference for dumpster location is in close proximity to the Snack Bar/Culinary Arts Area. Dumpster is not to be placed in front of the facility.</p>
Multi-Purpose Room	<p>Must include a multi-purpose room (High school full basketball court size to include accommodations for bleachers) with an electrically operated drop divider curtain. Ceiling to be minimum clear height as appropriate for high school basketball (24 ft. minimum clear). Bleachers, if built in, to be light weight aluminum and fold into wall only on one side of the multi-purpose room. Provide removable wall padding (mats) for the entire wall space in the multi-purpose room to serve as protection for youth, acoustical attenuation, and reduce maintenance to the walls. Removable mats to serve and dual function as use for gymnastics. Provide variable lighting in this area to support various activities taking place in this space (e.g. sports events and dances). Protective mesh covers will be installed for all external fixtures. Two (2) basketball goals (shatter proof and breakaway) are to be provided for full-court play. Four (4) basketball goals (adjustable height/electrical with manual override/and fold against the wall) are to be provided for half-court play. Must provide markings for basketball full court and 2xhalf court and volleyball. Install flush receptacles for insertion of volleyball stanchions with covers when not in use. Athletic flooring must be multipurpose and resilient to wear to allow for multiple activities to take place (e.g. rollerblading, basketball, volleyball, etc.) Wood flooring is not acceptable. Accommodate for electric score boards and plug in of portable radios, etc. Each end of court will be pre-wired for dual scoreboard installation (that can be used independently for cross court games) and drops for score table usage. Two (2) public restrooms accessible off the corridor from the multi-purpose room to the outside are required. Provide a wall mounted fold out diaper changing table in each of these public restrooms.</p>
Storage Rooms	<p>Large storage and issue rooms adjacent to the multi-purpose room accessible from the interior. Storage is for programming supplies and equipment, as well as, storage for large pieces of sports & fitness equipment, bats, balls, roller skates, etc. Provide a mezzanine above one of the storage areas for uniform storage to be accessed by the CYS Sports & Fitness Director.</p>
Sports Director's Office	<p>Office for the Sports Director to be located in close proximity to the multi-purpose room and storage room(s) for sports and fitness equipment and uniform storage area. Office to also be adjacent to the laundry area as the majority of laundry being done in the youth center will be for uniform washing and drying. Provide communication and data connectivity.</p>

Item	Mandatory Criteria
Laundry Room	Must provide space for residential grade washer(s) and dryer(s) for laundering sports uniforms and other items associated with the operation of a youth center (e.g. props and clothes for drama). Locate laundry room on an exterior wall to allow for horizontal venting of the dryers. Laundry room to be secured with locking mechanism. Provide for a laundry tub and self priming floor drain to prevent sewer gases from filtering into the facility. Provide counter for folding clothes with upper and lower cabinets for storage of laundry materials.
Teen Room/Lounge	When a teen room/lounge is provided, it is to be located so that access can be monitored by the central check-in counter. This space provides older teens (16-18 yrs of age) with their own space to socialize and have access to more independent activities like computers, college preparation, and watching television in a home like environment. Provide data connectivity. Allocation: * Teen room for 15 = 2 LAN drops * Teen room for 30 = 3 LAN drops
*Patio	A covered patio to be accessible off the snack bar/culinary arts area.
Male/Female Toilet Areas for Youth	Separate male and female toilet rooms for youth are required. Requirement is for one toilet and one sink per 15 youth. Where multiple toilet stalls are provided in the male (boys) restroom, one (1) urinal may be substituted for a toilet.
Janitorial Closet	A janitorial closet is required adjacent to the male (boys) and female (girls) toilet rooms. Closet to be equipped with a low mop sink, a place to store janitor's equipment and cleaning supplies, and a rack to promote hanging/air drying of mops. Door must have a locking mechanism and be designed to swing out into the corridor 180 degrees to prevent impeding on emergency egress.
Vision Panels	Vision panels are interior windows in corridor walls and doors that are integral to visual monitoring and provide an additional risk prevention measure. Vision panels in corridor walls shall extend from normal 6'8" – 7'-0" height to 54 "above the finished floor. Vision panels in doors to be a minimum of half-height glass and shall be provided with a 12" wide side-lite. Vision panels must be provided in all doors, within the facility, with the exception of the adult restrooms.
Intercom System	Must have a built in intercom system capable of allowing staff to communicate with the main reception desk and other areas of the building.
Video Monitoring System/Closed Circuit Television (CCTV)	Must have video monitoring system to deter and reduce the risk of child abuse and protect staff from unwarranted allegations of abuse. Conduits, power, and cabling are to be installed as indicated on the standard design.
Video Monitoring Equipment Room	Separate room or area will be provided to store the equipment racks for the video monitoring security system. Racks are approximately 48"W x 30"D x 84" H. Special consideration for heat build up is required. Targeted temperature is 70 degrees F. Maximum temperature is 85 degrees F.

Item	Mandatory Criteria
Outdoor Activity Area	Youth outdoor activity area should provide at a minimum: <ul style="list-style-type: none"> * Hard surface patio area with optional shade structure * Open field area should none be accessible to the facility * Hard surface area for basketball Hose bibs and out-door electrical outlet are required.
Parking	Parking for patrons and staff is required. Parking Allocation: 1 parking space per each full time staff; 1 per every 4 patrons, and 60 additional spaces for sporting events. Parking for handicapped to be in accordance with ADA. Buses to deliver and pick up youth curbside on sidewalk that leads directly into the facility. Locate bicycle racks near the facility entrance in a secure location.
Exterior Lighting	Exterior lighting systems provided for parking areas, sidewalks, service yards, service drives, building entrances and perimeter.
Service Road/Drive	Service road/drive must be provided on the side of the building adjacent to the mechanical room, providing vehicular access to the snack bar service entry, mechanical yard, electrical room and storage room. All vehicular pathways must be kept away from children and pedestrian pathways and outdoor activity areas.
Controlled Entry Access	A buzzer security system, with manual override, must be installed to facilitate entry into the facility.
HVAC	HVAC units will provide heating and air conditioning for the entire facility excluding the Mechanical and Electrical Rooms which require only heating. A system with zoning flexibility must be provided to accommodate variations in usage (e.g. evenings, weekends, events).
Mechanical /Electrical Room	Mechanical room to open directly to the exterior of the building with no access to the interior space or direct access to the playground. Mechanical yard must be located away from the outdoor activity area for noise and environmental considerations.
CATV (Cable Television)	Provide empty boxes and conduits for 1 CATV in the teen room and 1 CATV in the staff lounge.
Communication Room	Provide separate room for communication sized to meet the minimum DOIM requirement for electrical boxes and connections.
Drinking Fountains	Drinking fountains to be provided in the interior of the facility.
Energy Policy Act 2005 (EPACT 05) and Executive Order 13423 (E.O. 13423)	Youth Centers shall be designed in compliance with statutory requirements for federal facilities IAW EPACT 05 and E.O. 13423.
Sustainability	Youth Centers are designed to meet current sustainable development and design policy requirements as established by the Department of the Army.

GUIDANCE

Size classification - The size is classified by the number of youth to be accommodated in the primary program space. A separate teen room is dependent on the installation requirement and accounts for the range in facility capacity. An additional 60 youth may be accommodated in the multi-purpose room.

Facility Site – The Child Development Center (CDC) will be evaluated for security requirements in accordance with UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings, latest edition. The facility is not to be sited near or next to facilities that sell or serve alcoholic beverages or tobacco products or in close proximity to an adult recreation facility or Soldier quarters. Parking area and roadways shall be provided with curbs and gutters.

Grading – The site will be graded to drain away from the new structure to existing drainage ditches or storm drain systems.

Utilities – All utilities, except storm water, will be routed from the new structure underground to the existing source.

Landscaping – Irrigation of turf and significant landscaping may be required in geographical areas which are arid. Landscaping is an important tool in the implementation of Force Protection measures. Landscaped earth berms shall be used to provide an attractive natural barrier. Shrubs, bushes, trees, flowers, etc. used around the Youth Center and outdoor activity area shall be evaluated for potential hazard or toxicity. No toxic chemicals or herbicides shall be used to clear the site of unwanted irrigation.

Interior Color Scheme – Standardized interior colors schemes have been developed for the Garrison to select from.

Specific Activity Room(s) – are designed for more active functions such as dance or martial arts. As such, these rooms may need to accommodate different flooring and features (such as mirrors for dance), depending on the intended use. The designer needs to coordinate for any special requirements (e.g. flooring, walls, ceiling height, etc.) for these type activity rooms. Specific activity rooms to accommodate up to 15 youth.

Floor Drains – All toilet and wet areas to include janitor and laundry rooms and multiple locations in the kitchen must have floor drains.

Casework – Provide for solid surfacing counter tops and high quality cabinets. Millwork is required as shown in the Standard Design. Millwork is to be constructed out of plywood. Particle board is not acceptable. Solid surface countertop (or better) must be provided. Materials other than solid surfacing would need IMCOM Center of Expertise approval.

Exterior Windows - Exterior windows (single or double hung operable windows) shall meet the UFC 4-010-01 requirements for ATFP. All windows are to be screened.

Interior Windows - All interior windows shall be tempered safety glass.

Life Safety - The building fire protection systems, shall be designed in accordance with the applicable standards contained in the Unified Facilities Criteria (UFC) 3-600-01, Fire Protection Engineering for Facilities, UFC 4-740-06, Youth Centers, and National Fire Protection Association (NFPA) 101, Life Safety Code. A complete automatic sprinkler system shall be provided in accordance with UFC 3-600-01 and NFPA 13. The fire alarm system shall be designed in accordance with NFPA 72, which will provide pull stations at each exterior exit door and textual (voice) audible and visual (strobes) notification devices. Smoke detectors for Youth Centers will be in accordance with UFC 4-740-06. Placement of the enunciator panel is a local fire department call. If there is no preferred location, then the panel shall be

placed in the entrance of the facility. Where possible, the Mass Notification System (UFC 4-021-01) shall be integrated with the fire alarm system.

Video Monitoring Security System/Closed Circuit Television (CCTV) - AR 415-15 - Appendix L, Information Systems Support is the source of Army policy for funding of video monitoring equipment. MILCON/MCA dollars are to be used for cabling and fittings, connectors, terminal strips, and similar devices needed to install the cable up to the outlet device plate. Operating Maintenance Army (OMA) dollars are used to purchase and install monitors, cameras, parent viewing monitors, operating consoles, etc. for the video surveillance system. The equipment, external to the outlets, is considered personal property.

Accessibility – The Youth Center shall be designed in compliance with the Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities.

Signage – The facility shall be identified as a “Youth Center”. The installation/garrison or community name or geographic location of the facility may be used for public identification purposes. Location of sign is a site-adapt issue. The facility signage is to be in accordance with the Installation Design Guide.

Antiterrorism/Force Protection – The most current guidance (UFC 4-010-01, Force Protection) must be incorporated into the site layout and standard design using. A Mass Notification System shall also be provided using UFC 4-021-01, Design, and Operation & Maintenance for Mass Notification Systems. To protect the facility and its occupants, consider a natural approach without degrading the visual surroundings as a method of protection.

UFC 4-740-06 –The Army Standards comply with the Unified Criteria for Youth Centers, UFC 4-740-06, dated 12 January 2006. Additional guidance contained within.

CIVIL

I. GOVERNING CRITERIA:

- A. Architectural and Transportation Barriers Compliance Board, ADA Accessibility Guidelines for Buildings and Facilities; Play Areas
- B. Uniform Federal Accessibility Standards (UFAS)
- C. Americans with Disabilities Act (ADA) “Accessibility Guidelines for Buildings and Facilities”
- D. Unified Facilities Criteria (UFC 4-740-06) Youth Centers

II. SITE LAYOUT:

- A. The Youth Center (YC) shall be located on the building site so that a bus drop-off lane can be provided near the front of the building. The bus drop-off lane shall be in close proximity to the main entry. A sign at the entry to the bus drop-off lane shall read “Bus Drop-Off Lane Only All Other Vehicles Prohibited”
- B. A parking lot shall be provided, with the number of staff and patron spaces designated on the standard drawings. A Site Traffic Impact Study will be done during the site design. The staff parking shall be located in those spaces, which are furthest away from the building. Parking lots and service drives shall be set back from the building the minimum distance required by current Department of Defense Antiterrorism/Force Protection Construction Standards.
- C. The YC Facility will be sited a minimum of 148’ from the installation perimeter and 82’ from trash containers, roadways and parking lots. If these standoff distances are not provided the YC facility will be hardened as described in the “Department of Defense Antiterrorism Minimum Construction Standards for Buildings”. The facility will be separated a minimum of 33’ from other structures. If the building is sited near an installation perimeter the primary access doors will face away from installation perimeter.
- D. A service drive shall be provided on the side of the building adjacent to the mechanical room, providing vehicular access to the kitchen service entry, mechanical yard and storage room. The service drive shall have a controlled access point, with a control structure such as a lockable mechanical arm or locking gate, which prohibits vehicles from passing beyond the required 82’ stand-off distance without being admitted by a staff member. A concrete sidewalk wide enough for small trucks and vans to drive on, shall be provided along the side of the building to provide access for deliveries and service to kitchen, mechanical room and storage room.
- E. A trash enclosure shall be located at the end of the service drive with a paved turn-around, which allows trucks to approach the dumpster head on then back up and turn around to exit.
- F. The facility shall be oriented in a manner, which takes advantage of desirable views. The preference is for visibility of views from within the building to the exterior. Exterior play

areas shall be located as far from drives and parking as possible for both safety and force protection purposes.

G. Fenced mechanical yard shall be provided.

III. OUTDOOR ACTIVITY SPACE:

A large turfed area shall be provided to serve as an outdoor play area. It shall be accessible from the activity room and the adjacent gym door.

IV. GRADING: The site will be graded to drain away from the new structure to existing drainage ditches or storm drain system.

V. PAVEMENT: Asphaltic concrete will be used for both new roads and parking areas. Concrete curb and gutter will be used for all parking areas.

VI. STORM DRAINAGE: The parking areas will be graded to drain into drainage inlets which shall tie in to existing storm drain system. Curb cuts will also be provided as required to keep pavement drained.

VII. UTILITIES: All utilities will be routed from the new structure underground to the existing source. All utility connections shall be in accordance with local, state and federal regulations.

VIII. LANDSCAPING:

A. Landscaped earth berms or large boulders shall be employed to provide an attractive natural barrier, which prevents vehicles from gaining access to buildings beyond the required stand-off distances. It is preferred that force protection requirements be met as much as possible with natural elements in lieu of bollards or other man made devices. Plantings and any site furnishings shall be located so that they do not allow for concealment from observation of explosive devices 6 inches or greater in height.

B. Irrigation of turf and significant landscaping may be required in geographical areas which are arid.

ARCHITECTURAL

I. GOVERNING CRITERIA:

- A. Technical Bulletin “ Occupational and Environmental Health Food Service Sanitation” TB MED 530
- B. NFPA 101, Life Safety Code (latest edition)
- C. International Building Code (latest edition)
- D. Architectural and Transportation Barriers Compliance Board, ADA Accessibility Guidelines for Buildings and Facilities; Building Elements Designed for Children’s Use.
- E. Architectural and Transportation Barriers Compliance Board, ADA Accessibility Guidelines for Buildings and Facilities; Play Areas
- F. Uniform Federal Accessibility Standards (UFAS)
- G. Americans with Disabilities Act (ADA) “Accessibility Guidelines for Buildings and Facilities”
- H. Architectural Woodworking Institute (AWI) Quality Standards (latest edition)
- I. Architectural Sheet Metal Manual, Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) (latest edition)

II. GENERAL: This standard design can be adapted to many differing site conditions in a variety of locations. Some aspects of the design may need to be altered in response to specific site criteria. Refer to individual Installation Design Guides for local requirements on exterior design and details.

- A. Building Exterior: This will be a single story building with exterior finishes which meet the requirements of the installation design guide. A durable brick veneer wainscot may be used below the windows to relate to a youth’s height and to provide protection for the building surface at ground level. Gable or hipped roofs are preferred to give the facility a non-institutional appearance in keeping with th program requirements.
- B. Building Floor Plans: There are three different size buildings for the standard design Youth

Center, Small (60-90 capacity), Medium (105-135 capacity) and Large (150-180 capacity). All three of the buildings are laid out with activity and support spaces surrounding one or more central Commons spaces. Each Commons will have a 43' x 16' activity area, which allows 45 sf of space for 15 youth. The activity portion of the Commons' spaces is surrounded on all sides by an 8' wide circulation space. Many programs will use Commons walls for cabinets or other furniture items therefore the 8' foot of circulation space is required to insure that a minimum of 6' clear is maintained to meet egress requirements. The activity and circulation portions of the Commons will be distinguished from one another by differing floor tile colors or patterns. On the floor plans the Commons areas were shown with a diamond hatch pattern; however this was not intended to control the floor pattern design. The main Commons space will have a 15' high dropped acoustical ceiling to reduce noise in the Commons. The perimeter of the Commons will be surrounded by clerestory windows, translucent panels, dormers or other means which allow natural light into the space. The low roof design at secondary atriums will not allow ceiling heights to be as high as in the main atrium. They shall have a 12' high acoustical ceiling. Skylights are not an acceptable means of meeting the natural lighting requirement for the atrium. Behind the main Commons area all three sizes of the facility shall be provided with a Multi-purpose room. This room shall be sized to accommodate a regulation size full court high school gymnasium. Adjacent to the Multi-Purpose Room Male and Female toilets shall be provided which are also accessible to sports fields outside the building. It is intended that the Multi-Purpose room can function independently of the rest of the building. It can be used for after-hours or weekend functions while the rest of the Youth Center is locked and inaccessible.

- C. Interior Walls: Interior walls will be non-load bearing steel studs with painted gypsum board. Acoustic attenuation blankets will be strategically used inside walls. Epoxy paint will be used on walls in areas subject to marking by the youth. Interior colors will be low maintenance neutrals to mitigate visual clutter and provide a backdrop for colorful artwork. Glass vision panels will be interspersed throughout to maintain visual control within the facility. Vinyl composition tile will be used in activity rooms, the training room, the break room and corridors. Carpet will be used in administrative office areas. The Multi-purpose room will have a resilient athletic floor. Toilets will receive either sheet vinyl or ceramic tile.

III. MASONRY:

- A. If a brick veneer wainscot is used, it shall be founded on concrete footings and shall extend to 2'-2" above the finished floor (AFF) and be topped with a rowlock course, which is slightly sloped to shed water away from the building. The brick veneer shall extend to 15'-9" AFF at the Multi-purpose room and shall be topped with three soldier courses and a rowlock course. Brick veneer shall be anchored to steel studs and other supports.
- B. The Multi-purpose room walls shall be constructed with 12" reinforced concrete masonry units.

- IV. CASEWORK: Cabinets and counters shall be flush overlay design and shall be custom built. Casework shall be custom grade and shall be built to the quality standards specified in AWI Quality Standards for cabinets and casework. Cabinet bases and upper cabinets shall be constructed with interior grade plywood. No particle board shall be used for this purpose. Door design shall be solid flush face. Flush doors shall be hardwood plywood with matching solid hardwood edges. Drawer fronts shall be at least 3/4" solid wood. All exposed surfaces shall be covered with plastic laminate. Countertops and backsplashes shall be solid surface polymer.
- V. EXTERIOR INSULATION AND FINISH SYSTEM (EIFS):
- A. Where allowed by the installation design guide, an exterior insulation and finish system (EIFS) may be used. The EIFS shall be a job fabricated exterior wall covering consisting of insulation board, reinforcing fabric mesh, base coat, finish coat and accessories.
 - B. Direct exterior finish system (DEFS) is defined as an integrally reinforced base coat applied directly to the substrate and a texture protective finish coat. (Essentially the EIFS system without the insulation). The DEFS system shall be applied directly over glass mat gypsum sheathing board in locations indicated on drawings.
- VI. STRUCTURAL STANDING SEAM METAL ROOF (SSSMR) SYSTEM: The SSSMR is the preferred roofing material where it is allowed by the installation design criteria. It shall include the entire roofing system; the standing seam metal panels, fasteners, connectors, roof securement, components and assemblies tested and approved in accordance with ASTM E 1592. In addition the system shall consist of panel finishes, slip sheet, insulation, vapor retarder, all accessories, components, and items such as vents, curbs, skylights; interior and exterior gutters and downspouts; eaves, ridge, hip, valley, rake, gable, wall, or other roof system flashings installed to provide a weathertight roof system.
- VII. DOORS AND FRAMES:
- A. All doors into activity rooms or support spaces which would allow an adult to enter and close the door behind them must have a vision panel in the door. Doors to toilet rooms are an exception to this requirement.
 - B. Steel doors and frames shall be heavy duty (grade II) and comply with ANSI A250.8.. Exterior doors shall be thermally insulated with rigid plastic foam permanently bonded to each face panel.
 - C. Aluminum doors and frames shall be color anodized. Frames shall be double glazed window wall system. Aluminum doors shall have medium stiles and rails and shall be single glazed.
 - D. Wood doors shall be flush with solid cores and shall have premium grade, book matched red oak veneer to receive a natural finish. Wood doors shall comply with the Window and Door Manufacturer's Association (WDMA)) publication NWWDA I.S.1-A.

- E. Overhead rolling doors shall be spring counterbalanced, rolling type, with interlocking slats, complete with guides, fastenings, hood, brackets, and operating mechanisms.

VIII. WINDOWS, GLASS AND GLAZING:

- A. Exterior windows shall be 3'x 5' single or double hung windows
- B. Exterior clerestory windows shall be fixed aluminum windows.
- C. Interior windows shall be 3'x 4' with tempered glazing and painted metal frames.
- D. Glazing in exterior windows shall be of 1" insulated tinted glass.
- E. Glazing in doors and interior windows shall be clear ¼" tempered glass.
- F. Exterior windows and door lites shall meet UFC 4-010-01, Department of Defense Minimum Antiterrorism Standards for Buildings.

IX. BUILDER'S HARDWARE

- A. Builder's hardware shall conform to Builders Hardware Manufacture's Association (BHMA) publication A156 and the Door and Hardware Institute (DHI) publication A115.
- B. Door hardware shall conform to National Fire Protection Association (NFPA) regulations NFPA 80 (Fire Doors and fire Windows), NFPA 101 (Life Safety Code), and NFPA 105 (Installation of Smoke-Control Door Assemblies).
- C. Door hardware shall be grade 1.
- D. Exterior doors shall have flush type panic hardware.

- XI. ACOUSTICAL TREATMENT: The multipurpose room shall receive acoustical baffles suspended between the top and bottom chords of all bar joists suspended by bar joist flange clamps.

XII. SPECIALTIES:

- A. The Multi-purpose room shall receive a roll-up type gym divider, which divides the room into two equal parts. The curtain shall be suspended from the roof structure fabricated from solid vinyl coated polyester. The curtain shall be raised and lowered with an electric winch. The curtain shall be operated with a spring loaded momentary key switch which requires the person operating it to maintain a constant pressure on the switch until it is raised or lowered to it's proper position. The switch shall be located to full view of the curtain to the operator.
- B. In Activity Rooms which are specifically designed for dance, a 5' high plexi-glass mirror shall be applied to the length of one wall.
- C. The storage room adjacent to the Multi-purpose Room shall be provided with a steel mezzanine for storage of uniforms. It shall be free standing and capable of being erected,

dismantled and relocated solely with the use of hand tools. The floor area of the mezzanine shall be no larger than $\frac{1}{3}$ the area of the room in which it is located. It shall be custom designed by an established firm specializing in mezzanine systems in accordance with the Ninth Edition of the American Institute of Steel Construction (AISC). The design shall be supervised and approved by a licensed professional Engineer. The structure shall also be designed in compliance with the International Building Code (IBC) and the Occupational Health and Safety Administration (OSHA).

Elements of the mezzanine system shall meet the following criteria:

Steel Columns: Reference Structural

W-Beams: Reference Structural

Guardrail: Three rails (11" spacing), 2" square top rail, 1 1/2" square intermediate rails, 2"x4" rectangular kick plate. All tubing use in handrail shall be 14 gauge wall thickness.

Stairs: Stairs shall be welded one piece construction and shipped completely assembled with exception of guardrail and designed to meet IBC. Risers shall be closed. Handrail will be provided for both sides of stair and have a 1 1/2" grip.

Floor: Floor shall be constructed of metal grating.

- XIII. LIFE SAFETY: The Youth Center shall be designed in compliance with the latest version of the International Building Code (IBC) and with the latest version of the Life Safety Code (NFPA 101). Additionally the following protective measures shall be taken whether or not required by the referenced codes:
- A. The Youth Center shall be protected throughout by an approved automatic sprinkler system.
 - B. The Mechanical room shall be separated from other spaces by fire rated walls per IBC
 - C. The Laundry room shall be separated from other spaces by walls having a minimum 1- hour fire rated construction.
- XIV. ACCESSIBILITY: The Youth Center shall be designed in compliance with the current version of the Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities. Additionally areas accessible to youth shall be in compliance with the ADA Accessibility Guidelines for Buildings and Facilities: Building Elements Designed for Children's Use, published by the Architectural and Transportation Barriers Compliance Board.

STRUCTURAL

I. GOVERNING CRITERIA:

- a. UFC 1-200-01 General Building Requirements
- b. UFC 4-010-01 DoD Minimum Antiterrorism Standards for Buildings
- c. UFC 3-310-01 Design: Structural Load Data
- d. International Building Code (as modified by UFC 1-200-01)
- e. AISC Load and Resistance Factor Design Specification for Structural Steel Buildings, Current Edition.
- f. AISC Specification for the Design of Steel Hollow Structural Sections and Hollow Structural Sections Connections Manual.
- g. Building Code Requirements for Reinforced Concrete, ACI 318.
- h. Building Code Requirements for Masonry Structures, ACI 530.
- i. AISI Specification for the Design of Cold-Formed Steel Structural Members.
- j. Minimum Design Loads for Buildings and other structures, ASCE 7.
- k. NEHRP Recommended Provisions for Seismic Regulations for New Buildings and Other Structures, FEMA 302.
- l. ASTM D 2487 Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).

II. DESCRIPTION:

- a. General: Structural systems described herein are by necessity generic for a prototype design will vary according to site specific design criteria as needed for economy and structural soundness. Site soil conditions, wind and seismic loads, and the economy of different structural systems vary by geographic locale.
- b. Foundation System: The most common and economical foundation system for this structure would be continuous spread footings around the low roof building and around the multi-purpose room perimeters with individual spread footings at interior columns. Floors would be concrete slabs on grade with perimeter turndowns onto the continuous footings. Minimum floor slab construction is 4 in of 3,000 psi compressive strength concrete on 6 in capillary water barrier with a vapor barrier. More expensive alternatives on poor soils include structural supported slabs with drilled piers and grade beams, or ribbed mat foundations (either conventional reinforcement or post-tensioned).
- c. Roof System: Unless the Installation Design Guide specified otherwise, the roof would consist of an architectural standing seam metal roof on 1.5 in steel decking

acting as roof diaphragm carrying lateral wind and seismic loads to the walls. The decking would be supported by steel bar joists and steel wide flange beams. Steel Z-purlins could replace bar joists if economically justified. The multipurpose area roof is pyramid shaped with no interior supports. The roof structure will be most economically framed with intersecting steel trusses placed diagonally across the room. The triangular shaped infill areas can then be framed with bar joists or Z-purlins beneath the steel roof deck.

- d. **Wall Systems:** The multipurpose room walls will consist of 11-5/8 in thick reinforced concrete masonry unit walls. These walls provide excellent durability and shear strength. Particular attention must be directed towards detailing and constructing the piers between the clerestory windows as these piers must transmit roof dead, live, seismic and wind forces, both in plane and out of plane, through relatively thin wall sections. All other exterior walls will be constructed with concentric or eccentric steel braced frames infilled with light gauge steel studs backing a brick veneer or other architectural wall surface. Tube steel columns and braces are usually the most economical and easy to detail for this application. Interior columns at the atrium clerestory will have to be sized to limit drift of the elevated roof to acceptable levels.

III. DESIGN LOADS:

- a. **Roof Live Load:** Minimum roof live load of 20 psf with live load reductions allowed per the IBC.
- b. **Roof Snow Load:** Varies per specific site. Include drift.
- c. **Mechanical Floor Equipment Loads and Floor Live Loads:** Minimum 150 psf.
- d. **Dead Loads:** Calculated weights of materials.
- e. **Wind and Seismic Loads:** Vary per specific site. Loads determined per ASCE 7

4. Design Stresses

- a. **Minimum Concrete Compressive Strength:** 3,000 psi.
- b. **Reinforcing Steel:** $F_y = 60$ ksi.
- c. **Structural Steel:** WF Sections, $F_y = 50$ ksi. HSS Sections, $F_y = 46$ ksi. All Other, $F_y = 36$ ksi.
- d. **Drift Limitations:** 0.005 times story height unless masonry walls are used, then 0.002 times story height shall be used.

MECHANICAL

I. HEATING, VENTILATION, AIR CONDITIONING

A. Governing Criteria - Heating, ventilating, and air conditioning (HVAC) will be designed in accordance with the latest version of the following:

1. American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) Handbooks
2. ASHRAE Standard 62.1, Ventilation for Acceptable Indoor Air Quality
3. International Mechanical Code (IMC)
4. National Fire Protection Association (NFPA) 90A, Installation of Air Conditioning and Ventilation Systems.
5. Sheet Metal and Air Conditioning Contractor's National Association (SMACNA) HVAC Duct Construction Standards – Metal and Flexible
6. SMACNA Architectural Sheet Metal Manual
7. SMACNA HVAC Systems – Testing, Adjusting and Balancing
8. Unified Facilities Criteria (UFC) 4-740-06, Youth Centers

B. Functional and Technical Requirements

1. Design Conditions - HVAC design loads shall be based on site-specific weather data from recognized and authoritative sources of weather data. Indoor air quality and ventilation shall conform to current ASHRAE Standard 62.1 requirements. Indoor design conditions shall conform to the following:

	<u>Cooling</u>	<u>Heating</u>
Occupied Space Design Temperatures	78°F / 50% Maximum Relative Humidity	68°F
Unoccupied Space Design Temperatures	N/A	40°F

2. Ventilation Requirements - The Mechanical, Fire Protection and Electrical Rooms shall be automatically ventilated to limit space temperature to 10 degrees F above design outdoor air temperature. An exhaust fan shall ventilate the Laundry Room and Janitorial Closet at a minimum rate of two cubic feet per minute (cfm) per square foot of room's floor space. Toilets shall be exhausted at a minimum rate of 50 cfm per water closet or urinal.

C. Design Objectives and Provisions

1. HVAC units will provide heating and air conditioning for the entire facility excluding the Mechanical and Electrical Rooms, which require only ventilation and heating. HVAC systems shall be designed to meet the requirements of each area as specified herein. At least three potential systems for each area should be considered, prior to selection of the best alternative based upon Life Cycle Cost Analysis (LCCA). When available and cost effective, natural gas shall be used as the fuel alternative for heating purposes.
2. An HVAC system with zoning flexibility shall be provided for the main building including the Technology Lab, Homework Center, Activity Rooms, Commons and Administration Areas, Snack Bar, and Toilets. In addition, the Communication and Video Monitoring Equipment Rooms shall have cool, conditioned air supplied to spaces year-round for heat generation equipment. A separate system shall serve the Multipurpose Room. These systems shall incorporate carbon monoxide (CO) and humidity sensors as well as economizer modes when determined beneficial. Unit heaters will provide heating only to the Mechanical, Fire Protection and Electrical Rooms. Thru-the-wall units, evaporative cooling, and rooftop units are not desired.
3. The air distribution systems shall be designed to maintain noise criteria at an acceptable level. Ductwork will be designed and installed per SMACNA, Class A requirements. Locate outside air intakes a minimum of 10 ft AFF or on the roof of single-story inhabited structures, and restrict access to the intakes as per Force Protection requirements. Fire dampers will be provided in ductwork at firewall penetrations and smoke duct detectors shall be included in the system design as required per NFPA. All mechanical equipment shall be specified with the recommended vibration isolators. Seismic restraints for the specific site location shall be incorporated into the design.
4. Direct digital controls (DDC), outside air temperature, CO sensors, motion sensors and wall-mounted thermostats with dead bands should be used. The control system shall be specified with electric or electronic control devices for all HVAC equipment. The HVAC systems shall be able to connect to a base Energy Monitor and Control System (EMCS) and shall provide data requested by the base. The HVAC systems shall be controllable by the base EMCS as specified by the base. Include emergency shutoff switches in the control system that immediately shut down HVAC systems.

II. PLUMBING

- A. Governing Criteria - Plumbing will be designed in accordance with the latest version of the following:
 1. Americans with Disabilities Act (ADA) “Accessibility Guidelines for Buildings and Facilities”

2. International Plumbing Code (IPC)
3. NFPA 54, National Fuel Gas Code
4. State/Local Plumbing Codes
5. UFC 4-740-06, Youth Centers

B. Functional and Technical Requirements

1. Adequate toilet facilities shall be provided to accommodate the specified capacity of youth and staff assuming an equal number per gender. Domestic cold water service shall be provided for all plumbing fixtures such as toilets, lavatories, and sinks. A water heater shall supply domestic hot water to all specified fixtures. The hot water system shall have a recirculation loop for both the 140°F and 110°F hot water supplies. Frost-proof hose bibs, a water meter, and CFC free water coolers shall be provided as required.
2. When available and cost-effective, natural gas will be used as an energy source for the hot water heater or other specified equipment. The gas distribution system shall be designed in accordance with the National Fuel Gas Code. The interior natural gas, vent, water and waste piping, connected to specified equipment and fixtures shall conform to the IPC and the applicable State/Local Plumbing Codes.

C. Design Objectives and Provisions

1. The supply and waste piping shall meet all the appropriate material and installation requirements and be insulated as required. The fire line, domestic water, natural gas, and sanitary sewer connections will meet all applicable requirements. The water heater shall provide 140°F hot water to the kitchen fixtures. A mixing valve will reduce the water temperature to 110°F for the rest of the facility. Handicapped accessible fixtures will be provided as required. For project sites located in hot, dryer climates, use of outdoor 'water misting' systems shall be considered.

III. FIRE PROTECTION

A. Governing Criteria – The building fire protection system shall be designed in accordance with the latest version of the following:

1. Applicable NFPA codes including NFPA 13, Installation of Sprinkler Systems and NFPA 101, Life Safety Code
2. UFC 3-600-01, Design: Fire Protection Engineering for Facilities

B. Functional and Technical Requirements

1. An automatic wet pipe sprinkler system will be provided for the entire facility. The fire sprinkler system shall be hydraulically designed by a licensed fire protection engineer. A site-specific, preliminary hydraulic calculation of the existing water supply shall be performed prior to final system design. Where any two codes conflict, the more stringent shall apply.

C. Design Objectives and Provisions

1. The fire sprinkler riser shall be located and installed in dedicated space or mechanical room with external access for fire department. Areas in building subject to freezing shall be heated to help prevent freezing. The system shall include communications capabilities to the supporting fire department. After a fire alarm shut-down is cleared at the fire alarm panel, affected mechanical equipment shall automatically re-start.

ELECTRICAL

I. GENERAL DESIGN CRITERIA

- A. Design Criteria, TI 800-01, (Formerly Architectural and Engineering Instructions, Design Criteria manual).
- B. Unified Federal Guide Specifications.
- C. Electrical Power Supply and Distribution, TM 5-811-1/ AFJMAN 32-1080.
- D. Interior Electrical System, UFC 3-520-01.
- E. Interior Lighting Fixture Sketches, UFGS 26 51 00.
- F. IES Lighting Handbook, published by the Illuminating Engineering Society (IES).
- G. Design: Interior and Exterior Lighting and Controls, UFC 3-530-01.
- H. Grounding, Bonding, and Shielding for Electronic Equipments and Facilities, MIL-HDBK-419A.
- I. Telephone and Network Distribution System Design and Implementation Guide, ETL 1110-3-502
- J. Installation Information Infrastructure Architecture (I3A) Design and Implementation Guide and ECB 2007-14.
- K. Engineering Fire Protection, UFC 3-600-01.
- L. National Fire Alarm Code, NFPA 72.
- M. Facility Planning and Design Guide, MIL-HDBK-1190.
- N. Youth Centers, UFC 4-740-06.
- O. DOD Minimum Antiterrorism Standards for Buildings, UFC 4-010-01
- P. Design and O&M: Mass Notification Systems, 20 Sept. 2006, UFC 4-021-01

II. INTERIOR ELECTRICAL

A. Lighting - Lighting will conform to IES standards. Provide a combination of task and ambient lighting in most of the areas. Compact fluorescent and 4' linear fluorescent T8 fixtures shall be used in most places. Where 3 and 4 lamp fluorescent fixtures are used; 1 or 2 lamps can be on ballast in the fixtures and each group of ballasts can be switched. Provide task lighting in the Lobby area. Light fixtures in the administrative areas and the computer lab will have parabolic lenses. Enclosed surface mounted gasketed fluorescent light fixtures will be provided in the kitchen and the dry food storage room. Provide dedicated fixtures over the gaming tables in the Commons Room along with a variety of other accent and task lighting fixtures. In the Snack Bar area provide task lighting. HID Metal Halide lighting with wire guards will be provided in the multipurpose room with perimeter compact fluorescents multi-level switched for non-sport activities. Zoned lighting should be provided in the Multi-purpose Room and the Activity rooms. Provide a variety of accent lighting fixtures in the Teen Room. Fluorescent fixtures with emergency battery packs will be provided for emergency egress lighting where fluorescent fixtures are used. Battery type emergency lights will be used in the multipurpose room and on exterior fixtures at each egress per NFPA 101. Exit lights will be the LED type. A wire guard shall protect emergency lights and exit lights in the multipurpose room. Footcandle levels will conform to the requirements the IES.

1. Permanently fixed, artificial light sources will be installed to provide at least the following illumination levels:

- a. Lobby, Snack Bar/Vending, – 430 lux (40 foot-candles)
- b. Check-In, Offices, Copy Area, SAC Activity Rooms, Break/ Staff Training Room, Kitchen, General Activity Room, Special Activity Room – 540 lux (50 foot-candles)
- c. Commons, Teen Lounge – 215 to 430 lux (20 to 40 foot-candles)
- d. Homework Room – 500 lux (50 foot-candles)
- e. Toilets – 500 lux (50 foot-candles)
- f. Computer Room - 430 lux (40 foot-candles)
- g. Multipurpose Room – 540 lux,(50 foot-candles) Metal Halide, with perimeter compact fluorescents multi-level switched

B. Power - Interior electrical installation will conform to the requirements of the NEC and applicable Army criteria. The interior electrical distribution system will utilize 277/480 volts, 3-phase, 4-wire system for lighting, HVAC equipment, and additional loads, if this voltage is available at the site. Dry type transformers will be used to provide 120/208 volts, 3-phase, 4-wire systems for lighting, convenience outlets, small motor loads, and other miscellaneous loads, if 3-phase service is available at the site. Interior installation will consist of conductors installed in conduit. Receptacles will be strategically located.

1. Receptacles installed adjacent (within 1830 mm (6 feet)) to a water source in the following locations will be a Ground Fault Circuit Interrupter (GFCI) receptacle.

- a. Snack Bar.
- b. Janitor's closets.
- c. Exterior.
- d. Toilets.
- e. Activity rooms with sink(s).
- f. Staff lounge kitchenettes with sink(s).
- g. Laundry room except for washer and dryer outlets.

2. Receptacles installed in Restrooms shall be Ground Fault Circuit Interrupter (GFCI) receptacles.

3. The normal mounting height for the receptacles will be 450 mm (18 inches) above the floor. The measurement is from the bottom of the plate.

- a. Outlets for under the counter refrigerators should be mounted behind the refrigerators at the standard height of 450 mm (18 inches).

4. Power for the CCTV System:

- a. Power Supply: For systems with 64-camera size, or smaller, one (1) 120VAC/20-Amp power drop shall be supplied to the location designated for the CCTV power supply(s). For systems larger than 64-camera size, two (2) 120VAC/20-Amp power drops shall be supplied to the location designated for the CCTV power supply(s).
- b. Service Equipment Rack (SER): A 120VAC/30-Amp circuit and receptacle shall be installed in the location designated for the SER.
- c. Cameras: Power for the CCTV camera shall be distributed from the power supply (PS) location.
- d. Note: The conduit fill rate shall conform to the NEC standard of 40% fill. The camera power cable shall be 2-conductor AWG 18 gauge stranded unshielded Plenum rated, Belden P/N 89740 or equivalent cable type. The camera video cable shall be RG-59U type CCTV Plenum coax, West Penn P/N 25815 or equivalent cable type.

5. Receptacles for cable television will be located near the CATV television outlets.

6. Receptacles shall be provided in the Snack Bar for a refrigerator/freezer and a

food warming unit. Also provide 3 duplex outlets underneath the counter for small appliances. Provide outlets for 2 vending machines in close proximity to the snack bar area.

7. Provide duplex receptacles at 8ft. on-center in the Teen Room. Provide duplex outlets at 4ft. on-center for video games in an area. Provide receptacles at counter height for portable electronic devices.
8. Receptacles for a refrigerator and a microwave shall be provided in the Staff Lounge.
9. Four duplex receptacles shall be provided along the wall in the Technology Lab.
10. Two recessed duplex receptacles shall be installed in the floor in the Commons Area.
11. Power shall be provided for adjustable basketball goals in the Multi-purpose room. Also provide electrical outlets on the walls for the score boards, boom boxes, etc.
12. Additional receptacles should be provided at the Reception Area Counter to handle the large number of items requiring electrical power. The number and location should be coordinated with Facilities Automated Management Systems (FAMS).

C. Fire Alarm System – The Fire alarm system will comply with the requirements of Unified Facilities Criteria (UFC) 3-600-01, Design: Fire Protection Engineering for Facilities and the NFPA 101 Life Safety Code. The location for the building fire alarm control panel will be coordinated with the local Fire authority, but it is generally located in the Electrical Room with a remote annunciator at the primary entrance to the facility. Horn/strobe annunciation will be provided. Horns should produce a chime like sound that is pleasant and distinctive from other alarms in the building. Pull stations will be the non-glass, key reset type. Smoke detectors will be provided in the supply and return air ducts. The HVAC system will be shutdown upon activation of fire alarm system. A separate fire suppression system is required for the kitchen exhaust hood. An alarm signal will be transmitted to the local fire department. This signal must be compatible with the local fire department's equipment.

D. Communication

1. Telephone/Data – All administrative information outlets shall be dual 8-position type RJ45 jacks. Dedicated inside and outside plant ducting space shall be provided for the purpose of fiber optic cable installation. A nylon pull cord shall be installed in all communications conduits including entrance conduits, conduits between the communications

room and station outlets, and conduits having cable. All telephone/data outlets shall be connected from the communications equipment room terminal backboard with two 4-pair, EIA/TIA 568A Category 6, unshielded twisted pair (UTP) solid copper station cable. All single 8-position type RJ45 wall (and pay telephone outlets if desired) shall be connected from the communications equipment room terminal backboard with one 4-pair, EIA/TIA 568A Category 5e, unshielded twisted pair (UTP) solid copper station cable. A 25 mm (1 inch) conduit stub shall be installed from each outlet to a common cable tray mounted above the ceiling. This cable tray shall extend to the communications room. A wall telephone outlet shall be installed in all Communication rooms, Electrical rooms, and Mechanical rooms. Three walls in the Communications room shall be covered with 1220 X 2440 X 19 mm (4 ft X 8 ft X 3/4 inch) plywood with 2 coats of insulating varnish. A minimum of one 120 volt, 20 amp dual AC outlet on a dedicated circuit breaker shall be installed on the communications room terminal backboard. A minimum of a number 6 AWG ground wire shall be installed from the communications room terminal backboard and connected to the building's metallic ground. Sufficient coil length shall be left to reach any part of the telephone backboard. Polyurethane foam duct seal shall be installed in all duct and innerduct entering the building.

2. Networking Equipment - LAN type-networking equipment will be installed in the communications room. LAN type networking equipment is usually GFGI (Government Furnished, Government installed) and Government Connected. Data lines shall be provided to each networking workstation. Networking workstations shall be provided at the front desk, the director's office, and two stations in the training room. The networking workstations shall be connected to the base LAN system.

3. Computer Lab – Data lines for 16 workstations, a printer and a server should be provided from the communications room to the computer lab. At least one voice communication line shall be provided. The computer lab wiring configuration shall be 10BaseT Ethernet twisted pair wiring. The computer lab shall be wired for a local area network (LAN). The computer lab shall have internet accessibility - hook to non-classified network (NIPERNET). For the smaller facility, provide data lines for 7 workstations. Additionally data drops shall be provided:

- Reception Desk – to support CYS computer and electronic sign,
- Teen Lounge – two (2) data lines per group size,
- Director's Office, Administrative Office, Copy Area, Staff Lounge/Training Room,

4. Review – In accordance with ETL 1110-3-502, the communications system design shall be based upon the Installation Information Infrastructure Architecture (I3A) Design and Implementation Guide and shall be reviewed by the Information Systems Engineering Command, Ft. Detrick Engineering Office (ISEC-FDEO).

5. Intercom - A 2-way voice system will be provided between locations designated by the user. The intercom system will be separate from all other systems, and will be

a two-way system in which program staff can communicate with the main reception desk. The master station is generally located at the reception area desk and remote stations are generally located in each activity room, staff lounge, training room and Director's office.

6. CATV (Community Antenna Television) - Signal outlets will be provided in teen room, Commons, game area and staff lounge. A CATV signal outlet shall not be provided in the activity room. 25 mm (1 inch) conduit with a nylon pull cord shall be installed from each outlet back to the communications room.

7. CCTV (Closed Circuit Television monitoring system) – The locations for the cameras, security equipment rack (SER), system administrator workstation, power and signal circuits and outlets shall be designated by the user. Camera signal outlets are generally provided in the following areas:

- a. Homework room.
 - b. Computer Room.
 - c. All activity rooms.
 - d. Waiting Area.
 - e. Reception area (desk/lobby area/main entrance).
 - f. Teen Room
 - g. Multipurpose Room(s)
 - h. Snack Bar
 - i. Commons
 - j. Copy Area
- 1). A pull box shall be installed at the Reception Counter area, Director's Office and School Age Coordinator with an EMT wire path between it and the SER. The EMT shall be a minimum of one (1) inch in diameter and have a pull cord installed within the EMT.
 - 2). A Pull box shall be installed at the Parental Viewing Monitor (PVM) with an EMT wire path between it and the SER. This path may be shared with an EMT camera path to the SER. RG-59/U of the same type as used for the camera video path shall be used for the signal path between the PVM and SER. The EMT shall be a minimum of one (1) inch in diameter to the first pull box of the shared camera path or home run to the SER and have a pull cord installed within the EMT.
 - 3). A 10/100BASE-T CAT 5 circuit shall be provided between the Video Surveillance System (VSS) administrator's office and the SER location. This shall include a RJ-45 receptacle at the administrator's office and the SER location.

- 4). All EMT shall be sized in accordance with the National Electric Code based upon the type, gauge and quantity of cabling and wiring installed within the EMT.
- 5). The CYS VSS video surveillance equipment is GFGI (Government Furnished, Government Installed). All video surveillance security systems shall be coordinated with Headquarters, Department of the Army, Community and Family Support Division for the latest specifications for Video Surveillance Equipment.

E. Alarm – An audible warning device with a sound that is distinctive from other alarms in the building shall be provided at any corridor and activity room exit door, and reception area desk.

1. Local Door Alarms (DPA)

- a. Provide door alarms for local and remote monitoring of the status of a normally closed, door contact.
- b. A horn within the DPA shall intermittently sound (minimum 80dB) and a normally closed, output contact, from the DPA shall be activated whenever a monitored door contact is held open beyond a user adjustable time (0-60 seconds).
- c. An integral key switch shall be provided for alarm shunt and alarm reset. The key switch shall be incorporated into the faceplate of the DPA.
- d. Local DPA alarm and alarm output contact shall reset upon closure of the monitored door contact.
- e. Local DPA alarm output contact shall be monitored for intrusion and end of line (EOL) supervision by a Zone Annunciator at the reception area desk.
- f. The DPA shall be mounted in the wall adjacent to the monitored door(s) at 42 inches A.F.F. The unit shall mount in a 2-gang electrical box with a minimum depth of 2 ½ inches.
- g. Door prop alarm shall be Designed Security, Inc. Model ES411 Series or equivalent.

2. Zone Annunciator

- a. Multi-Zone Annunciator(s) shall be provided for monitoring the status of EOL supervised alarm output contact from the local DPA.
- b. The modular unit shall be state-of-the-art design and have the option of

- providing four (4), eight (8) or twelve (12) zones of visual and audible (80dB) alarm conditions.
 - c. A red flashing LED, audible indication and activation of a global alarm contact upon the reception of an intrusion alarm condition from the DPA. The unit will remain in this mode until the alarm is acknowledged by pressing the ACK button. Acknowledging the alarm silences the audible and sets the zone LED to a steady ON condition until the point is restored (closing of the door contact). Once the point is restored the LED is extinguished.
 - d. Zone Shunt (bypass) shall be available to individually shunt the zones at the Zone Annunciator only. A bi-color zone LED shall illuminate green when in the Zone Shunt condition. In the Zone Shunt condition the DPA at the door(s) shall operate normally.
 - e. EOL Supervision (line faults) shall be annunciated separately for each zone. Annunciation shall be an amber LED and shall not be re-settable until the fault condition is corrected.
 - f. Annunciators shall be flush mounted in standard electrical boxes with a minimum depth of 2 ½ inches as follows: 4 zone-1 gang, 8 zone-2 gang, 12 zone-3 gang.
 - g. The Multi-Zone Annunciator shall be manufactured in the U.S.A.
 - h. The Multi-Zone Annunciator shall be Designed Security, Inc. Model ES600 Series or equivalent.
- F. Cathodic Protection - Cathodic protection will be provided on underground metallic structures in accordance with applicable Army criteria.
- G. Mass Notification System – A Mass notification system shall be provided to provide real-time information to all building occupants or personnel in the immediate vicinity of a building, including exterior egress and gathering areas. The mass notification system shall comply with UFC 4-021-01.

III. EXTERIOR ELECTRICAL

A. Power Requirements - Exterior electrical will conform to the requirements of the NEC, NESC, and applicable Army criteria. If possible, power to the new facility should be three phase at the highest voltage available. If possible, power to the new facility should be provided underground and utilize pad-mounted transformers. The primary to the transformer should be in two 100 mm (4 inch) concrete encased PVC conduits. One conduit is to be a spare with a nylon pulling cord. The secondary of the transformer should be in schedule 80 PVC conduit below ground and rigid conduit above ground.

B. Lighting - Lighting will be provided on the exterior of the building. Area lighting

will be provided for parking and some general areas. Entry way lighting will be provided. Footcandle levels will conform to the requirements the IES and Mil- Hdbk 1190.

C. Communication

1. Telephone/data – A 2-way underground duct bank with 100 mm (4 inch) ducts and 4-1 innerducts will be provided to enter the building.
2. CATV (Community Antenna Television) - A 50 mm (2 inch) conduit stub with nylon pull wire will be provided from the communications room to 1500 mm (5 feet) from the building line. The User will provide the CATV service.
3. CCTV (Closed Circuit Television monitoring system) - Cameras and signal outlets will be provided in locations designated by the user. Cameras are generally provided in the outdoor activity area or playground (main play areas/equipment areas).
 - a. Each Camera signal outlet shall have RG-59/U cable for the video signal to the SER and 18 AWG, single pair stranded copper wire for the low voltage power from the central camera power supplies. The RG-59/U shall have a minimum 20 AWG center conductor and copper braided shield with 95% coverage.
 - b. Each camera shall have a surge protector in the video and low voltage circuits. The surge protector shall be installed at the cable ingress point of the building.

