

Army Standard for Airfield Operations Building and Air Traffic Control Tower (AOB/ATCT)

Description:

The Airfield Operations Building (AOB) is the central command, control, services, and management center of an Army Airfield Complex. The primary purpose of the Air Traffic Control Tower (ATCT) is to provide a safe, orderly, and expeditious flow of air traffic.

Applicability:

- The AOB/ATCT Army Standard (AS) applies to the planning, design, and construction of an authorized AOB, and/or an ATCT for Army Airfield Complexes (e.g., Army Airfields (AAF) and Army Heliports (AHP)).
- Deviation from requirements identified in this Army Standard and based on Federal Aviation Regulations (FAR), Federal Aviation Administration (FAA) guidance, AR 95-1 (Flight Regulations), and AR 95-2 (Air Traffic Control, Airfield/Heliport, and Airspace Operations) are outside the purview of the Installation Management (G-9) and the Army Facilities Standardization Program. These deviations require pre-coordination and approval by the Commander, US Army Aeronautical Services Agency (USAASA), HQDA, G-3/5/7.
- This Army Standard applies to Active Component Airfield Installations worldwide.
- This Army Standard will serve as the basis for application to the Army Reserve when used for a stand-alone complex approved by Chief, Army Reserve (CAR).
- This Army Standard will serve as the basis for application for Army National Guard (ARNG) Facilities when directed by the Director, Army National Guard (D/ARNG), in accordance with AR 95-2.
- This Army Standard applies equally to other aviation facilities with dedicated on-site management and/or air traffic services not specifically cited above.
- All air traffic service requirements must be assessed by an Air Traffic Services Command (ATSCOM) requirements survey and validated by HQDA, G-3/5/7, (USAASA).
- This Army Standard applies to joint civil-military air installations when command, control, and/or management of the installation is an Army responsibility governed by approved authorization documents.
- All US Army Corp of Engineers (USACE) geographic districts will incorporate the mandatory design features described herein in close coordination with the USACE designated Center of Standardization for Air Traffic Control/Air Operations Buildings (ATCT-COS), Savannah District Corps of Engineers (CESAS). All AOB/ATCT projects must be reviewed by the ATCT-COS to ensure compliance with the Army Standard.
- Army Standard Criteria or building blocks contained herein must be used to the maximum extent (including renovation or modernization projects) to maximize the benefits of the Army Facilities Standardization Program and preclude the need to develop separate Army standards and criteria.
- This Army Standard (AS) incorporates space allowances, standards, and/or criteria, which may conflict with criteria contained in AR 405-70, except for administrative space. Where such conflicts exist, other than administrative space, this AS must serve as the primary authority for AOB/ATCT on Army installations.
- The primary source for determining authorized allowances is the Real Property Planning and Analysis System (RPLANS).

Waivers:

- Only the Deputy Chief of Staff, G-9 Installations has the authority to approve exceptions to the Army Standard.
- Waivers from the Army Standard must be requested in accordance with the AR 420-1, "Army Facilities Management," latest edition.
- Operational waivers as defined and stipulated in AR 95-2 remain within the purview of Commanders (e.g., ACOM, ASCC, and DRU).
- Waivers to obstruction or engineering criteria as defined in UFC 3-260-01, MIL-STD 3007 and stipulated in AR 95-2 remain within the purview of HQDA G-3/5/7 (USAASA).
- All waiver requests must include compelling rationale of functional and operational deviations to include substantiating documentation in sufficient detail for the Army to assess implications of approving the waiver.
- Garrison Army Standard waiver request submissions must be received in sufficient time to allow completion of Facility Design Team (FDT) review and development of recommendations or courses of action for the Army Facilities Standardization Committee (AFSC) to consider prior to implementation into project design. Late submissions or project delays are not sufficient stand-alone justification for accelerated review or other dispensation to meeting the Army Standard.
- All G-9 approved waivers must be documented in installation master plans thereby serving as the installation's modified standards.

The Guidance Section, following the Mandatory Criteria table, provides instructions and definitions necessary for the application of the mandatory requirements contained in the tabular section of the Army Standard (AS). As such, use the guidance in conjunction with the AS Mandatory Criteria to ensure the intent and embedded functionality contained herein will meet the Army's mandatory requirements set forth by this standard.

Planning Criteria:

Army Standards are not intended to provide broader design criteria such as space allocation, functional layouts, or basic layouts more appropriately contained in the supporting and conforming Standard Design / Criteria. Nor are they intended to rigidly define collective facility authorizations more appropriately adjudicated by the Army Requirements Group.

This Army Standard, associated Standard Designs, and approved Army space criteria are applied together in an iterative and co-dependent way to provide a standardized but adaptable approach to facility standardization. Each serves a different purpose to ensure mandatory functions and operability are provided uniformly and at the right size. The primary source for determining authorized allowances, in every instance, is the Real Property Planning and Analysis System (RPLANS) which incorporates current criteria approved by the Army Requirements Group.

ARMY STANDARD FOR AOB/ATCT

ITEM	ARMY STANDARD MANDATORY CRITERIA
	<p>This table provides the mandatory spatial and functional allowances for the AOB/ATCT Facilities. Planners should use these mandatory criteria to develop space allowances for components of an AOB/ATCT before considering development of unique or specialized space allowances apart from those set forth in this AS.</p> <p>All design agents must incorporate the key mandatory design features described herein in close coordination with the US Army Corps of Engineers (USACE) designated Center of Standardization (ATCT-COS) for AOB/ATCT, Savannah District (CESAS). All AOB/ATCT projects must be reviewed by ATCT-COS.</p> <p>Application of the mandatory requirements contained herein will be used in conjunction with Other Aviation Support Platforms, UFC 3-260-01 (Airfield and Heliport Planning and Design), and UFC 4-133-01 (Air Traffic Control and Air Operations Facilities).</p> <p>All references to military position titles refer to either a designated military position or its civilian equivalent.</p>
<p>Facility Concept</p>	<p>The Airfield Operations Building and Air Traffic Control Facility (AOB/ATCT) is the nerve center for an Airfield Complex referred to herein as the Airfield Complex.</p> <p>The AOB/ATCT Facility supports five functional elements: Airfield Management/Command, Airfield Operations, Airfield Services, ATC Equipment Maintenance, and Air Traffic Control (ATC). The AOB/ATCT Facility is comprised of two components: The Airfield Operations Building (AOB) and the Air Traffic Control Tower (ATCT).</p>

	<p>The AOB component is primarily an operations center with command, administrative, and support space for the following: Airfield Management/Command, Airfield Operations, Airfield Services, and ATC Equipment Maintenance.</p> <p>The ATCT component is a single purpose movement control facility responsible for the visual observation and control of the movement, transition, launch, and recovery of aircraft on an Airfield Complex.</p> <p>The desired intent is for the AOB and the ATCT components to be collocated. The collocation of these two components optimizes aircraft mishap response, day-to-day flight operations, and management of an Airfield Complex. As such, this joint facility is the key command, control, and safety management center for an Airfield Complex.</p> <p>The separation of the Airfield Operations Building from the Air Traffic Control Tower should only occur when recommended by an Air Traffic Services Command (ATSCOM) assessment and validated by HQDA, G-3/5/7, (USAASA).</p>
<p>Sizes</p>	<p>The Airfield Operations Building component is to be provided by one of two standard size buildings: Airfield Operations Building (large) and Airfield Operations Building (small)</p> <ul style="list-style-type: none"> • Airfield Operations Building (Large) (FCC 14110) <p>Provide Not More Than (NMT) one per primary Army Airfield (AAF), Army Heliport (AHP), or Basefield. The larger Airfield Operations Building must provide space for the mandatory functional elements as described in the Airfield Operations Building segment below. Provide one work area (USAF Weather Support) when required by AR 115-10, AR 5-25 and an ARSTAF proponent approved manning document. If more than one large Airfield Operations Building is required at an installation, approval is required by owning command.</p> <ul style="list-style-type: none"> • Airfield Operations Building (Small) (FCC 14110) <p>Provide NMT one per secondary Army Airfield (AAF), Army Heliport (AHP), Basefield or Stagefield. The smaller Airfield Operations Facility must provide space for the mandatory functional elements as described in the Airfield Operations Building segment below. Not all the large Airfield Operations Buildings individual work areas are provided in the small Airfield Operations Building and provisions are governed by approved manning documentation under the Standard Garrison Organization model.</p> <p>Planners and designers must consider the following when deciding between the large AOB and the small AOB:</p>

1. Number of Airfield Management staff.
2. Types of Airfield Services provided.
3. Quantity of assigned aircraft.
4. Aviation mission complexity and operations tempo.
5. Power Projection Platform (PPP)
6. G3 Airfield Mission Validation Board
7. Airfield 24/7 operations conducted

All AOB/ATCT projects must be reviewed by the ATCT/AOB COS to ensure compliance with the Army Standard.

See guidance section for more information on PPP, G3 Airfield Validation Board, and 24/7 airfield operations.

• **Air Traffic Control Tower (ATCT) (FCC 13310)**

Provide NMT one per AAF, AHP, Basefield, or Stagefield. The ATCT component gross square footage size is primarily a function of the required minimum floor elevation of the ATCT Control Cab for observation of aircraft. The functional need to include an Army Radar Approach Control (ARAC), Airspace Information Center (AIC) Level and or a Ground Controlled Approach (GCA) Level within the ATCT will have an impact on the ATCT total gross square footage. ATCTs may have a functional or a non-functional tower shaft supporting the Control Cab. The key programmatic differences between a functional and a non-functional tower shaft include the following:

Functional Tower Shaft: Pertains to low and intermediate activity ATCTs where operations support functions can be located on most floors in the tower shaft. This eliminates the need for an administrative support building.

A functional-shaft ATCT, as a minimum, contain the following levels:

- Cab Level
- Cab Walkway Level
- Ready Room Level
- Mechanical Room Level
- Upper ATC Equipment Room Level
- Lower ATC Equipment Room Level
- Training Room Level
- Administrative Level
- Tower Entry Level

	<p>Non-functional Tower Shaft: Pertains to major activity ATCTs where operations support functions EXCEED the possible floor area of a functional tower shaft. Since the support functions exceed possible floor area, the shaft includes only unoccupied spaces (i.e., egress stair, elevator, and service shafts, etc.) to reduce the floor footprint for cost efficiency. Two to three floors immediately below the cab can be used for administrative support and equipment spaces.</p>
<p>SITE SELECTION & PLANNING</p>	
<p>Site Selection & Planning</p>	<p>The site selection and approval process for the AOB/ATCT facility is described in UFC 4-133-01, UFC 3-260-01, and AR 95-2.</p> <p>Active Component & USAR ONLY-The optimal site provides for a collocated Airfield Operations Building (AOB) and the Air Traffic Control Tower (ATCT).</p>
<p>PHYSICAL SECURITY</p>	
<p>Physical Security</p>	<p>All Army Airfield Complexes are designated as RESTRICTED Areas. Entry authorization must be approved by Airfield Operations and are under strict surveillance by Air Traffic Control (ATC), Flight Operations, or designated management authority.</p> <p>When the AOB is located outside the Army Airfield Complex, an 8-foot-high fence (7-foot-high fence fabric plus top guard) will completely enclose the AOB structure, the Parking Lot, and the AAF/AHP Security Zone vehicle access corridor. Fencing will be chain-link style, with 2-inch square mesh of 9-gauge diameter wire according to USACE drawing 40-16-08. An unobstructed area (clear zone) of 20 feet on each side of the fence must be maintained. Conventional construction standoff distances are in accordance with UFC 4-010-01 or a minimum of 30 feet from the structure exterior, whichever is greater.</p> <p>When the ATCT is located outside the Army Airfield Complex Security Zone, an 8-foot-high fence (7-foot-high fence fabric plus top guard) will completely enclose the tower structure No Less Than (NLT) the conventional construction stand-off distance required by UFC 4-010-01 or a minimum of 30 feet from the structure exterior, whichever is greater. Provide a lockable personnel gate NLT 40 inches wide at all locations and when needed a lockable vehicle access gate NLT 10 feet wide.</p>

GROSS AREA of FACILITIES	
Gross Area of Facilities	<p>Gross Square Footage (GSF) Deviation: The facility constructed gross area should not exceed 105% of the space allocation set forth in this document to accommodate site, construction, or environmental factors. Such deviations must be authorized as part of the DD1391 allowed total square footage (SF).</p> <p>Scope adjustments (such as half-scope spaces), where applicable, ARE INCLUDED in the GSF number of this Army Standard.</p> <p>Where identified, Net Square Footages (NSF) represents actual measured floor area. Scope adjustments (such as half-scope spaces), where applicable, ARE NOT INCLUDED in the NSF number of this Army Standard.</p> <p>The most current version of the Standard Design is the source for sizing supporting spaces included under Gross but not Net Square Feet, and planning adjustments from Net Square Feet to Gross Square Feet.</p> <p>The gross area of facilities applies to new construction only. Apply net areas for each functional area when repurposing facilities. AOB Large and Small GSF figures are MAXIMUMS (unless the 105% deviation applies).</p> <p style="padding-left: 40px;">AOB (Large) 13,050 GSF</p> <p style="padding-left: 40px;">AOB (Small) 6,240 GSF</p> <p>The gross square footage of an ATCT (FCC 13310) is site dependent and varies depending on four primary factors determined by an ATSCOM requirements assessment:</p> <ol style="list-style-type: none"> 1. Required minimum ATCT Cab floor elevation. 2. Functional need to include an AIC floor level. 3. Functional need to include a GCA floor level. 4. Functional need to include an ARAC.
AIRFIELD OPERATIONS BUILDING (LARGE) (FCC 14110)	
Primary Facility Scope	<p>The Airfield Operations Building (Large) must provide space for the following: Airfield Management/Command, Airfield Operations, Airfield Services, and ATC Equipment Maintenance. Provide a Weather Support optional work area when authorized.</p>

Airfield Management/Command	
Command Suite	<p>Provide an Airfield Management/Command Suite for each Airfield Operations Building (Large), Not to Exceed (NTE) 1050 NSF, consisting of:</p> <ol style="list-style-type: none"> 1. Two private offices NTE (150 NSF) each for the Airfield Manager/Commander and Chief, Air Traffic Control. 2. (Optional) One private office NTE (110 NSF) for the Airfield NCOIC (when appropriate for Army National Guard). 3. Two private offices NTE (110 NSF) each, for the Airfield Operations Officer and Airfield Safety Officer. 4. A Command Suite Reception Area NTE (300 NSF), consisting of one Open Office GP Workstation for executive support personnel, executive file space, and a waiting area for up to three personnel.
Airfield Operations	
Flight Operations (Dispatch) Work Area	<p>Provide a Flight Operations (Dispatch) Open Office Work Area, NTE 1,445 NSF, consisting of:</p> <ol style="list-style-type: none"> 1. NLT two and NTE eight GP Workstations based on the current approved authorization manning document (NTE 770 NSF). 2. One Flight Dispatch Service Counter Area NTE 100 NSF. 3. One Flight Briefing Area NTE 100 NSF. 4. One Dispatch Equipment Room, NTE 100 NSF. 5. One General Purpose Storage Room 6. One File Storage Area 7. One Flight Ops Console, NTE 100 NSF.
Flight Planning Room	<p>Provide a Flight Planning Room, NTE 300 NSF.</p>
Dedicated Weather Support Work Area (FCC 14115) (Limited Authorization)	<p>When Dedicated USAF Weather Support is authorized by AR 115-10 and an ARSTAF proponent approved manning document, provide a Weather Support Work Area NTE 750 NSF consisting of:</p> <ol style="list-style-type: none"> 1. Three GP Workstations NTE 288 NSF 2. A Weather Briefing Area, NTE 75 NSF 3. One Electronic Equipment Room, NTE 100 NSF.

	<ol style="list-style-type: none"> 4. Provide one General Purpose Storage Room. 5. Provide File Storage space
VIP Passenger Holding Area	<p>Provide a VIP (e.g., GO/SES equivalent) passenger holding area, NTE 330 NSF consisting of:</p> <ol style="list-style-type: none"> 1. A Waiting/Seating area for up to 8 passengers, NTE 230 NSF. 2. A Private Restroom 3. A VIP Computer Access/Work Desk Area.
Transient Passenger Holding Area (Optional)	<p>Provide a transient passenger holding area with controlled access and security screening, NTE 930 NSF consisting of:</p> <ol style="list-style-type: none"> 1. A Baggage Holding Space/Weighing space, NTE 110 NSF. 2. A Security Screening space, NTE 84 NSF. 3. A Seating space for up to 30 passengers, NTE 380 NSF. 4. One GP Workstation 5. Two Unisex Restrooms 6. A Vending space with a sink, countertop, upper and lower storage cabinets. Space to accommodate two vending machines.
Pilot Ready Room	<p>Provide a Pilot Ready Room NTE 165 NSF consisting of:</p> <ol style="list-style-type: none"> 1. A Seating/Waiting Area NTE 5 pilots. 2. A Pilot Computer Access/Work Desk Area
Multi-Purpose Room	<p>Provide a Multi-Purpose Room NTE 450 NSF designed to facilitate meetings and training for airfield operations personnel.</p>
Printer/Copier Room	<p>Provide a Printer/Copier Room.</p>
Break Room	<p>Provide a Break Room consisting of:</p> <ol style="list-style-type: none"> 1. A countertop with a sink and upper and lower storage cabinets. 2. Space for a refrigerator and two vending machines.

Common Restrooms	Provide restrooms for common use by building occupants. Provide a shower in each.
Janitor Closet	Provide a Janitor Closet. Include a floor drain and a built-in mop sink.
Recycling Room	Provide a central recycling storage/collection room or area.
Aircraft Ground Support Services	
Aircraft Ground Support Services Office Work Area	<p>Provide an Aircraft Ground Support Services Open Office Work Area NTE 860 NSF consisting of:</p> <ol style="list-style-type: none"> 1. NLT two and NTE six GP Workstations based on the approved authorization manning document NTE 576 NSF. 2. One General Purpose Storage Room. 3. One Non-sensitive secure storage room. 4. File Storage Area. <p>When aircraft fueling personnel are assigned to the Aircraft Ground Support Services provide a separate Shower and Locker Area NTE 350 NSF. This functional area should be categorized under CC 14165 Fueling/POL/Wash Support Facility.</p>

<p>Exterior Storage</p>	<p>Provide exterior storage for Aircraft Ground Support Services equipment adjacent to the Airfield Operations Building with direct access to the aircraft parking apron consisting of:</p> <ol style="list-style-type: none"> 1. One enclosed storage building (FCC 44220), NTE 1000 GSF. 2. One covered storage shed (FCC 44222), Secure fenced w/10 ft wide gate to airfield NTE 400 GSF.
<p>ATC Systems/Equipment Maintenance</p>	
<p>ATC Systems/ Equipment Maintenance Work Area</p>	<p>Provide an ATC Equipment Maintenance Work Area NTE 1,690 NSF consisting of:</p> <ol style="list-style-type: none"> 1. One private office NTE 110 NSF for the ATC Equipment Maintenance Chief. 2. NLT two and NTE eight GP Workstations based on the approved authorization manning document. NTE 770 NSF. 3. One Non-Sensitive Secure Storage Room 4. One General Purpose Storage Room 5. File Storage space 6. Provide a receiving area adjacent to an exterior double door. 7. Provide static dissipating floor covering in the ATC equipment work area and three (3-ft x 6-ft) equipment test benches with proper grounding. NTE 200 NSF
<p>AIRFIELD OPERATIONS BUILDING (SMALL) (FCC 14110)</p>	
<p>Primary Facility Scope</p>	<p>The Airfield Operations Building must provide space for the following: Airfield Management/Command, Airfield Operations, Airfield Services, and ATC Equipment Maintenance.</p>
<p>Airfield Management/Command</p>	
<p>Command Suite</p>	<p>Provide an Airfield Management/Command Suite for each AOB, NTE 815 NSF consisting of:</p> <ol style="list-style-type: none"> 1. One private office NTE 150 NSF for the Airfield Manager/Commander.

	<ol style="list-style-type: none"> 2. (Optional) One private office NTE150 NSF for the Chief, Air Traffic Control when authorized. 3. One private office NTE 110 NSF for the Airfield Safety Officer. 4. One private office NTE 110 NSF for the Airfield Operations Officer. 5. A Command Suite Reception Area, NTE 295 NSF, consisting of one open Office GP Workstation for executive support personnel, with executive file space NTE 88 NSF, and seating area for up to two personnel.
<p>Airfield Operations/Aircraft Ground Support Services</p>	
<p>Consolidated Airfield Operations, Flight Operations (Dispatch), and Aircraft Ground Support Services Work Area</p>	<p>Provide a Consolidated Airfield Operations, Flight Operations (Dispatch), and Aircraft Ground Support Services Work Area, NTE 1,415 NSF consisting of:</p> <ol style="list-style-type: none"> 1. One Open Office with up to five GP Workstations NTE 480 NSF. 2. One General Purpose Storage Room. 3. One File Storage Area 4. One Flight Dispatch Service Counter, NTE 80 NSF. 5. One Communications Room NTE 100 NSF. 6. One Flight Ops Console NTE 50 NSF 7. One Flight Planning Room NTE 125 NSF <p>When aircraft fueling personnel are assigned to the Aircraft Ground Support Services, provide a separate Shower and Locker Area NTE 305 NSF. This functional area should be categorized under CC 14165 Fueling/POL/Wash Support Facility</p>
<p>Exterior Storage</p>	<p>Provide exterior storage for Airfield Ground Support Services equipment adjacent to the AOB with direct access to the aircraft parking apron consisting of:</p> <ol style="list-style-type: none"> 1. One enclosed storage building (FCC 44220), NTE 1000 GSF. 2. One covered storage shed (FCC 44222), Secure fenced w/10 ft wide gate to airfield NTE 400 GSF.

Airfield Operations Support Area	
Airfield Operations Support Area	<p>Provide Airfield Operations Support Area NTE 1,070 NSF consisting of:</p> <ol style="list-style-type: none"> 1. Multipurpose Room NTE 280 NSF designed to facilitate meetings and training for airfield operations personnel 2. Break room with sink and upper and lower storage cabinets 3. Printer/Copier Station 4. Common restrooms for use by building occupants with shower in each 5. Janitors Closet. Include a floor drain and a built-in mop sink 6. Provide a central recycling storage/collection room or area
ATC Equipment Maintenance	
ATC Equipment Maintenance Work Area	<p>Provide an ATC Equipment Maintenance Work Area NTE 930 NSF consisting of:</p> <ol style="list-style-type: none"> 1. One private office NTE 110 NSF for the ATC Equipment Maintenance Chief. 2. NLT two and NTE four GP Workstations based on the approved authorization manning document. NTE 384 NSF. 3. One Non-Sensitive Secure Storage Room 4. One General Purpose Storage Room 5. File Storage Space. 6. Provide a receiving area adjacent to a double exterior door. 7. Provide static dissipating floor covering in the ATC equipment work area and one 3-ft x 6-ft equipment test bench with proper grounding. 50 NSF
AIR TRAFFIC CONTROL TOWER (ATCT) (FCC 13310)	
Primary Facility Scope	<p>ATCTs are provided based on a functional requirements assessment by ATSCOM and validated by HQDA G-3/5/7 (USAASA).</p> <p>In general, a functional shaft ATCT is a single structure composed of two modules: the Tower Cab and the Tower Shaft. The Tower Shaft consists of separate functional floor levels. Each level contains floor</p>

	structure, utility chase(s), a stairwell, an elevator shaft, and functional space(s). The ATC Tower levels and associated functional space requirements are provided in descending order starting with the Tower Cab Roof Level.
TOWER CAB MODULE	
Tower Cab Roof Level	Provide a Tower Cab roof with an access hatch to the Tower Cab level below. Provide an OSHA compliant safety railing or parapet wall around the perimeter of the roof. Provide appropriate supports for required ATC antennas and lightning protection equipment.
Tower Cab Level	Provide a Tower Cab NTE 600 NSF with windows on all sides for visual observation of the Airfield Complex. Provide ATC equipment consoles for 3 controllers and 1 Supervisor.
Exterior Walkway Level	Provide an exterior walkway below the tower cab level for exterior cleaning of tower cab glass counted at half space.
TOWER SHAFT MODULE	
Ready Room Level	Provide a Ready Room level at 620 NSF on a separate level from the Cab for mandatory controller breaks. Provide one uni-sex toilet and one electrical closet. <ol style="list-style-type: none"> 1. Ready room 2. Uni-sex toilet 3. Electrical Closet
Mechanical Room Level	Provide a Mechanical Equipment Room Level at 620 NSF.
Upper ATC Equipment Room Level	Provide an Upper ATC Equipment Room Level at 620 NSF. ATC radio equipment on this level needs to be near the tower roof mounted antennas. Provide maintenance desk area.
Lower ATC Equipment Room Level	Provide a Lower ATC Equipment Room Level at 620 NSF Enhanced Terminal Voice Switch (ETVS) equipment racks with top feed. Provide maintenance desk area.

Flight Following/Airspace Information Center (AIC) Level (Optional)	Provide a Flight Following/Airspace Information Center (AIC) Level at 620 NSF when validated by HQDA G-3/5/7 (USAASA). Provide three equipment consoled positions and a supervisor desk.
Ground Control Approach (GCA) Level (Optional)	Provide a Ground Control Approach (GCA) Level at 620 NSF when validated by HQDA G-3/5/7 (USAASA). Provide three equipment consoled positions and a supervisor desk.
Training/Restroom Level	Provide a Training/Restroom Level at 620 NSF. <ol style="list-style-type: none"> 1. Provide one Training Room. 2. Provide one Uni-Sex restroom. 3. Provide one Janitor closet.
Administrative Level	Provide an ATCT Facility Administrative Level at 620 NSF <ol style="list-style-type: none"> 1. Provide open office GP workstation for ATCT Chief. 2. Provide open office GP workstation for AIC Chief when AIC Facility is validated by HQDA G-3/5/7 (USAASA). 3. Provide open office GP workstation for GCA Chief when GCA Facility is validated by HQDA G-3/5/7 (USAASA).
Tower Entry Level	Provide a Tower Entry Level at 843 NSF. <ol style="list-style-type: none"> 1. Provide a Communication Room (Stand-Alone Tower Only). 2. Provide an Elevator Lobby. 3. Provide an Elevator Controller Closet. 4. Provide an Electrical Room. 5. Provide a Fire Pump Room with exterior door access.
Stairwell	Provide a code compliant stairwell to service all ATCT floor levels.
Elevator	Provide one code compliant elevator to service all ATCT floors below the Ready Room level.
Mechanical Chase	A fire rated chase, open from the ground floor to the concrete sub-floor of the ATCT Cab that serves as a pathway for HVAC and plumbing utilities from the Tower Shaft Mechanical Room to the ATCT Mechanical Room.

<p>Vertical Cable Chase</p>	<p>A fire rated chase, open from the ground floor to the concrete sub-floor of the ATCT Cab that serves as a pathway for communications cables from the first floor Telecommunications Room to the Lower Equipment Room, Upper Equipment Room, and the Control Cab.</p>
<p>Antenna Cable Chase</p>	<p>Ducts or conduits located within or adjacent to the Control Cab structural columns that serve as pathways for antenna cables from the Equipment Room containing radios to the ATCT Roof.</p>
<p>Mechanical Yard</p>	<p>A screened maintenance yard must be provided for the chiller, back-up generator fuel tank, and transformer. In cold-weather climates, the generator may be in an enclosed generator room. Coordinate with AT/FP requirements.</p>
<p>ATCT Simulator Room (Optional)</p>	<p>A Simulator Room may be required in the ATCT or the ARAC for ATC training. This requirement will be determined by the ATSCOM Survey.</p>
<p>Army Radar Approach Control (ARAC) (Optional)</p>	<p>Provide an Army Approach Radar Control facility when validated by HQDA G-3/5/7 (USAASA). The scope of radar services provided will vary according to equipment installed and the delegated airspace. The scope and complexity of the services are the significant design drivers. It can be sited anywhere within the range of the radar providing radar assisted approach control. It is preferable to locate the Army Radar Approach Control (ARAC) adjacent to the Air Traffic Control Tower (ATCT). However, it is not required to be adjacent to the ATCT.</p>
<p>BUILDING FUNCTIONALITY</p>	
<p>Open Office, General Purpose (GP) Workstation</p>	<p>Individuals not authorized Private Office space will be allocated a GP Workstation in the Open Office Work Area. Provide 48 (NSF) for each Open Office GP Workstation. The allowance of GP Workstation size (6-ft x 8-ft) may not be reconfigured without waiver.</p>
<p>Mechanical</p>	<p>For mechanical system design conditions, air conditioning loads, acoustic/noise control and general HVAC requirements see section 3-4 Mechanical in UFC 4-133-01</p>
<p>Critical Power Distribution</p>	<p>All ATCT and Air Operations Buildings require a Critical Power Distribution System (CPDS). Only 480 volt, three-phase, wye, three-wire distribution systems must be used, based on their superior</p>

	<p>harmonic resolution capability. This capability is applicable to all ATCT and Air Operations Buildings unless 480 volt, three-phase utility power is not available.</p> <p>ATCT electronic equipment requires 120/208-volt service supplied by dry type transformers (480-volt delta, 208Y/120 volt). The designer must follow guidelines in IEEE STD 1100, the Federal Information Processing Standard (FIPS PUB 94) power distribution publication for electronic equipment, and actual equipment loads to size transformer.</p>
<p>Emergency Power</p>	<p>All electrical power provided to ATCT, and Air Operations Building is considered “Essential,” requiring emergency power from an Emergency Generator (E/G). The emergency power must provide power for Critical and Non-Critical loads. Critical loads are limited to the ATCT electronic equipment, the signal light guns, and select non-ATCT computers, LAN, or other technical equipment that may be required. Non-Critical loads include the facility mechanical and building systems, such as the HVAC, lighting, and life safety loads.</p> <p>To ensure equipment operation during extended power outages, the HVAC systems serving Critical spaces and facility life safety loads must be on E/G power. If an ATCT is located adjacent to an ARAC or AOB, a common emergency generator must be considered.</p>
<p>Uninterruptible Power Supply (UPS) System</p>	<p>Provide an Uninterruptible Power Supply (UPS) system in ATCT and Air Operations Building for all Critical technical loads and the specific requirements of the Program Authorities. Install the UPS system in accordance with MIL-HDBK-1012/1, Electronic Facilities Engineering. The UPS system must feed all Critical power loads. UPS sizing calculations are the responsibility of the Designer of Record.</p> <p>The UPS must be sized to provide the critical loads with power (plus a 25% spare capacity) for a minimum of 15 minutes for an ATCT and 45 minutes for an ARAC to allow the E/G to start, stabilize, and assume the load or allow enough time for the controllers to hand off traffic if the E/G fails. Provide remote monitoring of the UPS from a location determined by local ATCT personnel.</p>
<p>Grounding, bonding, lightning, and surge protection</p>	<p>Provide grounding, bonding, lightning, and surge protection for each facility in accordance with UFC 4-133-01.</p>
<p>Telecommunications</p>	<p>Provide Telecommunications infrastructure to meet UFC 3-580-01, Installation Information Infrastructure Architecture (I3A) and American National Standards Institute/Telecommunications Industry Association/Electronic Industries Alliance (ANSI/TIA/EIA) 568 and 569 requirements.</p>

<p>Information Connectivity & Distribution (All)</p>	<ol style="list-style-type: none"> 1. Outside plant connectivity will be in accordance with Army I3A guidance. 2. A minimum of one distribution node with single mode fiber optic cabling must serve as an Area Distribution Node (ADN). 3. Fiber optic cabling should be sized to support the common user systems. 4. Distribution within the building must be determined during design. The Army's preferred alternative is fiber optic connectivity using endpoint (e.g., NIC) transition solutions in lieu of in-wall solutions.
<p>Energy Policy Act</p>	<p>Facilities must be designed in compliance with requirements for federal facilities in accordance with the current Energy Policy Act.</p>
<p>Sustainable Design Development</p>	<p>Facilities must be designed to meet current sustainable development and design policy requirements as established by the Department of the Army.</p>
<p>Accessibility</p>	<p>The AOB must comply with the Architectural Barriers Act (ABA) Accessibility Standard for Department of Defense Facilities. The ATCT must comply with the ABA Accessibility Standard for Department of Defense Facilities for all levels served by the elevator.</p>
<p>SITE FUNCTIONAL ELEMENTS</p>	
<p>Privately Operated Vehicle (POV) Parking</p>	<p>Provide parking spaces for staff on shift, plus accessible spaces required by ABA, two visitor spaces, and government vehicles as needed. Many airfields have alternative vehicles for Government use. Provisions for these vehicles including charging stations must be considered. Additional parking should be considered for shift changes. Specific criteria are given in UFC 3-210-02, <i>POV Site Circulation and Parking</i>.</p>
<p>Exterior Lighting</p>	<p>Exterior lighting systems must be provided for parking areas, service yards, service drives, and any required security lighting.</p>

GUIDANCE

1. The following guidance for application of the AOB/ATCT Facility Army Standard is provided for design agent use in coordination with the Garrison Directorate of Public Works (DPW) staff in implementing installation planning, programming, and design activities. All design agents must incorporate the key mandatory design features described within this Army Standard and must do so in close coordination with the ATCT COS. All AOB/ATCT facility projects must be reviewed by the ATCT COS and the Transportation Systems Center (TSC).
2. The Army Standard may identify an Army regulation, technical guide, or other written guidance as mandatory criteria. ATCT COS provides the first line technical compliance review. The Facility Design Team (FDT), in conjunction with the COS, will resolve any issues where there may be conflicting, unclear, or no compliance measurement threshold. Resolution may require senior leadership guidance or amendment of the AS. Only the G-9 may approve adjustments or changes to the requirements in an AS. The AS is not intended to provide compliance criteria detailed in references, regulations, industry standards, or standard design.
3. The AOB/ATCT AS simultaneously addresses past issues, current needs, and future requirements. It provides the capability to accommodate requirements without the need for new construction by providing an objective basis for evaluating existing facilities at the functional area level. There is a band of acceptability in the application and implementation of these standards. However, the range of acceptability is determined through a Functional Review process and deviation from this standard will equally consider implication on future requirements embedded herein and the potential impact of follow-on or retrofit construction activities on readiness as well as the current situation.

Design Philosophy

1. Waiver authority for obstruction and engineering criteria governed under AR 95-2 and UFC 3-260-01 rests with the Commander, US Army Aeronautical Services Agency (USAASA). The ATCT COS is the first Army resource to assist in distinguishing or clarifying which HQDA (G-9 or G-3/5/7) office has jurisdiction on the standards or criteria contained herein. The Transportation Systems Center (TSC) Corp of Engineers Northwestern Division Omaha District (CENWO) is the first Army resource to assist in distinguishing or clarifying siting, obstruction, or lateral clearance requirements. Waiver of any requirements contained herein requires prior coordination and documentation before deviation from this Army Standard is authorized.
2. Design the ATCT and Air Operations Buildings to provide space and equipment for the specific functions required by the project mission. In general, there are 2 types of ATCT Facilities and 1 type of Air Operations Building:
 - a. Air Traffic Control Tower (ATCT).

The Air Traffic Control Tower (ATCT) houses equipment and personnel for control of aircraft approaching and departing the terminal area, and aircraft and vehicular movement on the runways, taxiways, and all other movement areas. It is an elevated structure having an unobstructed line-of-sight to the airfield approach areas, runways,

taxiways, aircraft parking areas, and all other operational areas over which aircraft movements must be controlled. The ATCT may be an independent facility or combined with an Army Radar Approach Control (ARAC) Facility or an Airfield Operations Building (AOB). If possible, the control tower should be an integral facility with the ARAC, thus providing a complete, integrated air traffic control facility. When possible, consider using modular consoles in the ATCT and ARAC facilities to provide more space and flexibility for future equipment upgrades.

b. Army Radar Approach Control (ARAC)

ARAC provide ATC services to Instrument Flight Rules (IFR) and Visual Flight Rules (VFR) air traffic within a certain assigned airspace. ARACs offer ATC services to aircraft arriving, departing, or transiting the airspace controlled by the facility. The ARAC contains equipment used for controlling air traffic and is staffed by air traffic controllers and air operations, administrative and maintenance support personnel. The scope of radar services provided will vary according to equipment installed and the delegated airspace. The scope and complexity of the services are the significant design drivers. The ARAC contains an IFR control room that includes the radar display consoles and communications control equipment. An adjacent terminal equipment room houses all automation central (or terminal) equipment, maintenance positions and audio/video tape recorders. Army Radar Approach Control (ARAC) facilities are located at U.S. Army installations that use surveillance radar and air/ground communications equipment. ARAC facilities offer air traffic control services to aircraft arriving, departing, or transiting the airspace controlled by the facility. Service is available to both civil and military airports located within approach control airspace.

c. Air Operations Building (AOB)

The Airfield Operations Building (AOB) is required to house flight operational and administrative functions of the airfield headquarters. The AOB includes all the functions of flight planning, flight personnel equipment and support rooms, passenger support facilities, and the communications, operations, and weather services. Also included, unless otherwise provided in other permanent facilities, are a break room, and a multipurpose room which may also serve as a personnel training room or classroom. Because of differences in the aviation missions and the requirements of the facility commanders, the components for an AOB may vary considerably. The existence of available permanent facilities will also affect overall space requirements. Certain airfield installations may enlarge the AOB to include the Airfield Headquarters (HQ). The Airfield HQ includes administrative space for the commander, military personnel, safety officer, and others. There are two sizes of AOB facilities that include a small AOB and a large AOB.

3. The AOB/ATCT is the central nerve center for an Airfield Complex. All air movement within the Class D airspace and all ground movement are controlled via the ATCT when operational. In some locations, control is relinquished as an advisory service to Flight Operations during extended hours of operation. All aviation electronics (e.g., radios), navigational aids, and landing/approach systems are controlled and operated by ATC personnel. Hence, redundant capabilities in controlling lighting, communications, and data must exist at both the ATCT and Flight Operations. During emergency conditions, (e.g., severe weather), ATC activities may displace to Flight Operations when occupying

a tall, narrow building becomes hazardous to ATC personnel. The Airfield Division consists of airfield operations, airfield safety office, ATC equipment maintenance, and ATC branches. The AOB/ATCT provides the command, control, and management of the Airfield Complex for flight operations, services, and movement control. The entire Airfield Complex is designated as a Restricted Area. All Army installations with an Army Airfield (AAF) or Army Heliport (AHP) will have a consolidated Airfield Operations Building/ATCT Facility unless separation of the two facilities is recommended and agreed to by ATSCOM and HDQA, G-3/5/7, (USAASA). Siting and visual observation of flight operations, air and ground vehicular movement, and pedestrian movement are strictly controlled within the RESTRICTED AREA. The need to preclude operational impacts on the obstruction and safety requirements for AAF/AHP is a critical spatial or land use consideration for implementing this Army Standard.

4. In general, the Senior Commander (airfield operations) and Garrison Commander (facilities), the staff responsibility equivalents or The Adjutants General ARNG are responsible for developing the scope and intent for Army aviation facilities.
5. Space modules, criteria, or components of the AOB/ATCT Facility Army Standard should be used to develop space allowances and/or requirements before consideration for development of unique or specialized space allowances from those set forth in this Army Standard. When space standards and criteria and/or components are not used, the Functional Proponent, in conjunction with the Aviation FDT, ATCT-COS, and USACE Transportation Systems Center (TSC) (siting) will review and validate functional or operational requirements prior to the development of any unique or specialized space allowance(s) and before incorporating into a project programming document or facility design.

General Design Philosophy:

1. The Army depends on the capability to train and rapidly project forces from home station. This places significant demands on installations and how functional and operational requirements are “packaged” to maximize maintaining, repairing, training, mission planning and rehearsal, deploying, and sustaining combat power capabilities. At the center of these functional and operational requirements is the Combat Aviation Brigade (CAB).
2. The AOB/ATCT Facility is a major component of the larger, overarching Airfield Complex. Functional, operational, and spatial relationships critical to meeting mission requirements are embedded in the layout and spatial relationships of the elements that comprise an AOB/ATCT Facility. The AOB/ATCT Facility is comprised of four major elements: Airfield Management/Command, Airfield Operations, Airfield Ground Support Services, and Air Traffic Control (ATC). The consolidation of these functions optimizes aircraft mishap response, day-to-day flight operations, and management of an Airfield Complex. As such, this facility is the key command, control, and safety management center for an Army Airfield Complex.
3. The Army Standard table of mandatory criteria is grouped by the mission complexity, density of air traffic to be controlled, Navigational Aids (NAVAIDS) and landing/approach systems to be managed within the confines of the Aviation Management component of the Standard Garrison Organization. Some services are provided by the USAF and space allocations differ dependent upon resourced manned support and weather services equipment distribution governed by AR 115-10. As such, the amount of space allocated for the command, control, management, and

services differs from one Airfield Complex to the next. Therefore, application of this Army Standard is dependent upon an Air Traffic Service requirements survey or assessment by Air Traffic Services Command (ATSCOM) and validation by HQDA G-3/5/7 (USAASA).

Application Guidance

During the planning/programming process, planners/programmers must insure effective communication and coordination for any projects on or near an Airfield Complex, with the following: ATSCOM, AOB/ATCT-COS, TSC, and the Combat Readiness Support Team (CRST). The purpose of this coordination is to ensure that proposed facilities comply with all appropriate regulatory guidance and criteria.

Site Selection and Planning. ATSCOM, through a site survey and in coordination with the USACE Transportation System Center selects the ATCT location. Site selection may not comply with all imaginary surfaces on the airfield and may need to be marked accordingly. All aspects including site distance and location need to be considered in location of tower. Most towers do not meet high criteria for transitional runway surfaces. Site planning should balance all aspects of control tower siting to select the best location. The TSC can coordinate with the site planners, but this needs to be a process of selecting the best location from several options selected. The TSC typically confirms the process of selecting the best site based on best functionality or other constraints. The IMCOM Installation Directorates, for the specific region approves the site location. The Headquarters, Department of the Army validates the project as part of the established Army process. Refer to project review requirements contained in AR 95-2. Site selection and real property master planning for all facilities must comply with all safety, obstruction, and imaginary surfaces as stipulated by UFC 3-260-01. All spatial relationships between the landing surface and operational areas of the Airfield Complex and airspace boundaries of the domestic or host nation aviation authority will be met. Master planning of the land use areas must also ensure that expansion of operational capabilities is maintained while the encroachment from activities on and off post is minimized. When installations are precluded from meeting these stipulations, alternatives considered, and their associated limitations must be documented in the installation Real Property Master Plan.

1. Physical Security and Safety. All Army Airfield Complexes are designated as a Restricted Area. Entry authorization must be approved by Airfield Operations and under strict surveillance by Air Traffic Control or Airfield Operations. All planned security design and installation must be coordinated in advance with the Base Antiterrorism Office (ATO), Security Officer, and Air Operations to determine the area or building designation (controlled or restricted), threat environment, design basis threat (DBT), level of protection, and access control or other ESS requirements. Use the process in UFC 4-020-01 to identify the design criteria, which includes the assets to be protected, the DBT, and the levels of protection. The engineering risk analysis conducted as part of UFC 4-020-01 should be consistent with the terrorism risk analysis conducted by the installation security/AT staff.

2. Facility Concept. The AOB/ATCT Facility is the central focus for ensuring safe, efficient, and effective flight operations, training, crash-rescue operations, and transient aircraft operations on an Airfield Complex. An airfield complex consumes the largest single, contiguous land area second only to the training complex for warfighting training. It is encumbered by Code of Federal Regulations (CFR) Title 14 and Federal Aviation Administration (FAA) oversight. The physical plant of an airfield complex sets the conditions to operate within domestic airspace managed by

the FAA under CFR Title 14 rules. There is a critical need for spatial or land use considerations for implementing this Army Standard to minimize or preclude functional and operational impacts on flight operations and safety. If the airfield is designated a Power Projection Platform, it factors into whether the AOB is a small or large facility. Active PPPs are prepared and standing by. They can deploy a brigade-sized force or larger upon notification to meet Combatant Commands (CCMD) Operational Plan (OPLAN) requirements within 10 days or less. The Airfield Mission Validation Board (AMVB) is established as a mechanism for HQDA G-3/5/7 to assess AAF/AHP mission requirements and changes submitted by commanders for validation. The AMVB reviews and evaluates command's AAF/AHP missions and requirements. AMVB members provide a recommendation by consensus for validation or non-consensus to the HQDA G-3/5/7 for final determination. If an airfield is designated a PPP but there is already a large AOB located on the installation at another airfield driving the requirement for more than one large AOB, approval is required by the owning command.

3. Airfield Management/Command Function. The Command Suite provides overall airfield command and administrative space. The Command Suite consists of private offices for the Airfield Manager/Commander and Chief Air Traffic Control, Airfield Safety Officer. The Command Suite also includes additional office space and dedicated features such as a reception area with controlled access, etc. tailored to the TOE or authorized manning documentation for each command echelon.

4. Airfield Operations Function. The Airfield Operations function is comprised of several work areas which provide flight planning interface with the FAA, tenant aviation units, and transient aircraft crews as well as airfield ground support services management. Work areas included in this umbrella are Flight Operations (Dispatch), Weather (when authorized by AR 115-10), Flight Planning, VIP Passenger Holding Area, Transient Passenger Holding Area, Pilot Ready Room, and all common supporting features or spaces (break area, latrines, storage, etc.). All General-Purpose Workstations are sized at 60 NSF and include circulation.

- a. Flight Operations (Dispatch) Work Area. The Flight Operations (Dispatch) Work Area is the flight planning interface with the FAA, the ATCT, tenant units, and transient aircrews. It also manages the overall execution of flight line driver certification managed by tenant units, access by vehicles and pedestrians into the RESTRICTED AREA, and manages requests for Airfield Ground Support Services. At locations that conduct 24/7 operations consider putting a restroom with shower either in the Flight Operations section or close by. In locations with sole or minimal personnel per shift, this helps minimize unmanned stations.
- b. Flight Planning Room. Provide a freestanding flight planning table with integrated storage for flight planning materials. Significant wall space is required for various wall displays and charts for planning and display of aeronautical information pertinent to the airfield and local flying area.
- c. Dedicated Weather Support Work Area. Air Weather Service personnel provide weather forecasting and briefings to aircrews.
- d. VIP Passenger Holding Area. Provide waiting area for VIPs.
- e. Multi-Purpose Room. Briefings, conferences, press releases, and consolidated training.

5. Airfield Ground Support Services Function.

The Airfield Ground Support Services function has two components: an interior Airfield Services Work Area and an exterior equipment storage area.

- a. Airfield Ground Support Services Work Area. Provides the maintenance and repair of non-ATCT features and equipment (e.g., taxiway lighting, fire bottles, markers, etc.). Serve as aircraft ground guides and marshals. In some locations, they provide aircraft refueling and usually are responsible for the Hot Refuel Point when they are present on an Airfield Complex. The transient aircraft refueling section is best served with a separate room to isolate fuel odors.
- b. Aircraft Fuel Services. When aircraft refueling services personnel are to be assigned to the Airfield Operations Building, provide a separate unisex shower/locker room.
- c. Aircraft Ground Support Services Exterior Storage. Provides exterior secure storage space for the miscellaneous pieces of equipment required by Aircraft Ground Support Services. The exterior storage spaces are required to have direct access into the RESTRICTED AREA.

6. ATCT Equipment Maintenance Function.

The ATCT Equipment Maintenance Work Area should be located next to the ATCT. When a stand-alone ATCT is required and approved, the ATCT Equipment Maintenance Work Area must be provided at the remote tower location in an adjacent support building.

7. Air Traffic Control Tower (ATCT) (FCC 13310). As much as the AOB is the command center for the Airfield Complex, the ATCT is the nerve center for an Airfield Complex. All ground and air movement are controlled via the ATCT when operational. In some locations, control is relinquished as an advisory service to Flight Operations during extended hours of operation. Hence, redundant capabilities in controlling lighting, communications, and data must exist at both the ATCT and Flight Operations. During emergency conditions, (e.g., severe weather), ATC activities may displace to Flight Operations when occupying a tall, narrow building becomes hazardous to ATCT personnel. All AVIONICS (aviation electronics, e.g., radios), NAVAIDS (navigational aids), and landing/approach systems are controlled and operated by ATC personnel.

- a. Ready Room. A room with a small break area and seating for mandatory controller breaks on a separate level from the ATCT Control Cab.
- b. ATCT Equipment levels. Preferred location for communication equipment, equipment with antennas, and back-up radio systems. A room housing ATCT electronic equipment with a lockable door. Divide electronic equipment room into two rooms on different floors only if equipment will not fit on one floor due to Occupational Safety and Health Administration (OSHA) standards (e.g., equipment rack spacing). Some stand-alone ATCTs could require three equipment rooms on different floors to accommodate additional equipment (such as a voice switch, recorder, etc.)
- c. Training/Restroom level. If the ATCT is attached to a support building that has toilet rooms, then the First and Second floors of the Tower are not required to have a toilet room for those floors. Toilet rooms are only required for the Third floor and above. Additional restrooms may be required, depending on functions located in the ATCT

shaft. Provide one shower and locker area in towers with more than one restroom where the program requirements reflect a 24-hour work shift.

- d. Simulator room. The simulator room requirement will be determined by the ATSCOM Survey. If an ATCT is collocated with an ARAC, there should only be a requirement for one simulator room. If the ATCT is not collocated with the ARAC there could be a requirement for a simulator room in both the ATCT and the ARAC.
- e. Stairwell. Provide a code compliant stairwell to service all ATCT floor levels.
- f. Elevator. One elevator must be provided to service the ATCT. Elevator service is not required to serve the Control Cab and the floor immediately below the Control Cab. However, if a hydraulic elevator is used, the elevator can serve all floors including the one immediately below the Control Cab.

8. Army Radar Approach Control (ARAC). The ARAC controls aircraft by using installed radar to provide ATC services to Instrument Flight Rules (IFR) and Visual Flight Rules (VFR) air traffic within a certain assigned airspace. ARACs offer ATC services to aircraft arriving, departing, or transiting the airspace controlled by the facility. The ARAC contains equipment used for controlling air traffic and is staffed by air traffic controllers and air operations, administrative and maintenance support personnel. The scope of radar services provided will vary according to equipment installed and the delegated airspace. The scope and complexity of the services are the significant design drivers. The ARAC contains an IFR control room that includes the radar display consoles and communications control equipment. An adjacent terminal equipment room houses all automation central (or terminal) equipment, maintenance positions and audio/video recorders. ARACs can be sited anywhere within the range of the radar providing radar assisted approach control. The ARAC functions well in a single-story facility, making it a candidate for siting near airfields where building heights are restricted by airport conical or imaginary surfaces. It is preferable to locate the Army Radar Approach Control Facility (ARAC) adjacent to the Air Traffic Control Tower (ATCT). However, the ARAC is not required to be adjacent to the ATCT. If an ARAC is required, the functional areas and adjacency requirements should be in accordance with chapter 2 of UFC 4-133-01.

9. Telecommunications Connectivity & Distribution. Telecommunications infrastructure will meet UFC 3-580-01, I3A and ANSI/TIA/EIA requirements.

a. Data outlets will be provided per the I3A technical guide based on functional purpose of the various spaces within the facility as modified by user special operational requirements. Provide telecommunications spaces to accommodate unclassified (e.g., NIPRNET, voice, video-teleconferencing (VTC)) systems.

b. Outside plant connectivity must be provided in accordance with the Army I3A guidance. The facilities contained in this Army Standard must be connected to a distribution node with single mode fiber optic cabling. The Airfield Operations Building/ATCT Facility must be connected to at least one distribution node. The fiber optic cabling must be sized to support the common user systems. For planning purposes, 48 strands of single mode fiber must provide connectivity to the installation fiber backbone. Entry to the AOB must use a concrete encased entry duct and manhole system. Adjustments will be made during actual project design development.

c. The telecommunications infrastructure, cabling, outside plant, and outlets will be designed and allocated in accordance with the following references:

- Project specific USAISEC Information Technology Facility Design Criteria
 - USAISEC Technical Guide for Installation Information Infrastructure Architecture (I3A)
 - USAISEC Technical Guide for the Integration of Secret Internet Protocol Router Network (SIPRNET)
 - National Security Agency (NSA), Department of Defense (DoD), Defense Information Systems Agency (DISA), and Department of the Army (DA) policies, practices, and memorandum for information assurance, security, and protection.
 - UFC 3-580-01 Telecommunications Interior Infrastructure Planning and Design
10. ATCT equipment new versus replacement. Reference Section 2-3 Project Phasing and Coordination UFC 4-133-01.
11. Temporary Mobile ATCT. Reference Section B-6 in Appendix B UFC 4-133-01.

REFERENCES

Use the following for the planning and design of AOB/ATCT Facilities.

UNIFIED FACILITIES CRITERIA (UFC)

UFC 1-200-01, Design: General Building Requirements

UFC 3-260-01, Airfield and Heliport Planning and Design

UFC 3-535-01, Visual Air Navigation Facilities

UFC 3-580-01, Telecommunications Interior Infrastructure Planning and Design

UFC 3-600-01, Design: Fire Protection Engineering for Facilities

UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings

UFC 4-023-03, Security Engineering: Design to Resist Progressive Collapse

UFC 4-133-01, Air Traffic Control and Air Operations Facilities

ARMY PUBLICATIONS

AR 95-1, Aviation, Flight Regulations

AR 95-2, Air Traffic Control, Airfield/Heliport, and Airspace Operations

AR 190-16, Physical Security

AR 190-51, Security of Unclassified Army Property

AR 210-20, Real Property Master Planning for Army Installations

AR 405-70, Utilization of Real Property

AR 420-1, Army Facilities Management

DA PAM 415-28, Guide to Army Real Property Category Codes

TC 3-04.81, ATC Facility Operations, Training, Maintenance and Standardization

FM 3-04.300, Airfield and Flight Operations Procedures

ER 1110-3-113, Engineering and Design, Department of the Army Facilities Standardization Program

USAISEC Technical Guide for Installation Information Infrastructure Architecture (I3A)

USAISEC Technical Guide for the Integration of SECRET Internal Protocol (IP) Router Network (SIPRNET)

FEDERAL AVIATION ADMINISTRATION (FAA)

FAA Order 6480.4, ATCT Siting Criteria

FAA Order 6480.7, Airport Traffic Control Tower, and Terminal Radar Approach Control (TRACON) Facility Design Guidelines

FAA Order 7400.2, Procedures for Handling Airspace Matters

FAA AC 150/5300-13, Airport Design

FAA AC 150/5390-2, Heliport Design

CODE OF FEDERAL REGULATIONS (CFR)

14 CFR 77, Objects affecting navigable airspace

14 CFR 157, Notice of Construction, Alternation, Activation and Deactivation

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI/TIA/EIA-568-B, Commercial Building Telecommunications Cabling Standard

ANSI/TIA/EIA-568-B, Commercial Building Standard for Telecommunications Pathways and Spaces

GOVERNMENT PUBLICATIONS

Architectural Barriers Act (ABA) Accessibility Standard for Department of Defense Facilities.