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Savannah District

**DEPARTMENT OF THE ARMY
FACILITIES STANDARDIZATION
PROGRAM**

**BRIGADE OPERATIONS
COMPLEX,
BRIGADE AND BATTALION
HEADQUARTERS**

**STANDARD
DESIGN**

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**BRIGADE OPERATIONS COMPLEX, BRIGADE AND BATTALION HEADQUARTERS
STANDARD DESIGN**

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PART I

GENERAL DESIGN REQUIREMENTS

1. GENERAL AND SPECIFIC CRITERIA. The criteria contained in this Standard Design are applicable to the development of Brigade Operations Complex site plans, and facility designs for Brigade Headquarters (BDE HQ) and Battalion Headquarters (BN HQ). The specific criteria contained in this Standard Design shall be used in conjunction with other referenced criteria contained within this document

a. **Standardization.** The Center of Standardization (COS) for the Brigade Operations Complex, including the Brigade and Battalion Headquarters Standard Design, is the U.S. Army Corps of Engineers, Savannah District (CESAS). This standard design is created in two parts. Part 1 provides guidance to facilities planners and USACE districts. Part 2 is a Request for Proposals (RFP) Statement of Work (SOW) for use in procuring battalion and brigade headquarters after programming objectives and area determinations have been established. In accordance with ER 1110-3-113, the COS maintains lessons learned and CADD files of completed designs. The COS should be consulted when starting a project.

b. **Applicability.** Facilities in this standard design may have functional elements that are included in category codes 14161 (Brigade Operations Center), 14162 (Sensitive Compartmented Information Facility), 17119 (Classrooms) and 13115 (Information systems facility) or related category codes. The more stringent criterion applies if there is a conflict between this standard design and the criteria for these category codes.

c. **Provisions for Physically Handicapped Individuals.** Brigade and Battalion Headquarters shall be designed to be accessible to the physically handicapped.

d. **Anti-Terrorism/Force Protection.** Each project shall be evaluated for security requirements in accordance with UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings, latest edition.

e. **Sustainable Development and Design Requirements.** Brigade HQ and Battalion HQ facilities shall be designed to meet the current sustainable development and design criteria as established by the Department of the Army. Specific project goals will be indicated in the GENERAL TECHNICAL REQUIREMENTS and/or PROJECT SPECIFIC REQUIREMENTS section of the RFP document.

f. **Space Planning Criteria.** The maximum gross areas for BDE and BN HQ facilities, including space for mechanical and other utility equipment, will not exceed the areas for the applicable size set forth in this standard. **<REV>Scope variation must</REV>** be approved by **<REV>OACSIM</REV>** based on documented equipment, personnel, or mission requirements not addressed in this standard. Administrative areas within this facility are based on approved criteria in AR 405-70, Appendix D.

g. **General.** The standard designs and the criteria shown in this document provide a flexible solution for the Army force structure that is **<REV>continuously adapting to evolving doctrine, operational requirements, resources, technology, and information security</REV>**. It is developed to accommodate all types of Brigade Combat Teams (BCT), other modular functional brigades, legacy (non-modular) brigades, and their associated BN HQ structures. Site planning should be adapted for modular functional and non-modular brigades based on the composition of each brigade in the context of the principles and concepts in the Brigade Operations Complex Master Plan. **<REV>Training Brigades and Battalions in support of Basic Training, One Station Unit Training (BT/OSUT), and Advanced Individual Training (AIT) are addressed by separate standard designs.</REV>**

(1) There are five standard sizes of brigade headquarters to accommodate the differing needs of modular and non-modular force structures:

Table 1: Brigade HQ Size Determination

SIZE	PERSONNEL	AREA (GSF) W/ BOC, NOC, SCIF	COMMENTS
X-SMALL	107 or less	20,400	Intended use is primarily for non-modular, legacy brigades. Area indicated includes space for secure spaces (BOC, NOC, and SCIF). If secure spaces are not required, reduce area to <REV>15,600 GSF</REV>.
SMALL	107-173	34,400	<REV></REV>
MEDIUM	174-200	37,700	<REV></REV>
LARGE	201-224	43,400	<REV>Size appropriate for Brigade Combat Teams</REV>
X-LARGE	225-320	59,200	<REV></REV>

(2) The standard design is focused on Brigade Combat Teams (BCT). The concepts in the standard design process apply to the BCTs and generally apply to the modular brigades as well, though specific additional requirements should be investigated during project specific planning charrettes. A typical <REV>Armored</REV> BCT is shown in Figure 1. While the forward support companies (FSC) are part of the brigade support battalion (BSB) they are aligned with and integrated into the facilities footprint of the battalion they support.

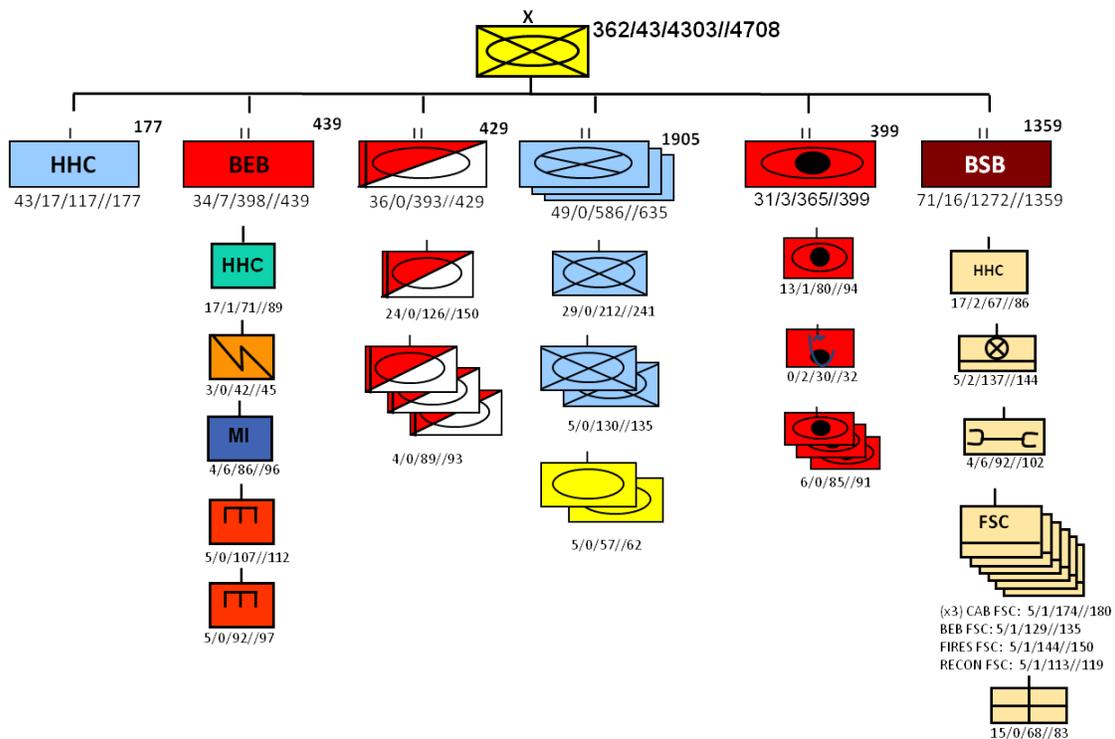


Figure 1: Typical <REV>Armored</REV> Brigade Combat Team (ABCT)

(3) The development of this <REV>standard design</REV> was <REV>done in coordination with the established DA Facility Design Team (FDT) consisting of the</REV> facility proponent, Office of the Deputy Chief of Staff for Operations, G-3/5/7, <REV></REV>Office of the Assistant Chief of Staff for Installation Management (DAIM-<REV>OD), US Army Forces Command (FORSCOM),</REV> the Installation Management Command <REV>(IMCOM), and</REV>HQUSACE <REV>. The FDT and the Army</REV> Facility Standardization Committee <REV>continuously monitor changes to the standard design to ensure that it is consistent with the principles established by</REV> HQDA.

h. **Army Transformation – Background.** <REV>The current generation of</REV> Army Transformation, began in 2003, <REV>when it introduced</REV> fundamental changes in how the Army operates in peace and war. <REV>In response to advances in information and communications technology, growing intelligence capabilities, increased precision and lethality of weapons, and evolving threats,</REV> the Army<REV></REV> streamlined command and control. <REV>The result was a shift in battle management from divisions to brigade combat teams that possessed organic intelligence, sustainment and maneuver capabilities providing flexibility, agility and independence suited to the operational climate of the post-Cold War era.</REV> The BCTs<REV></REV> contain the <REV>maneuver</REV> units that engage the enemy <REV>and</REV> shape and control the battlefield, and the <REV>sustainment</REV> units that provide logistic support to sustain the unit. <REV></REV>Along with the BCTs, the transitional force structure also featured functional brigades. <REV>One by-product of these changes was a significant growth in the size of the brigade staff and, to a lesser extent, the growth in the subordinate battalion staffs.</REV>

(1) Previously, the functions and requirements of BDE HQ and their subordinate battalions were not that different with regard to facilities. Transformation <REV></REV>fundamentally altered this. Brigades now perform intelligence, operations and communications functions that were formerly associated with a division headquarters. In contrast, the battalion's operational requirements have remained largely unchanged. The most significant difference is the inclusion of an S-6 office – Information Management. As a result, BDE HQ buildings and BN HQ buildings are no longer interchangeable.

(a) <REV>Brigade combat teams and selected other modular brigades</REV> have missions and capabilities that require specialized spaces that are only needed in a limited number of specialized BN HQ. These missions and capabilities translate into the need for most brigades to have a Brigade Operations Center (BOC) for controlling mission operations while they are in progress. <REV>BCTs and selected other brigades also require</REV> a Sensitive Compartmented Information Facility (SCIF) for processing certain types of classified information, and a Network Operations Center (NOC) to manage the information systems inside their footprint. Each of these types of space has special security requirements that dictate specific construction standards. They also have access restrictions that suggest traffic patterns and control points within the facility. The requirement for these types of space should be confirmed during the planning Charrette for BDE HQ for other than BCTs, <REV>MI Brigades and Special Forces Groups.</REV>

(b) Transformation involved restructuring existing active Army divisions. To a large extent <REV>divisional</REV> combat brigades were reconfigured into BCTs by distributing spaces from the Division Support Command (DISCOM), the Division Artillery Brigade (DIVARTY) and the separate battalions and companies to create robust, self-contained combat teams. <REV>Subsequent lessons learned from operations in Iraq and Afghanistan has lead to a continuing reassessment of operational requirements. As such, the Army is in the process of reestablishing Division and Corps Artillery Headquarters to improve synchronization of fires on the battlefield.</REV>

(c) <REV>Emerging technologies and evolving</REV> operating principles <REV>define</REV> the character of the brigade area, <REV>which</REV> serves as the platform for transition to war and deployment.<REV></REV> Connectivity with the global information grid supports embedded training in all facilities within the BCT complex. <REV>During periods of intensified operational requirements units follow a three phase operational cycle:</REV>

Phase I Train and Prepare to Deploy
Phase II Deploy
Phase III Redeploy/Recover/Re-Equip

This cycle affects more than just facilities; the Army is setting up unit lifecycle manning requirements to ensure units have personnel stability through the first two phases of the cycle.

(2) <REV>A nimble, flexible and adaptable Army</REV> is dependent upon <REV>agile</REV> battle command (BC), <REV>comprehensive</REV> situational awareness (SA), and <REV>enhanced</REV> situational understanding (SU). <REV>The unprecedented acceleration of fielding Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) technology creates a fundamental requirement for Brigade and Battalion headquarters to gather data and determine its impact on mission. As an example, the inclusion of Sensitive Compartmented Information Facilities (SCIF), Brigade Operations Centers (BOC), and Network Operations Centers (NOC) at the brigade level have been critical elements in enabling reach back operations, and implementing the Army's force design for a brigade-centric, expeditionary Army.</REV>

i. <REV>**Brigade/Battalion HQ Legacy Facilities Renovation Study.** Under the leadership of the U.S. Army Corps of Engineers, Savannah District Center of Standardization, and in coordination with FORSCOM, IMCOM, and other Army Facility Design Team (FDT) members, a Bde/Bn HQ Legacy Facilities Renovation Study has been completed and can be downloaded from <https://mrsi.usace.army.mil/cos/savannah/SitePages/BnBde.aspx>. The study serves as a guide for renovating legacy facilities in order to bring them into conformance with the requirements documented in the Standard Design. The study includes a prioritized list of functional/operational requirements predicated on the standardized features documented in this Standard Design. Tier 1 functions have been identified in the study as the minimum functional/operational requirements a renovated Bde or Bn HQ must satisfy in order for users to be able to meet mission requirements. The study also includes, in order of preference, all remaining requirements as documented in this Standard Design and indicates their priority for incorporation. Notional floor plans are also included in the study.</REV>

2. BRIGADE OPERATIONS COMPLEX.

a. **Purpose and Objective.** The purpose of this Brigade Operations Complex Master Plan is to define the organizational and functional relationships between the key elements of brigades in general, and BCTs <REV>in particular.</REV> Principles for site development can be applied to both new complex development and to redistribution and reconfiguration of existing complexes. The objective is to ensure that the facilities support the overall operational objectives of the Army and the needs of the intended users. Planners can use this template to support allocation of limited resources in a rational manner that best supports the needs of war-fighters. This section identifies the components of the Brigade Operations Complex, outlines the desired relationships between facilities and functions, and provides an overall site plan that presents alternate concepts for satisfying building requirements for operational facilities.

b. **Brigade Operations Complex Composition.** A brigade operations complex is not limited to just the BDE and BN HQ. It consists of several facilities types with emphasis on those shown in Table 2.

<REV>Table 2: Brigade Complex Components

Category Code	Description	Unit of Measure
14182	Brigade Headquarters	Square Feet
14183	Battalion Headquarters	Square Feet
14185	Company Operations Facility ¹	Square Feet/Each
17119	Organizational Classroom	Square Feet
21410	Vehicle Maintenance Facility	Square Feet
21412	Organizational Storage	Square Feet
21412	Unmanned Aerial Systems Storage/Maintenance ²	Square Feet
21412	Distribution Company Storage Building	Square Feet
44226	Unit Supply Support Activity (SSA) ³	Square Feet
85210	Organizational Vehicle Park	Square Yards

¹ Category Code 14185 has additional supporting facilities and site planning considerations. See standard design for the Company Operations Facility (COF) for additional information.

² Category Code 21410 has additional supporting facilities and site planning considerations. See standard design for the Tactical Equipment Maintenance Facility (TEMF) for additional information.

³ Category Code 44226 has additional site planning considerations. See the Army Standard and Standard Design for the Unit Supply Support Activity (SSA) for additional information.</REV>

c. **Organizational Relationships.** The overall character of the complex will be determined in part by the physical relationships between the BDE HQ, the BN HQs and the Company Operations Facilities (COFs). The following functional rules of consideration are approved by the Army (HQDA G-3/5/7 proponent) for applying Brigade and Battalion Headquarters building standard design to brigade organizations and subordinate units:

(1) When the Brigade (i.e., brigade combat team) organization is intended to deploy as a complete unit by Army force design and doctrine, AND the brigade and multiple battalion HQ are programmed concurrently, the Consolidated Brigade-Battalion Headquarters is the required approach mandated by HQDA. This concept co-locates the BDE and BN HQ in a single facility containing up to <REV>seven</REV> battalions and a brigade for a BCT complex. A lesser number of BN HQ may also be consolidated with their associated BDE HQ if determined to be operationally acceptable by the using activity. This approach provides for closer coordination and cooperation between the brigade and the battalions. It is the most efficient concept, in the use of the site, infrastructure, construction, and O&M costs, and supports how the BCT will operate. Since the battalion classroom functions are also consolidated, they shall be reduced in number by 50% since the consolidated option enables alternating use of classrooms by battalions (any partial classroom should be rounded up to the next whole number). Red colored buildings on the Master Site Plan (<REV>Figure 3</REV>) show this variant.

(2) Stand-alone Brigade and Battalion Headquarters <REV>may be operationally appropriate for brigades that have no standard composition such as MI Brigades or Sustainment Brigades. And while not considered a mission or operability driven alternative for brigades that deploy as a unit, it is also an acknowledged requirement for in-fill situations where separate Battalions and/or Brigade HQ already exist and additional facilities are needed. However,</REV> given the land area, anti-terrorism/force protection, and life-cycle cost considerations associated with using separate buildings for brigade and battalion headquarters functions, the separate building approach <REV>must be</REV> considered the least preferred alternative, and as being the most resource-intensive alternative in terms of land use, infrastructure costs, construction costs, and O&M costs. <REV>Therefore, when the stand-alone approach is adopted as the required solution for a specific project, it is recognized that technical or topographic considerations preclude applying the functional or infrastructure considerations cited above. In the stand-alone approach, each BN HQ will be allotted its full complement of classroom, but</REV> the classroom function will be housed in a sub-dividable space in each <REV>headquarters</REV>. BN HQ buildings are to be located

adjacent to their associated battalion-based COFs. Exterior physical training areas are provided adjacent to the COF and BN HQ buildings. Orange colored buildings on the Master Site Plan (Figure 3) show the location of stand-alone BN HQs when this option is used.

(a) Company Operations Facilities (COF) ~~are to~~ be developed in accordance with the COF Standard Design.

(b) Tactical Equipment Maintenance Facilities (TEMF) are to be developed in accordance with the TEMF Standard Design.

(c) ~~Review the Brigade and Battalion Headquarters Legacy Facilities Renovation Study when considering adaptive reuse of existing facilities in lieu of new construction.~~

d. **Standard Planning Factors.**

(1) **General Site Planning Goals/Objectives:** The BCT ~~or other brigade complex is~~ organized to provide proximity between operational elements, controlled access for logistics support, isolation for operational activities, and ease of movement to training areas and deployment facilities, while avoiding ~~external~~ conflicts ~~with non-tactical vehicle traffic and~~ land uses / internal conflicts between administrative and industrial activities. Figure ~~2~~ shows suggested land use relationships for a BCT complex. As depicted, three bands of vehicle traffic traverse the area. One provides POV access to the compound. The second provides access to unit areas for logistics and support traffic. The third band links organizational parking to training areas and ranges. Ideally the third band also provides direct access to the deployment facilities to avoid the requirement for deploying traffic to mix with other traffic on the installation. POV traffic is normally limited to the first band.

(a) The ideal site has a public, or “front door,” facing the peacetime garrison, a “middle door” that allows movement of logistics support in and out of the area without mingling with Privately Owned Vehicle (POV) traffic, and a “back door” that leads to training and deployment facilities. A security line provides for isolation of operational activities from other activities that may occur in the general vicinity. It also contributes to overall physical security of technologically sensitive items stored in unit facilities. The security line may be a combination of fencing and access controls with active and passive monitoring that alerts units to the possible presence of personnel who do not have a need to know. The actual levels of security are determined by a local threat assessment. POVs are not normally permitted beyond the security line.

(b) The brigade and battalion command and control facilities should be in close proximity to support close coordination and shared use of sensitive key facilities for training and pre-deployment operations as the BCT transitions to war. The BN HQ should also be located close to the company operations facilities (COF) building to facilitate command, control, and communications during training and deployment preparation. The COF should be capable of supporting transition to war activities in the readiness module without interference from non-deploying personnel.

(c) Maintenance facilities and organizational parking ~~should~~ be in proximity to the COF to facilitate loading and unloading, and flow from COF-centric activities to vehicle and equipment related activities. The back of the organization equipment park provides access to tank trails that lead to the training areas and deployment facilities.

(d) Barracks and community facilities are located on the perimeter of the site. While barracks may be built concurrent with and adjacent to a BCT complex, they are not the focus of the unit area. Factors such as access to community facilities should be given equal weight with proximity to the BCT complex since shifting demographics mean barracks populations will not necessarily be associated with the nearest brigade operations complex or other troop unit area. The positioning of the barracks on the Land Use Diagram allows unit integrity within the brigade. Moving the

barracks further into the operational areas of a brigade complex has the potential of disrupting the operational flow of transition to war and deployment. Keeping barracks on the periphery of the site provides proximity without breaking up continuity of operations within the site itself.

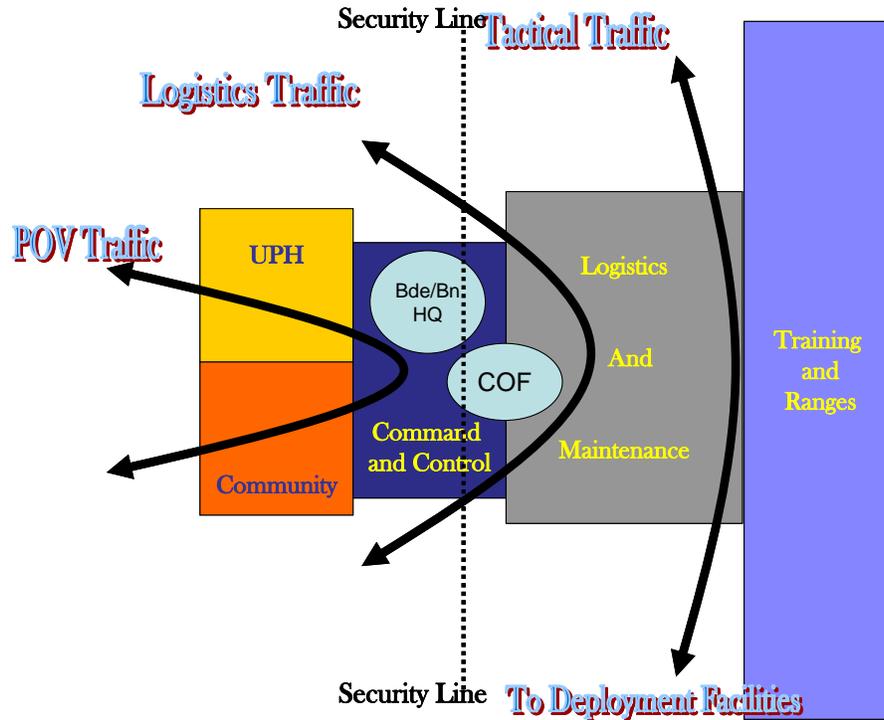


Figure 2: Typical Preferred Land Use Relationships

(2) **Size Factors.** The idealized Brigade Operations Complex master plan is based on the requirements of an **Armored BCT (ABCT)** since it has the largest footprint. Organizationally the **Infantry Brigade Combat Team (IBCT)**, the **Airborne IBCT (ABN)** and the **Stryker Brigade Combat Teams (SBCT)** are more similar than the previous generation of brigade combat teams.

(a) Based on current criteria the major components of a brigade operations complex are 1 brigade headquarters, **7** battalion headquarters with organizational classrooms, **39** company headquarters¹, **7** tactical equipment maintenance facilities (TEMF) with unit storage, and organizational parking for the **7** battalions. Dining is provided in a brigade operations complex when it is consistent with the installation-wide requirements and dining facility management plan. Some units, including the Military Intelligence Company and Network Support Company require space for administrative type functions. Some of these are in direct support of the brigade headquarters and are included in the total count of personnel in the NOC and SCIF. Requirements that do not directly support the brigade should be included in the associated battalion headquarters or the COF building mezzanine.

¹ **The SBCT has 37 companies. Each SBCT infantry battalion has 1 less company than the ABCT combined arms or the IBCT infantry company; the SBCT BEB has one additional company, the anti-armor company, which does not exist in the ABCT or IBCT.**

<REV>(b) The Brigade Headquarters Company is included in the Brigade Support Battalion grouping of COFs since it has the doctrinal requirement to provide maintenance and other logistics support to the Brigade Headquarters.</REV>

(3) **Future Systems and New Requirements.** The Army will provide additional equipment to the BCTs as the technologies behind them become available. While much of the new equipment will replace existing equipment with little or no added storage requirement, two areas of technology will directly impact the amount of storage and hardstand needed in the brigade area; unmanned aerial vehicles (UAV) and unmanned ground vehicles (UGV). These range in size from man-portable to vehicle-transported devices. They provide intelligence, surveillance, counter obstacle, direct fires, indirect fires and other support to combat operations. A limited number of these systems are already in the field and more are in development to join the force in the near future. The planning factors for these systems change periodically and should be verified in conjunction with specific project planning charrettes. In general, based on current trends, assumptions about additional requirements should take into account that units will become smaller, more numerous and have more equipment than the current force structure as the Army moves to use technology to increase lethality and flexibility while reducing the exposure of soldiers to threat weapons.

e. **Site Plan Layout.** The idealized Master Plan in <REV>Figure 3</REV> incorporates the provisions for a Consolidated BDE/BN HQ Building, sized for an <REV>Armored</REV> BCT. The layout organizes the brigade elements into four bands (shown as horizontal organizational elements in the site plan). It also depicts variations for stand-alone facilities.

(1) The site flows from the quiet, low-intensity housing through the more intense Command and Control area to the increasingly intense work areas represented by the COFs and TEMFs.

(2) The entire site, excluding housing is approximately <REV>5,700</REV> feet long from end to end and 1,400 feet wide, totaling <REV>~180</REV> acres.

(3) Centralized parking serves community facilities as well as work areas. POV parking shown is predicated on the <REV>authorized minimum values per the standard designs of the various facilities types included in a brigade complex (approximately 4,500 POV parking spaces for an ABCT complex)</REV>.

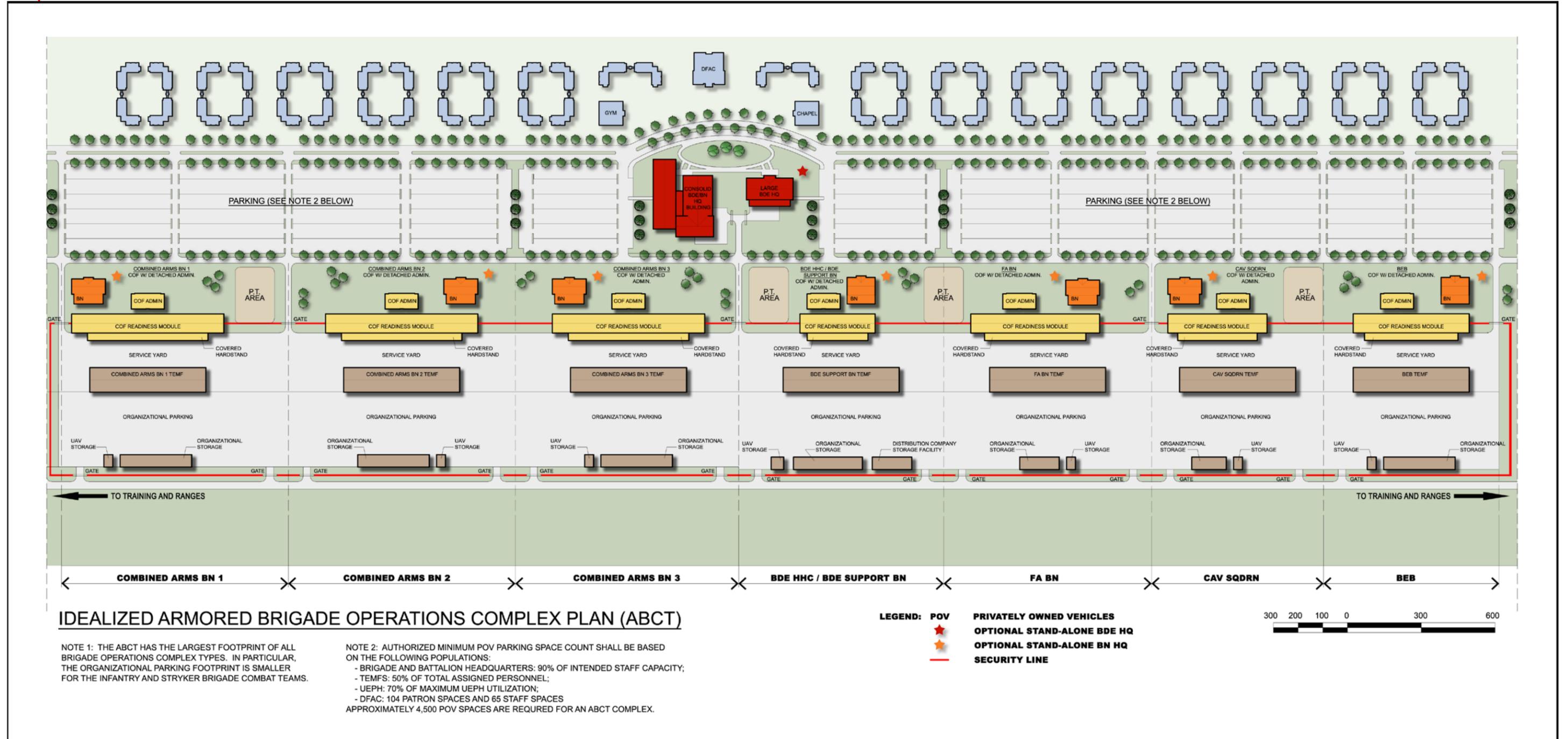
(4) A centrally located, consolidated BDE/BN HQs facility anchors the <REV>BCT site composition. The orientation of the Brigade HQ must account for the associated Tactical SCIF Vehicle Area (TSVA). In order to properly accommodate future SCIF and/or BOC/NOC tactical satellite line of site (LOS) requirements, potential sites must be measured during the initial planning stage with the DPW master planners, unit, and Tactical Equipment Program of Record to ensure an unobstructed exposure from the SE to the SW for direct satellite communication with equipment to be located within the TSVA. This will identify requirements for a clear unobstructed LOS direction, which must include minimum/maximum angle from the horizon. </REV>

(5) The COF with detached Admin is used for the company operations facilities layouts. These COFs include all HHCs for the battalions and the brigade. The brigade HHC is included in the <REV>Brigade Support Battalion</REV> COF building.

(6) TEMFs are shown in sizes appropriate to their associated battalions.

(7) Physical Training areas are provided adjacent to the COF buildings.

<REV>Figure 3: Idealized Brigade Combat Team Complex</REV>



3. BRIGADE HEADQUARTERS BUILDINGS- GENERAL

a. **Background.** The Army Transformation and reorganization shifts war-fighting formations from divisions to Brigade Combat Teams (BCT). Along with the BCTs, the transitional force structure also features functional brigades. The difference between BCTs and functional brigades is described below.

(1) **Command Relationships.** The military uses terms with specific meanings to describe the relationships between commanders. These relationships can directly affect the ability to standardize facilities. The two terms that are most relevant and widely used to describe BCTs and functional brigades are “organic” and “assigned”.

(a) A typical BCT and the relationship of its components are described as organic. A BCT consists of a headquarters, a Brigade ~~Engineer Battalion, three~~ Infantry Battalions, a Reconnaissance Squadron, an Artillery Battalion and a Support Battalion. Each is tailored to the missions that assume the presence of and are dependent on the other elements of the brigade. All of the components are permanently attached to each other and each element of the BCT is designed to optimize its performance within the particular system. The structure of all BCTs is similar. The facilities required can be predicted based simply on the fact that you have a Brigade Combat Team. The term “organic” suggests a permanent relationship, and if you detect one part you can deduce that the other parts are nearby and what the other pieces are.

(b) The second relationship is described as assigned. The functional brigades are organized along these lines to varying degrees. The basic building blocks start with the brigade headquarters, and there are elements that are organic to each type of functional brigade. Like the BCT, these elements of the functional brigade are organic, but the system is not complete. The complete system would normally have additional components. The size and type of these components may be different in every case and not all systems will have all of the components. This reflects a more or less permanent relationship, but one or more of the components could be taken away, or one or more new components added and the organic elements could still perform their basic functions. In this case, if you find an organic element of a functional brigade you can draw firm conclusions about the other organic pieces. You have no way of telling exactly what the assigned parts are. And, if you look at an assigned part, you may deduce that it belongs to a particular type of functional brigade but that does not tell you what the other assigned units are.

(c) In summary each BCT of a particular type and its organic elements are essentially the same as other BCTs of the same type. BCTs will only rarely have assigned units in addition to the organic elements. Two functional brigades of the same type will have the same organic core, but each can have a different number and type of assigned battalions. While they may have generally the same mission, they can be very different in size and composition.

(2) **Brigade Combat Teams versus Functional Brigades.** In the divisional organization, combat brigades consisted of a brigade headquarters and three battalions. Depending on the type of division, some brigades had three identical battalions while others had a mix of infantry and armor battalions. The division provided support to the brigades using battalions or other units that belonged to the division such as military police, engineers, military intelligence, artillery, and logistics.

(a) Most of the support functions provided by divisions have been incorporated into the BCTs so that the BCT will have all of the combat and support elements they need to conduct operations without augmentation. Because the essential functions are organic to the brigade and because each brigade looks exactly like the others of its general type the brigade and battalion staffs can be accommodated in a single facility. If that facility is designed to support a particular type of BCT, it is generally suitable to any other BCT because they are all variations of the same template.

(b) Functional brigades are less predictable. While they are capable of deploying as a unit, they don't necessarily <REV></REV>deploy that way. The functional brigades are intended to provide capabilities to a BCT, or to provide more extensive support or services in general to an area of operations such as bulk re-supply, road or route maintenance, airfield operations and so forth. <REV>In the case of Division Artillery, the headquarters has no assigned battalions, but has an organization and structure that mirrors other brigades.</REV>

<REV></REV>

(c) <REV>When developing requirements for a brigade headquarters it is important to look closely at the distribution of staff and not just the total staff count. Brigades generally have a command element, an operational element and a sustainment element, but the distribution of personnel within these elements can vary significantly.</REV>

b. **Brigade HQ Size Determination.** A Brigade Headquarters for <REV>a BCT or any other brigade is <REV> sized based on the number of personnel requiring work space in the headquarters using Table 1. All areas in the table are maximum allowable gross areas.

c. **Brigade HQ Functional Layouts.** The Brigade Headquarters functional layouts endorsed by the facility proponent, Office of the Deputy Chief of Staff for Operations, G-3/5/7, are attached as appendices to this document.

4. BATTALION HEADQUARTERS BUILDINGS- GENERAL

a. **Background.** As opposed to the BDE HQ structure, the structure of a typical BN HQ has remained largely unchanged in the Army transformation and reorganization process. The most significant difference is the inclusion of S-6 office – Information Management.

b. **Battalion HQ Size Determination.** The BN HQ is sized based on the number of personnel requiring work space in the headquarters using Table 3. All areas in the table are maximum allowable gross areas.

Table 3: Battalion Headquarters Size Determination<REV>

SIZE	PERSONNEL	AREA (GSF) W/O CLASSROOMS	AREA (GSF) W/ CLASSROOMS
SMALL	20 - 35	12,200	16,000
MEDIUM	36 - 50	14,500	18,600
LARGE	51 - 70	15,600	20,400
EXTRA LARGE	71 - 85	17,800	22,600

</REV>

c. **Non-Standard Battalions.** Non-standard battalions are sized based on the number of personnel requiring work space in the headquarters. Determine the number of staff personnel authorized space in the Battalion Headquarters using approved force structure documents. For units where the number of personnel exceed the size parameters identified in Table 3 (above) by more than 5%, allow an additional 162 gross square feet per person. Coordinate all non-standard Battalion planning and design actions with the Center of Standardization. Special space may be added consistent with AR 405-70, not to exceed ten per cent of the net admin area of the building. If more than 10% is required, contact the Center of Standardization. Battalions are not normally authorized a SCIF, NOC or Operations Center. Exceptions could include special operations battalions including PSYOPS or Civil Affairs, Military Intelligence battalions and signal units that are not part of a brigade combat team or part of a division or corps HQ. If the user requests a SCIF, verify the requirement with the Center of Standardization prior to including this space <REV></REV>. If a SCIF, NOC or Operations Center is required, provide 150 net square feet per person requiring space. Multiply the resulting net area by 1.22 for net to gross adjustments.

d. **Battalion HQ Functional Layouts.** The Battalion Headquarters functional layouts endorsed by the facility proponent, Office of the Deputy Chief of Staff for Operations, G-3/5/7, are attached as appendices to this document.

5. REFERENCES.

- (1) AR 405-70, Utilization of Real Property, 9 December 2005.
- (2) AR 420-1, Army Facilities Management, 12 Feb 2008.
- (3) ER 1110-3-113, Engineering and Design, Department of the Army Facilities Standardization Program, 27 September, 1993.
- (4) DA PAM 415-28, Facility Guide To Army Real Property Category Codes, 3 October 2003.
- (5) <REV> </REV>
- (6) UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings, 8 October, 2003.

PART II

STATEMENT OF WORK

1.0 PROJECT OBJECTIVES

The project objective is to design and construct facilities for the military that are consistent with the design and construction practices used for civilian sector projects that perform similar functions to the military projects. For example, a Company Operations Facility has the similar function as an office/warehouse in the civilian sector; therefore the design and construction practices should be consistent with the design and construction of an office/warehouse building.

COMPARISON OF MILITARY FACILITIES TO CIVILIAN FACILITIES

Military Facility	Civilian Facility
Battalion/Brigade Headquarters (BH)	Office

It is the Army's objective that these buildings will have a 25-year useful life before needing any major renovation, repair, or replacement. Therefore, the design and construction should provide an appropriate level of quality to ensure the continued use of the facility over that time period with the application of reasonable preventive maintenance and repairs that would be industry-acceptable to a major civilian sector project OWNER. The site infrastructure will have at least a 50-year life expectancy with industry-accepted maintenance and repair cycles.

The government is required by Public Law 102-486, Executive Order 12902, and Federal Regulations 10 CFR 435 to design and construct facilities in an energy-conserving manner while considering life cycle cost over the life of the facilities.

The project site should be developed for efficiency and to convey a sense of unity or connectivity with the adjacent buildings and with the Installation as a whole.

Requirements stated in this RFP are minimums. Innovative, creative, and life cycle cost effective solutions, which meet or exceed these requirements are encouraged. Further, the OFFEROR is encouraged to seek solutions that will expedite construction (penalization, pre-engineered, etc.) and shorten the schedule. The intent of the Government is to emphasize the placement of funds into functional/operational requirements. Materials and methods should reflect this by choosing the lowest Type of Construction allowed by code for this occupancy/project allowing the funding to be reflected in the quality of interior/exterior finishes and systems selected.

2.0 SCOPE

2.1. [BRIGADE][AND][BATTALION]HEADQUARTERS

Provide[Brigade][and][Battalion]Headquarters. This project type is to house [Brigade][and][Battalion]administrative and command operations. It is intended to be similar to office type buildings in the private sector community. Assume 20 percent of personnel are female unless otherwise indicated.

[The project includes [[___] small][,][[___] medium][,][[___] large][,][and][[___] [extra large] stand alone Brigade Headquarters [for (unit name(s)/project identifier(s))]. The maximum gross area for the Brigade Headquarters in the project is limited to [_____] square feet.]

[The project includes [[___] small][,][[___] medium][,][[___] large][and][[___] extra large] stand alone Battalion Headquarters [for (unit name(s)/project identifier(s))]. The maximum gross area for the Battalion Headquarters in the project is limited to [_____] square feet.]

[The project includes consolidated Brigade and Battalion Headquarters for a [small][medium][large][extra large] Brigade Headquarters and [[___] small][,][[___] medium][,][and][[___] large] Battalions [for (unit name(s)/project identifier(s))]. The maximum gross area for the Consolidated Brigade and Battalion Headquarters in the project is limited to [_____] square feet.]

2.2. SITE

Provide all site design and construction within the Headquarters limits of construction necessary to support the new building facilities. Supporting facilities include, but are not limited to, utilities, electric service, exterior and security lighting, fire protection and alarm systems, security fencing and gates, water, gas, sewer, and site improvements. Provide accessibility for individuals with disabilities. Include Antiterrorism/Force Protection measures in the facility design in accordance with applicable criteria.

Maintain the construction site and haul route. Repair/replace damage to existing sidewalks, pavements, curb and gutter, utilities, and/or landscaping within the construction limit, adjacent to the construction site, and along the Contractor's haul route resulting from the Contractor's construction activities at no additional cost to the Government. Prior to construction activities, the Contractor and Contracting Officer Representative shall perform an existing condition survey. At the completion of the Task Order, the Contractor and Contracting Officer representative shall perform a final condition survey to determine repair/replacement requirements.

Approximate area available for [this facility] [these facilities] is shown on the drawings.

2.3. GOVERNMENT-FURNISHED GOVERNMENT-INSTALLED EQUIPMENT (GFGI)

Coordinate with Government on GFGI item requirements and provide suitable structural support, brackets for projectors/VCRs/TVs, all utility connections and space with required clearances for all GFGI items. All computers and related hardware, copiers, faxes, printers, video projectors, VCRs and TVs are GFGI.

2.4. FURNITURE REQUIREMENTS

Provide furniture design for all spaces listed in Chapter 3 and including existing furniture and equipment to be re-used. Coordinate with the user to define requirements for furniture systems, movable furniture, equipment, existing items to be re-used, storage systems, etc. Early coordination of furniture schedule is required for a complete and usable facility.

The procurement and installation of furniture is NOT included in this contract. Furniture will be provided and installed under a separate furniture vendor/installer contract. The general contractor shall accommodate that effort with allowance for entry of the furniture vendor/installer onto this project site at the appropriate time to permit completion of the furniture installation for a complete and usable facility to coincide with the Beneficial Occupancy Date (BOD) of this project. The furniture vendor/installer contract will include all electrical pre-wiring and the whips for final connection to the building electrical systems however; the general contractor shall make the final connections to the building electrical systems under this contract. Furthermore, the general contractor shall provide all Information/Technology (IT) wiring (i.e. LAN, phone, etc.) up to and including the face plate of all freestanding and/or systems furniture desk tops as applicable, the services to install the cable and face plates in the furniture, the coordination with the furniture vendor/installer to accomplish the installation at the appropriate time, and all the final IT connections to the building systems under this contract.

The Government reserves the right to change the method for procurement of and installation of furniture to Contractor Furnished/Contractor Installed (CF/CI). CF/CI furniture will require competitive open market procurement by the Contractor using the Furniture, Fixtures and Equipment (FF&E) package.

3.0 [BRIGADE][AND][BATTALION]HEADQUARTERS

3.1. GENERAL REQUIREMENTS

3.1.1. FACILITY DESCRIPTION : Provide [Brigade][and][Battalion]Headquarters (HQ) [Facility][Facilities]. This project shall provide facilities to accommodate [Brigade][and][Battalion] administrative and command operations. It is intended to be similar to office type buildings in the private sector community.[The Brigade Headquarters and its function are more fully described in paragraph BRIGADE HEADQUARTERS – FUNCTIONAL REQUIREMENTS.][The Battalion Headquarters and its function are more fully described in paragraph BATTALION HEADQUARTERS – FUNCTIONAL REQUIREMENTS.] The standard Army functional layouts are depicted in the drawings included with this RFP. The extent to which the drawings represent required features, and the allowable latitude for changes is as noted on the drawings.

3.1.2. FACILITY RELATIONSHIPS: [Brigade][and][Battalion] Headquarters shall be located within an operations complex along with Company Operations Facilities (COF) and Tactical Equipment Maintenance Facilities (motor pools). The facilities within this complex shall be oriented to support deployment and daily operations, and should also be located within walking distance of associated community facilities such as barracks and dining facilities.

3.1.3. ACCESSIBILITY REQUIREMENTS: [Brigade][and][Battalion]Headquarters are to be handicapped accessible.

3.1.4. BUILDING AREAS: Gross areas of facilities shall be computed according to <REV>UFC 3-101-01, Section 2-2, Building Area Calculations</REV>. Maximum gross area limits indicated in Paragraph 2.0, SCOPE, may not be exceeded. A smaller overall gross area is permissible if all established net area program requirements are met.

<REV></REV>

3.1.5. ADAPT BUILD MODEL: An Adapt-Build Model for [Battalion][and][Brigade][HQ], which contains a fully developed design, including Building Information Model (BIM), 2-D CADD files, and specifications, can be downloaded from the following web site: <http://mrsi.usace.army.mil/cos/savannah/SitePages/BnBde.aspx>. This design is provided as a guide that exemplifies a technically suitable product and incorporates mandatory functional/operational requirements for a similar (although perhaps not an exact) facility to be constructed under this solicitation. It will be left to the offerors' discretion if, and how, they will use the sample design provided to satisfy the requirements of this Request for Proposal. This model is not intended to modify or over-ride specific requirements of this RFP and, under all circumstances, it will be incumbent upon the successful offeror to adhere to the site specific scope and functional/operational requirements specified within the RFP. Neither this statement of work, nor the adapt-build model, are intended to diminish the offeror's responsibilities under the clauses titled "Responsibility of the Contractor for Design," "Warranty of Design," and "Construction Role During Design." The successful offeror shall be the designer-of-record and shall be responsible for the final design and construction product, including but not limited to, adherence to the installation architectural theme, building code compliance and suitability of the engineering systems provided. The government assumes no liability for the model design provided and, to the extent it is used by an offeror, the offeror will be responsible for all aspects of the design as designer-of-record.

3.2. FUNCTIONAL AND OPERATIONAL REQUIREMENTS

3.2.1 FUNCTIONAL SPACES

A. [BRIGADE HEADQUARTERS FUNCTIONAL REQUIREMENTS][OMITTED]

- 1) **General:** The Brigade Headquarters facility is comprised of administrative, special functions and secure section components as described in paragraph Functional Spaces Descriptions

and Performance Requirements. Secure section components consisting of a Brigade Operations Center (BOC), Secure Compartmented Information Facility (SCIF) and Network Operations Center (NOC). In conjunction with these, each site-specific project shall include necessary site amenities such as vehicle service yards, access drives, and exterior utilities. Space will be provided for a command section, S-1, S-2, S-3, S-4, S-6, S-7, utilities and support services. Private offices will be provided for the commanding officer, executive officer, command sergeant major, S-1 officer, S-2 officer, S-3 officer, S-4 officer, S-6 officer, S-7 officers, Human Resources NCO, re-enlistment, surgeon, Legal Staff offices, Family Resource Services Administrator (FRSA), chaplain, and assistant chaplain. Space will also be provided for clerical and central files, conference room, staff duty station, reception, secure documents room, showers, supplies and vending. A staff duty station shall be provided at primary entrances to the building, whether the brigade headquarters is located in a combined Battalion/Brigade Headquarters or as a stand-alone building. The stand-alone Brigade Headquarters facility is a two story facility with secure zone 1 spaces on the ground floor and secure zone 2 spaces on the second floor. Secure zone 3 spaces are provided on the first floor and consist of a SCIF, BOC and NOC. The secure zone 3 spaces are separated from the rest of facility with card-reader doors.

- 2) **Brigade Headquarters Program Requirements:** The programmatic requirements for the Brigade Headquarters are as indicated on the drawings. See the Room Size and Furnishings Chart for other room and office layout information.
 - a) **[NOC (Network Operations Center)** The NOC shall be designed and constructed as a secure room in accordance with AR 380-5 and classified for open storage.]
 - b) **[BOC (Brigade Operations Center).** The BOC will need to accommodate Government-furnished television screens (wall of knowledge) and monitors. The BOC will be designed and constructed as a secure room in accordance with AR 380-5 and classified for open storage. The main floor (non-sloping) shall be on one level, with raised access flooring to accommodate changing the equipment and the room layout. It shall be configured in a lecture-style arrangement, with clear sight-lines to the wall of knowledge. A conference room shall be provided adjacent to the BOC. Refer to the standard design layout and furnishings chart for the required number and size of workstations.]
 - c) **[SCIF (Sensitive Compartmented Information Facility).** The SCIF shall be designed and constructed for accreditation in accordance with Office of the Director of National Intelligence – Intelligence Community Standard (ICS) 705. The SCIF shall be classified for open storage.]
- 3) **Brigade Headquarters Adjacency Matrix**

Bde Hq Adjacency Matrix		Zone 1										Zone 2										Zone 3								
Activity or Element		COMMAND GROUP	S1 PERSONNEL	S1/PAC	S4 LOGISTICS	S8 RESOURCE MANAGEMENT	CHAPLAIN	SURGEON/MEDICAL	INSPECTOR GENERAL	PUBLIC AFFAIRS	LEGAL	SAFETY	S2 INTELLIGENCE	S3 OPERATIONS	S5 PLANS	S6 COMMUNICATIONS	S7 INFORMATION OPS	S9 CIVIL AFFAIRS	SUPPORT OPERATIONS	FIRE AND EFFECTS	AVIATION	AIR DEFENSE	CBRNE	ENGINEER	PROTECTION	SCIF	BOC	NOC		
Zone 1	COMMAND GROUP		P	A			X		X	P	P																			
	S1 PERSONNEL (note 1)	P		P																										
	S1/PAC (note 2)	A	P																											
	S4 LOGISTICS																													
	S8 RESOURCE MANAGEMENT																													
	CHAPLAIN	X																												
	SURGEON/MEDICAL																													
	INSPECTOR GENERAL	X																												
	PUBLIC AFFAIRS	P																												
	LEGAL	P																												
SAFETY																														
Zone 2	S2 INTELLIGENCE																												P	
	S3 OPERATIONS														P				P	P	P	P	P	P	P			P		
	S5 PLANS (note 3)													P																
	S6 COMMUNICATIONS																												P	
	S7 INFORMATION OPS																													
	S9 CIVIL AFFAIRS																													
	SUPPORT OPERATIONS (note 4)														P															
	FIRE AND EFFECTS														P							A	A							
	AVIATION														P							A	A							
	AIR DEFENSE														P							A	A							
	CBRNE (note 5)														P											P	P			
	ENGINEER														P										P	P				
	PROTECTION (note 7)														P										P	P				
Zone 3	SCIF (note 6) (note 8)													P																
	BOC (note 8)													P																
	NOC (note 8)															P														

A = Adjacency Required

P = Proximity Desirable

X = Separation Needed

"blank" no functional relationship or adjacency requirements

Security Zone 1	Limited access for physical and personal security purposes
Security Zone 2	Controlled access for operational and information security purposes
Security Zone 3	Restricted access

Brigade Headquarters adjacency matrix notes:

1. S-1 Personnel: Combined with S4 as a sustainment section.
2. S1/PAC: Personnel Action Center. Provides customer service. Location should avoid cross traffic with the command group.
3. S5 Plans: combined with S3.
4. Support Operations or SPO is a major separate staff element in Sustainment brigades.
5. Chemical, Biological, Radiological, Nuclear and Explosives: collocated with S3.

6. Sensitive Compartmented Information Facility (SCIF). Associated with S2. The SCIF will be adjacent to an exterior parking area for tactical SCIF vehicles. The exterior Tactical SCIF Vehicle Area (TSVA) will need vehicle interconnectivity with the internal building SCIF. The TSVA will be in a secured, screened, fenced yard with controlled access. Allowance should be made for nine vehicles to park side-by-side within the enclosure.
7. 'Protection' is the MP section in the Combat Support Brigade (Maneuver Enhancement): collocated with S2 or S3.
8. A variance is permitted for the desired proximity between the SCIF, BOC, and NOC and the Brigade staff sections. The intent is to allow for the consolidation of the SCIF, BOC, and NOC on the ground floor for ease of deployment and to accommodate the adjacency requirement between the SCIF, TSVA, and the NOC secure parking area.
9. In the consolidated Battalion/Brigade HQ concept, the staff sections for each battalion headquarters shall be consolidated on a single floor, and the brigade staff sections shall be physically separated from battalion staff sections.
10. Security Zone areas shall be segregated from one another by space separation, physical barriers, or placement of spaces on separate floors of the building.

B. [BATTALION HEADQUARTERS FUNCTIONAL REQUIREMENTS][OMITTED]

- 1) **General:** The Battalion Headquarters facility is comprised of administration, special functions, and classroom components as described in the paragraph Functional Space Descriptions and Performance Requirements. In conjunction with these, each site-specific project shall include necessary site amenities such as vehicle service yards, access drives, and exterior utilities. Space will be provided for a command section, S-1, S-2, S-3, S-4, S-6, utilities and support services. Private offices will be provided for the commanding officer, executive officer, command sergeant major, S-1 officer, S-2 officer, S-3 officer, S-4 officer, S-6 officer, Human Resources NCO, chaplain, and assistant chaplain. Space will also be provided for clerical and central files, conference room, staff duty station, Family Resource Services Administrator (FRSA), reception, secure documents room, showers, supplies, toilet facilities, vending, recycle closet, mechanical room, electrical rooms, telecommunication rooms, and classrooms. A staff duty station shall be provided at primary entrances to the building, whether the battalion headquarters is located in a combined Battalion/Brigade HQ or as a stand-alone building. The stand-alone Battalion Headquarters facility is a two story facility with secure zone 1 spaces on the ground floor and secure zone 2 spaces on the second floor. A separate cluster of classrooms is provided on the ground floor, and is segregated from other building components to minimize disruption to normal headquarters activities.
- 2) **Battalion Headquarters Program Requirements:** The programmatic requirements for the Battalion Headquarters are as indicated on the drawings. Note that the Battalion Headquarters structure is similar for all army battalions and the main difference is size. See the Room Size and Furnishings Chart for other room information.]
- 3) **Battalion Headquarters Adjacency Matrix**

Bn Hq Adjacency Matrix		Zone 1									Zone 2									
Activity or Element		COMMAND GROUP	S1 PERSONNEL	S1/PAC	S4 LOGISTICS	CHAPLAIN	SURGEON/MEDICAL	PUBLIC AFFAIRS	LEGAL	SAFETY	CLASSROOMS (note 13)	S2 INTELLIGENCE	S3 OPERATIONS	S5 PLANS	S6 COMMUNICATIONS	FIRE AND EFFECTS	AIR DEFENSE	CBRNE	ENGINEER	
Zone 1	COMMAND GROUP		P	A		X		P	P		X									
	S1 PERSONNEL (note 1)	P		P							X									
	S1/PAC (note 2)	A	P								X									
	S4 LOGISTICS										X									
	CHAPLAIN	X									X									
	SURGEON/MEDICAL										X									
	PUBLIC AFFAIRS	P									X									
	LEGAL	P									X									
	SAFETY										X									
	CLASSROOMS	X	X	X	X	X	X	X	X	X	X									
Zone 2	S2 INTELLIGENCE																			
	S3 OPERATIONS													P		P	P	P	P	
	S5 PLANS (note 3)												P							
	S6 COMMUNICATIONS																			
	FIRE AND EFFECTS												P			A				
	AIR DEFENSE												P			A				
	CBRNE (note 4)												P						P	
	ENGINEER												P						P	

A = Adjacency Required

P = Proximity Desirable

X = Separation Needed

"blank" no functional relationship or adjacency requirements

Security Zone 1	Limited access for physical and personal security
Security Zone 2	Controlled access for operational and information

Battalion Headquarters adjacency matrix notes:

1. S-1 Personnel: Combined with S4 as a sustainment section.
2. S1/PAC: Personnel Action Center. Provides customer service. Location should avoid cross traffic with the command group.
3. S5 Plans: combined with S3.
4. Chemical, Biological, Radiological, Nuclear and Explosives: collocated with S3.
5. In the consolidated Battalion/Brigade HQ concept, the staff sections for each battalion headquarters shall be consolidated on a single floor, and the brigade staff sections shall be physically separated from battalion staff sections.
6. Security Zone areas shall be segregated from one another by space separation, physical barriers, or placement of spaces on separate floors of the building.

C. CONSOLIDATED BRIGADE AND BATTALION HEADQUARTERS BUILDING

- 1) **Individual Headquarters Staff Sections.** The individual headquarters staff sections shall be consolidated within the building as if each headquarters was leased space in the large building. The brigade staff sections must be physically separated (by floors or walls) from battalion staff sections.

- 2) **The Brigade Operations Center (BOC), Network Operations Center (NOC) and Sensitive Compartmented Information Facility (SCIF).** The BOC, NOC, and SCIF for the brigade headquarters shall be located on the first floor in order to make them accessible to tactical vehicles during exercises. The classrooms shall also be located on the ground floor near the BOC and SCIF to allow them to be used in support of exercises or pre-deployment activities.
- 3) **Battalion Classrooms.** Battalion classrooms will be consolidated and reduced in number by 50 percent since the consolidated headquarters option enables alternating use of classrooms by multiple battalions.]

D. **FUNCTIONAL SPACE DESCRIPTIONS AND PERFORMANCE REQUIREMENTS:**

Command Section	Zone 1	The command section corresponds to the office of the CEO of a corporation. It needs to be located away from heavy traffic activities and must provide a means for support personnel to control the flow of visitors. It also needs to be located with a proximity to the main entrance that allows visitors to have access to the reception area without moving through operational areas of the building such as the SCIF, BOC and the areas of the S-2 and S-3. The legal staff, public affairs staff and the chaplain are outside the area controlled by the commander's assistants. They need ready access to the commander on a recurring basis, but they also have their own visitors who normally should not come inside the command suite.
S-1	Zone 1	The S-1 office (Human Resources) is equivalent to the human resources department of a corporation. While the S-1 has representatives who support operational activities in the building, they serve a clientele that often does not have a requirement for access to operational areas. While it corresponds to the human resources department it generally does not provide customer service to individual soldiers. Rather, the S-1 serves human resource specialists from subordinate organizations and agencies. The S-1 section frequently provides the personnel who control access to the commander and so proximity to the command suite is recommended as long as traffic to the S-1 does not invade the privacy of the command suite.
S-2	Zone 2	The S-2 office (Intelligence Surveillance and Reconnaissance) supports the commander in the areas of opposition research, terrain analysis and weather. The activity of the S-2 section involves a variety of secure communications capabilities and much of their workspace in inside of the SCIF (Brigade Headquarters only) portion of the building and requires strict access control. They also require direct access to a secure exterior vehicle compound adjacent to the SCIF. It should be located away from areas that have customer service activities related to other sections.

S-3	Zone 2	<p>The S-3 (Coordinating Staff Office - Operations, Plans and Training) officer's functions are similar to those of the chief operations officer of a corporation. The S-3 section is responsible for planning, coordinating and supervising the mission functions of the brigade. Because the S-3 integrates the operational functions of the other staff sections as they relate to the mission, it should be as centrally located as possible consistent with other requirements and constraints. The S-3 is responsible for managing the brigade operations center (BOC) (Brigade Headquarters only), which is a restricted area. Much of the work of the S-3 involves dealing with classified information and communications means and, as such, it should be isolated from activities that generate traffic that is not related to the operational function of that section.</p>
S-3	Zone 2	<p>The S-3 Special Staff Office houses a variety of staff elements that are generally autonomous from one another, but which work under the direction of the S-3 office. Each section is aligned with a special function that directly supports the operations of the brigade of battalion and which must be carefully integrated into the overall operations of the command. When the BOC is active each of these sections provides support staff inside the BOC. Within the section the aviation , fires and effects, and air defense elements are more independent of the other sections. Like the S-3 coordinating staff they should be located in a manner that isolates them from activities that generate traffic that is not related to the operational function of that section such as the S-1 and S-4.</p>
S-4	Zone 1	<p>The logistics operations office is responsible for the administration of the logistics, transportation and maintenance functions and programs within the brigade. It does not perform any industrial type functions. It generates traffic that should be excluded from operational areas. It does not provide direct customer service. Most of the traffic it generates will be logistics, transportation and maintenance managers from subordinate organizations.</p>
S-6	Zone 2	<p>The S-6 information Management office operates the NOC (Brigade Headquarters only) with personnel assigned to the Brigade Signal Company. The S-6 is similar to the IT section of a corporation. At the brigade level, it performs policy and management functions but is not necessarily involved in the day to day operation of the networks or communications systems. Similarly it does not provide help desk or hardware and software management. Rather, it provides plans and policies for the organization as a whole and exercises staff supervision of the IT specialist who provides direct support to users.</p>
S-7	Zone 2	<p>The S-7 information Operations office plans and conducts sensitive operations involving the relationship between the military and the civilian populations when the brigade is deployed. They have a high correlation to the S-3 Operations and Plans officers, the BOC and the SCIF. They should be located away from high traffic areas. The S-7 section needs to have ready access to the SCIF and the BOC. The personnel spaces in this section are from other organizations.</p>

Battalion Headquarters Organizational Classrooms.	Zone 1	Classrooms (Battalion Headquarters only) shall be provided for training and other ceremonial and gathering functions for all battalions. Organizational classrooms are authorized for individual battalions when battalion HQs are built as stand-alone or consolidated with a Brigade. There will be a maximum of three classrooms per battalion. The classrooms should be built as a contiguous area with partitions to allow the facility to provide maximum flexibility. When multiple battalion classrooms are consolidated in a single building, i.e. consolidated brigade/battalion headquarters, they shall be reduced in number by 50% since the consolidated headquarters option enables alternating use of classrooms by battalions.
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BOC	Zone 3	<p>The brigade operations center BOC Brigade Headquarters only is similar to an emergency operations center in a local city or county. It provides a venue for interdisciplinary collaboration by specialists from the various staff elements. It is a secure area with restricted access. Only personnel on approved rosters or those who have a verified clearance and need to know are admitted to the BOC. Complimentary technological such as card access and procedural methods are used to control access. a The BOC does not normally operate at full capacity except during an exercise or during preparation for deployments. While the duration of its intense use may be limited, it is also possible that it will be the site of extended operations at full capacity as military preparations continue in anticipation of a political decision to employ military forces. It has work stations connected to all critical networks that are manned by representatives of the various staff agencies.</p> <p>Each of the representatives is "on loan" to the BOC and therefore has another permanently assigned work area. In addition to the main floor, the BOC may provide areas adjacent to the floor for smaller collaborative meetings. The BOC should be located with proximity to the S-3 and isolated from non-operational traffic to the extent possible.</p>
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SCIF	Zone 3	The Sensitive Compartmented Information Facility (SCIF) (Brigade Headquarters only) is the portion of the facility that is supervised by and primarily supports the S-2 staff section. It is a restricted space that must have ground level access to an enclosure, i.e. the Tactical SCIF Vehicle Area (TSVA), capable of containing up to 5 HMMWVs (High-Mobility Multipurpose Wheeled Vehicles) and 4 larger tactical vehicles with trailers in a controlled area. Complimentary technological and procedural methods are used to control access.
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NOC	Zone 3	The Network Operations Center (NOC) (Brigade Headquarters only) is the area where S-6 personnel and personnel from supporting activities perform network control operations. It includes workstations for each individual working within the area. It is a restricted access area that directly supports the SCIF and the BOC as well as providing general support to the internal communications of the rest of the headquarters building. It must have ground level access to an adjoining exterior enclosure capable of containing up to 2 HMMWVs (High-Mobility Multipurpose Wheeled Vehicles) with trailers in a controlled area. Complimentary technological and procedural methods are used to control access.
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3.3. SITE FUNCTIONAL REQUIREMENTS: The following site design requirements are applicable to the design of the [Brigade][and][Battalion] Headquarters [facility][facilities]:

- A. PRIVATELY OWNED VEHICLES (POV) PARKING. [POV parking to be provided by others.][POV parking shall be provided at a ratio of one space for 90% of the intended HQ staff capacity.]
- B. EXTERIOR LIGHTING. Sidewalks, service yards and parking areas shall have exterior lighting. See Chapter 6 for additional information and requirements.
- C. [TACTICAL SCIF VEHICLE AREAS (TSVA) AT BRIGADE HEADQUARTERS. A parking area for 5 HMMWVs and 4 MRAPs, ~~REV~~ or other large tactical vehicles with trailers, shall be located in a secure area immediately adjacent to the interior SCIF. The area shall be located to have an unobstructed exposure from the SE to the SW for direct satellite communication, and shall also be provided with the following features:
- 1) A perimeter fence consisting of a 6-foot high chain link fabric topped by a single outrigger with three-strand barbed wire designed in accordance with STD 872-90-03, FE-6, chain link security fence details. Provide organizational vehicle and personnel gates that are manually operated and manually secured.
 - 2) Provide approximately 13,000 square feet of rigid concrete pavement designed to support HMMWV vehicles or other large tactical vehicles, as utilized by the unit, with trailers
 - 3) A 10-foot wide zone clear of trees and shrubs is required on each side of the fence. The clear zone should require minimal maintenance, and the area 5 feet each side of the fence should be provided with gravel and treated to discourage vegetation growth.
 - 4) Provide 6-inch high concrete wheel stops for each parking stall 6 feet from the exterior wall of the Brigade Headquarters to prevent damage to the building by vehicle impact.
 - 5) Provide data and power connection, and access control and intrusion detection system (IDS) security infrastructure as required by paragraph 3.9 and 3.10. Provide an intercom between gate and SCIF.
 - 6) No above ground transformers, generators, or mechanical equipment shall be located in this area.][Omitted.] ~~REV~~
- D. [TACTICAL NOC VEHICLE AREAS AT BRIGADE HEADQUARTERS. A parking area for 2 HMMWVs with trailers shall be located in a secure area immediately adjacent to the interior NOC. This area shall have an unobstructed exposure to the southwestern sky for direct satellite communication. The area shall be provided with the following features: 1) a perimeter fence consisting of a 6-foot high chain link fabric topped by a single outrigger with three-strand barbed wire designed in accordance with STD 872-90-03, FE-6, chain link security fence details. Provide organizational vehicle and personnel gates that are manually operated and manually secured. 2) Provide approximately 3050 square feet of rigid concrete pavement designed to support HMMWV vehicles or other large tactical vehicles, as utilized by the unit, with trailers 3) A 10-foot wide zone clear of trees and shrubs is required on each side of the fence. The clear zone should require minimal maintenance, and the area 5 feet each side of the fence should be provided with gravel and treated to discourage vegetation growth. Provide 6-inch high concrete wheel stops for each parking stall 6 feet from the exterior wall of the Brigade Headquarters to prevent damage to the building by vehicle impact. No above ground transformers, generators, or mechanical equipment shall be located in this area.][Omitted.]

3.4. SITE AND LANDSCAPE REQUIREMENTS – NOT USED

3.5. ARCHITECTURAL REQUIREMENTS

- A. EXTERIOR ARCHITECTURE. Interior and exterior architectural features of the building shall be designed in accordance with the Installation Design Guide.
- B. BUILDING ENTRANCE. Provide attractive entry features such as canopies and large glass wall surfaces, ensuring compliance with Anti-Terrorism/Force Protection requirements.
- C. Windows. Provide windows for natural lighting in all Security Zone 1 and 2 office areas, ensuring compliance with anti-terrorism/force protection and physical security requirements. Areas where classified material (both physical and electronic format) is handled, stored, processed, or discussed shall be limited to non-operable windows. This prohibition extends to locations with components for SIPRNET and to other devices processing classified data, which includes all private offices and conference rooms. When fixed windows are provided in rooms authorized for SIPRNET, the following potential problem areas must be addressed:
- 1) Ensure TEMPEST is mitigated by using TEMPEST approved equipment and shielded or fiber optic cabling.
 - 2) Provide provision for window curtains and/or blinds, or application of a one way film to the window glazing.
 - 3) Provide provision for curtains that can be drawn across windows were audio from classified VTC sessions has the potential of being transmitted through window glazing.

[Windows are not authorized in the Brigade Headquarters Security Zone 3 areas.]

- D. SOUND INSULATION. Due to the possibility of amplified audio, provide sound insulation for all classrooms and conference rooms[, to include the Operations Center (OC) in Bde HQ,] to meet a minimum rating at doors, walls, and floor / ceiling assemblies of STC 50 or better.[In addition to meeting a minimum rating of STC 50 or better, SCIF Conference Rooms shall also meet Sound Group 4 performance criteria in accordance with ICS 705-1.]. Provide sound insulation to meet a minimum rating at doors, walls and floor/ceiling assemblies of STC 45 at [all other Security Zone 3 areas,] private offices, team rooms, A/V control rooms, and walls separating security zones. The sound insulation system shall be as defined by ASTM E413-04, Classification for Rating Sound Insulation. Compliance with STC requirements includes industry standard sound deterrence measures and sound flanking paths at HVAC ductwork and pipe penetrations, electrical boxes and similar systems. In addition to the above sound insulation requirements, all conference rooms and classrooms supporting video teleconferencing capabilities shall meet a Noise Criteria (NC) 30 rating in accordance with ASHRAE Fundamentals Handbook.
- E. OFFICE AND ADMINISTRATIVE AREAS. The open office areas for staff sections (S-1, and S-2, etc.) in different security zones should be separated from one another by physical separation, walls, or floors. The intent is to provide visual separation between staff sections within a headquarters, with maximum flexibility for future change within open office areas. A similar preference exists for private offices within the staff section, with the exception that they will require doors for privacy. The command section offices shall be constructed to provide privacy and sound control in accordance with SOUND INSULATION paragraph above. The intent for the command section offices is to provide a more permanent type of construction, but still to minimize load-bearing walls so as to accommodate future reconfiguration. This same construction requirement exists for walls between headquarters in a consolidated headquarters facility. Provide centralized areas for photocopier, laser printer and fax machine with waste and paper recycling receptacles and supply cabinet for paper storage in each office area. Hours of operation are normal business hours except where indicated otherwise.
- F. SECURE DOCUMENTS ROOM. The Secure Documents Room in the S-2 area shall be designed and constructed in accordance with AR 380-5 and classified for Open Storage.

- G. [NOC (NETWORK OPERATIONS CENTER)] The NOC shall be designed and constructed as a secure room in accordance with AR 380-5 and classified for open storage.]
- H. [BOC (BRIGADE OPERATIONS CENTER)]. The BOC will need to accommodate Government-furnished television screens (wall of knowledge) and monitors. The BOC will be designed and constructed as a secure room in accordance with AR 380-5 and classified for open storage. The main floor (non-sloping) shall be on one level, with raised access flooring to accommodate changing the equipment and the room layout. It shall be configured in a lecture-style arrangement, with clear sight-lines to the wall of knowledge. A conference room shall be provided adjacent to the BOC. Refer to the standard design layout and furnishings chart for the required number and size of workstations.]
- I. [SCIF (SENSITIVE COMPARTMENTED INFORMATION FACILITY)]. The SCIF shall be designed and constructed for accreditation in accordance with Office of the Director of National Intelligence – Intelligence Community Standard (ICS) 705. The SCIF shall be classified for open storage.]

3.5.1 FINISHES AND INTERIOR SPECIALTIES

Fire Extinguisher cabinets and brackets shall be provided when fire extinguishers are required by UFC 3-600-01 and NFPA 101. Placement of cabinets and brackets shall be in accordance with NFPA 10. Semi-recessed cabinets shall be provided in finished areas and brackets shall be provided in non-finished areas (such as utility rooms, storage rooms, shops, and vehicle bays). Fire extinguishers shall not be provided in this contract.

3.6. STRUCTURAL REQUIREMENTS

Structural Floor Load Requirement for Secure Documents Room. The floor system for the Secure Documents Room shall be designed to store up to 12 safe/file-cabinets. The empty shipping dead load of the cabinet is approximately 1021 lbs each. The live load of the safe/file-cabinet will be based on the latest approved addition of IBC for a “Heavy Storage” of 250 psf.

3.7. THERMAL PERFORMANCE – NOT USED

3.8. PLUMBING REQUIREMENTS – NOT USED

3.9. COMMUNICATION AND SECURITY SYSTEMS

- A. GENERAL: See Paragraph 6 of the RFP for clarifications and additional requirements for the communication and security systems.

- B. [EXTERIOR SECURITY]

Security Infrastructure for Tactical SCIF Vehicle Area (TSVA). Security infrastructure systems shall be installed to support Government-furnished equipment including ICIDS systems, CCTV surveillance systems, and restricted access systems. Provisions shall include dedicated power circuits, communications connections, raceways, and signal wiring for user installed devices. System requirements shall be coordinated with the installation security office.][Omitted.]

- C. EXTERIOR COMMUNICATION

- 1) Outside Plant Telecommunications Systems. The project's facilities shall connect to the Installation telecommunications (voice and data) system through the outside plant (OSP) underground infrastructure per I3A Criteria. Connections to the OSP cabling system shall be from each facility main cross connect located in the main telecommunications room to the

closest OSP access point. Components include the physical cable plant and the supporting structures. Items included under OSP infrastructure encompass, but are not limited to, maintenance hole and duct infrastructure, copper cable, fiber optic cable, cross connects, terminations, splices, cable vaults, and copper and FO entrance facilities.

- 2) **Data Connections for Tactical SCIF Vehicle Area (TSVA).** Provide underground Protective Distribution System (PDS) pathway for telecommunications connectivity from the SCIF in the main building to each TSVA vehicle. Weatherproof tactical interface boxes (TIB) are required for each vehicle. A TIB shall be provided for secure vehicle system connections, non-secure NIPRnet, Telephone, and IDS. Connectors for all systems shall be included. The TIBs shall be connected to the building SCIF via the underground pathway system. Cabling for all data networks (including NIPRnet, SIPRnet, NSAnet/TDN-2, and/or any other network required) shall be provided. Three 6-strand singlemode fiber optic cables to each TIB shall be included for secure networks unless otherwise specified. Connection points shall be designed to service and prevent damage from the vehicles. Pathways terminating in the SCIF shall terminate in the server rooms. Connection requirements shall be coordinated with the User.][Omitted.]
- 3) **Data Connections for Tactical NOC Vehicle Area.** Provide underground Protective Distribution System (PDS) pathway for telecommunications connectivity from the NOC in the main building to each vehicle. Weatherproof tactical interface boxes (TIB) are required for each vehicle. A TIB shall be provided for secure vehicle system connections, non-secure NIPRnet, Telephone, and IDS. Connectors for all systems shall be included. The TIBs shall be connected to the building NOC via the underground pathway system. Cabling for all data networks (including NIPRnet, SIPRnet, NSAnet/TDN-2, and/or any other network required) shall be provided. Three 6-strand singlemode fiber optic cables to each TIB shall be included for secure networks unless otherwise specified. Connection points shall be designed to service and prevent damage from the vehicles. Pathways terminating in the NOC shall terminate in the server rooms. Connection requirements shall be coordinated with the User.][Omitted.]

D. INTERIOR COMMUNICATIONS AND SECURITY

- 1) **Telecommunications:** An acceptable building telecommunications system encompasses, but is not limited to, copper and fiber optic (FO) entrance cable, protectors, termination equipment, racks, cable management, patch panels, copper and fiber backbone cable, conduits, cable tray, cable ladder, copper and/or fiber horizontal distribution cable, outlets, grounding, and labeling. Telecommunications infrastructure shall meet the Installation Information Infrastructure Architecture (I3A) Criteria and ANSI/TIA/EIA requirements.
 - a) **Telecommunications Rooms (TR):** Telecommunications rooms and telecommunications entrance facilities shall be provided for the network and voice equipment, and cabling infrastructure. There shall be a minimum of one telecommunications room on each floor, located near the center of the building, and preferably stacked between floors. Additional telecommunication rooms shall be provided as necessary to insure that the horizontal copper cable length does not exceed the 295 foot limitation. The telecommunications rooms shall be designed and provisioned in accordance with I3A and ANSI/TIA/EIA-569-B. A main TR with telecommunications entrance capability shall be provided for each facility, and shall be located on the first floor. The main TR shall serve as the hub for the interior backbone single mode fiber cable and copper riser cable to each of the other TRs. Backbone cabling shall be provided in accordance with I3A. Each TR shall also have the following requirements:
 - (1) Access shall be from a centralized corridor within the building: (No exterior access shall be allowed).

- (2) Door shall be three foot wide opening outward.
- (3) Room shall be a minimum of 8 feet wide to accommodate working clearances around data equipment and racks. Odd shaped TR's (e.g. "L" shaped) that decreases the useable area for backboards, racks, etc. shall be avoided.
- (4) A fire-rated A-C plywood backboard (3/4 inch thick) around interior perimeter.
- (5) Illumination shall be 50 foot-candles (average).
- (6) Dedicated power panel within the room.

Brigade Headquarters				
Building Size	Main TR (1st Floor)		TR (2nd Floor)	
	Min Width (Feet)	Min Square Feet	Min Width (Feet)	Min Square Feet
Extra Small	8	125	8	100
Small	8	125	8	100
Medium	8	125	8	130
Large	8	150	8	140
Extra Large	8	295	8	150
Additional TRs (If Req'd)	8	80	8	80

Battalion Headquarters				
Building	Main TR (1st Floor)		TR (2nd Floor)	
	Min Width (Feet)	Min Square Feet	Min Width (Feet)	Min Square Feet
Small	8	90	8	100
Medium	8	125	8	80
Large	8	125	8	80
Extra Large	8	125	8	80

Consolidated BDE/BN HQs		
Building Area	TR	
	Min Width (Feet)	Min Square Feet
1st Floor BN	8	125
1st Floor BDE	8	125
1st Floor Classroom	8	125
2nd Floor BN	8	125
2nd Floor BDE	8	125
Additional TRs (If Required)	8	80

Notes:

1. Width is a minimum inside edge of wall to inside edge of wall dimension inside the room. Length shall be greater than or equal to width.
2. Standard Drawings may be adjusted as needed, but the Telecommunications rooms shall not be less than the minimum width and square feet indicated above.
3. Telecommunications rooms shall be rectangular in shape.

- b) **Telecommunications Outlets.** Telecommunications outlets shall be provided per I3A based on functional purpose of the various spaces with the facility as modified by user special operational requirements and herein. Each headquarters workstation shall have voice and data connection capability. Each conference room [and classroom] shall have voice capability (minimum one outlet per room) and data connection capability (minimum one outlet per person) in accordance with I3A. A voice/data outlet shall be provided at each copier location. A wall mounted telephone outlet with a single jack shall be provided in each mechanical, electrical, telecommunication rooms, and secure storage rooms. For

controlled access areas, provide outlets for wall mounted (GFGI) phones at access points. Additional locations shall be provided based on coordination with the facility user and where required for HVAC, other equipment and as required by I3A. Additional locations shall be provided based on coordination with the facility user and where required for HVAC, other equipment and as required by I3A.

- c) **Telecommunications Distribution.** Tele-Poles shall not be used. The uses of existing architectural columns or perimeter walls are the preferred method of power and telecommunications distribution to systems furniture workstations. Under-floor conduits shall be used only if no other alternative exists, and shall be designed and installed IAW TIA/EIA-569-B. Under-floor outlet boxes shall also contain a spare conduit for future expansion. [Second floor penetrations above the SCIF area shall be avoided.]
- d) **Cable Trays.** Provide cable tray pathways through-out the facility to support the systems required for the construction of the facility as well as user's computer networks, video integration system, telecommunication systems and other specialized electronic systems.
- e) **Raised Access Flooring.** Areas with high concentrations of cabling will have raised access flooring to accommodate flexibility and growth. Signal grounds shall be provided in a grid pattern under all raised floor areas in accordance with MIL-HDBK 419A. Minimum height of raised flooring shall be 6 inches.

2) Secure Communications

- a) **Secure Communications Rooms.** The SIPRNET room(s) shall be designed and constructed in accordance with the open storage area requirements at secret level outlined in the Secret Internet Protocol Router Network (SIPRNET) Technical Implementation criteria. These rooms shall be separate dedicated rooms (minimum size shall be 6'X6') and shall include a communication signal ground busbar, connected to the main telecom room signal busbar via properly sized ground wire (see MIL-HDBK-419-A), and one dedicated 20-amp circuit for the SIPRNET rack/safe, in addition to convenience outlets. The connection to the main telecommunications room will be via a single 2-inch trade size steel conduit in accordance with the I3A Criteria. A NIPRNET data outlet also shall be provided. As an alternative, the space allocated for the SIPRNET room may be incorporated into the telecommunications room if an approved SIPRNET Information Processing System Security Container (IPS) is provided within the combined SIPRNET/telecommunications room.
- b) **Secret Internet Protocol Router Network (SIPRNet).** The distribution infrastructure shall be designed and constructed in accordance with the Secret Internet Protocol Router Network (SIPRNET) Technical Implementation Criteria. The word "shall" shall be substituted for the words "should" or "will" in the referenced publication NSTISSI 7003. A secure outlet drop box shall be provided in each private office, conference room, and other areas as directed. [SIPRNET distribution shall include the SCIF, BOC, and NOC in the Brigade Headquarters.] A Protective Distribution System (PDS) shall be provided in all limited and uncontrolled access areas. Specifications Section 27 05 28, Protective Distribution System (PDS) For SIPRNET Communications Systems shall be incorporated into this project. . (This section can be obtained at at the link shown in Chapter 4, Paragraph 4.2.11.1). Surface mounted raceway PDS shall be used instead of the surface mounted conduit unless otherwise directed by the local NEC/DOIM. Category 6 UTP copper cables with red cable jacket shall be included and shall be terminated at both ends in accordance with the I3A Technical Criteria for data cables.
- c) **Secure Video teleconferencing (VTC).** Secure VTC capability shall be provided in each conference room (but not team rooms)[, and in the Brigade Headquarters BOC and SCIF]. Provisions generally consist of a power connection and two RJ45 SIPRNET.

- 3) **Cable Television (CATV).** CATV shall be provided in all private offices,[classrooms,] and conference rooms.[Additionally, CATV shall be provided in the Brigade Headquarters BOC, NOC, and SCIF.] The cable television system shall consist of cabling, pathways, and outlets. All building CATV systems shall conform to APPLICABLE CRITERIA to include I3A Technical Criteria and the UFC 3-580-01 Telecommunications Bldg Cabling Systems Planning/Design.
- 4) **Audio/Visual Systems**
 - a) **GFGI Projectors.** Provisions (consisting of a power receptacle and conduit for signal wiring) for a GFGI projector shall be provided in each conference room[and classroom].
 - b) **Paging systems.** A zoned paging system shall be provided throughout each facility and integrated with the telephone system.
 - c) **Video Teleconferencing (VTS) provisions.** Video teleconferencing (non-secure) provisions shall be provided in all conference rooms and classrooms. Provisions generally consist of a power connection and two RJ45 data outlets in a double gang outlet faceplate.
- 5) **Security Infrastructure (Security Equipment NIC).** The security infrastructure shall be installed to support Government-furnished equipment including ICIDS systems, CCTV surveillance systems, and restricted access systems. Provisions shall include dedicated power circuits, communications connections, raceways, and signal wiring for user installed devices. System requirements shall be coordinated with the installation security office.
 - a) **Intrusion Detection and Security Systems.** Provision for user provided ICIDS intrusion detection and security systems are required for secure and restricted areas including the Secure Document and the SIPRNet rooms. [The Brigade headquarters BOC, NOC, SCIF and TSVA shall also have provisions. As a minimum, provisions for a CCTV surveillance system shall be provided at the Brigade Headquarters SCIF corridor, and rear exit, and TSVA.]
 - b) **TEMPEST Requirements.** TEMPEST requirements shall be met on a per site basis dependent on the facility zone type and the equipment NSTISSAM level. All unclassified telecommunications systems and associated infrastructure shall be electrically and physically isolated from all classified telecommunications systems in accordance with NSTISSAM requirements.
- 6) **Radio Communications &Antenna.** Provide water tight antenna mounting brackets to the exterior wall of the building ~~<REV>(roof mounted equipment is not authorized)</REV>~~ at a location that has been coordinated with the user for FM reception from the ranges. Wall mounted structures shall not violate any manufacturer's warranty conditions. These brackets shall be designed structurally sufficient to support the equipment that is required by the user and capable of resisting the local wind loads. Optional antenna mounting locations shall be free standing poles or platforms located with proper site orientation to connect to the Duty Station of each unit. Provide two three inch conduits with weatherheads at the antenna mounting location and terminate the conduit inside the headquarters building at the Duty Station. If a multi-unit HQ is being designed, then this same requirement shall be provided to each unit within the building. The actual equipment will be provided and installed by the government.

3.10. ELECTRICAL REQUIREMENTS

- A. **GENERAL:** See Paragraph 6 of the RFP for clarifications and additional requirements for the electrical systems.

B. EXTERIOR ELECTRICAL

- 1) **Exterior Generator (Brigade Headquarters Only)**. One automatic start-stand-by power generator to serve mission essential areas and life safety systems as defined by paragraph Stand-by Power System (Brigade Headquarters Only) shall be provided. Locate in a secure area outside of the building in a weatherproof enclosure. A fuel tank shall be provided to serve the generator for 48 hours of operation at full load.
- 2) **Power Connections for Tactical SCIF Vehicle Area (TSVA)**. Provide underground systems for power connectivity to the TSVA. Power shall be capable of accommodating user power requirements to each tactical SCIF vehicle for manned and unmanned platform support without using the platform's onboard power. Four large tactical vehicles shall each have a load of 100 amps and five smaller vehicles (HMMWV) shall each have a load of 60 amps, all at 208 volts, 3-phase, 4-wire. A general purpose 120 volt receptacle also shall be provided at each vehicle. Connection points shall be designed to service and prevent damage from the vehicles.][Omitted.]

C. INTERIOR ELECTRICAL

- 1) **Characteristics**. Select electrical characteristics of the power system to provide a safe, efficient, and economical distribution of power, based upon the size and types of loads to be served. Use distribution and utilization voltages of the highest level that is practical for the load to be served.
- 2) **Nonlinear Loads**. The effect of nonlinear loads such as computers and other electronic devices shall be considered and accommodated as necessary. These loads generate harmonics, which can overload conventionally sized conductors or equipment and thereby cause safety hazards and premature failures. Circuits serving such devices shall be equipped with a separate neutral conductor not shared with other circuits. Panelboards and any dry type transformers shall be rated accordingly.
- 3) **Transient Voltage Surge Protection**. Provide transient voltage surge protection. Design shall be in accordance with NFPA 780 and other referenced criteria.
- 4) **Receptacles**. Power receptacles shall be provided per NFPA 70 and in conjunction with the proposed equipment and furniture layouts. Provide power, data and telecommunications connectivity to each workstation. A duplex receptacle shall be accessibly located adjacent to each voice, data and CATV outlet. Power poles shall not be used. The use of furred structural columns or perimeter walls are the preferred method of power and telecommunication distribution to systems furniture workstations. Under-floor conduits shall be used only if no other alternative exists. [Second floor penetrations above the SCIF area shall be avoided.]
- 5) **Stand-by Power System (Brigade Headquarters Only)**. Stand-by generator(s) and automatic transfer switch (with internal isolation/bypass capabilities for maintenance) shall be provided. System shall serve all mission essential areas including the BOC, NOC, SCIF, TSVA Vehicles, communications rooms, SIPRNet rooms, and server rooms. (HVAC in these areas shall also be included.) In addition, system shall serve life safety and emergency loads that include, but shall not be limited to, elevator, emergency egress and exit lighting, fire alarm system, mass notification system, security systems, and other emergency circuits.][Omitted.]
- 6) **UPS Systems (Brigade Headquarters Only)**. UPS to serve the BOC, NOC, SCIF, server rooms, SIPRNET and communication rooms shall be provided. Unit(s) shall have a minimum of 5 minutes of capacity at full load to allow for generator override or orderly shut down of critical loads if the generator power fails to go on line. Unit(s) shall have isolation/bypass capabilities for maintenance and shall utilize leak proof maintenance-free sealed lead-acid batteries with suspended electrolyte.][Omitted.]

- 7) **Provide a minimum of 20% spare circuit** and load capacity at all levels of the power distribution system.
- D. **LIGHTING.** Lighting and lighting controls shall comply with the recommendations of the Illumination Engineering Society of North America (IESNA) and the requirements of ASHRAE 90.1. Lighting shall be compatible with security cameras and security requirements.
- 1) **Interior Lighting Controls.** Automatic controls in offices, classrooms, and conference rooms[, and the BOC, NOC, and SCIF areas in the Brigade Headquarters] shall include provisions to be overridden by occupants during non-duty hours.
 - 2) **Special Lighting Circuits.** All classrooms and conference rooms[, and the BOC, NOC, and SCIF areas in the Brigade Headquarters] shall have a dimmable circuit to provide light over the general work area without glare on audio-video displays. Dimming ballasts shall be capable of dimming to 5 percent.
- E. **GROUNDING.** The ground counterpoise shall be provided around the building perimeter and shall be utilized for grounding incoming service, building steel, telephone service, piping, lightning protection, and internal grounding requirements. Ground straps shall be provided where required by function and will be connected to the building grounding system. A grounding point shall be provided under each raised access floor. Additional grounding may be provided based on project requirements. Systems shall conform to NFPA 70 National Electrical Code, local codes, and the US Army I3A Criteria.
- F. **LIGHTNING PROTECTION SYSTEM.** Lightning Protection System shall be in accordance with NFPA 780 and other referenced criteria.
- G. **MASS NOTIFICATION SYSTEM (MNS).** A mass notification system shall be provided as required by UFC 4-010-01.

3.11. HEATING, VENTILATING AND AIR-CONDITIONING (HVAC)

- A. **EXTERIOR EQUIPMENT:** No aboveground mechanical equipment (i.e. chillers, refrigeration equipment, condensers, air-handling equipment, etc.) and miscellaneous equipment (including transformers and generators) shall be physically located within Secure Vehicle Parking Areas.][Omitted.]
- B. **DESIGN DATA:** Actual internal equipment loads (i.e. heat dissipation) for finalized HVAC system sizing purposes shall be acquired from the USER or applicable point-of-contact (POC), and is the responsibility of the Design/Build Contractor. For baseline purposes, estimated internal equipment loads (i.e. heat dissipation) shall be as follows: For [NOC, BOC, and SCIF areas, use Table I: Equipment Loads;] Communication-type rooms/areas (Tele/Comm, SIPRNet, etc), use 585 watts. For administrative/office-type areas [with the exception of the Classroom areas,][with the exception of the SCIF area,][with the exception of the Classroom and SCIF areas,] it shall be assumed that each personnel/workstation area, cubicle, and office space is assigned a personal computer (desktop) for HVAC load calculation purposes. [For the Classroom areas, it shall be assumed that each personnel is assigned a laptop computer for HVAC load calculation purposes. The overall quantity of personnel within each Classroom area shall be based on one person per 20 square feet of floor area.] The quantity of personnel within each Conference room/area shall also be based on one person per 20 square feet of floor area.

TABLE I: EQUIPMENT LOADS (BRIGADE ONLY)

NOC/BOC/SCIF	
Room Description	Watts/ft2
SCIF (Open Office)	5.98
Sigint	2.36
Server Rm (SCIF)	51.85
Geolnt	2.93
BOC (Open Office)	15.58
NOC (Open Office)	1.31
ISM Office (NOC)	1.17
A/V Server Rm (BOC)	39.87
Server Rm (NOC)	40.58

TABLE II : INDOOR DESIGN DATA

Heating	
General Indoor Design Temperature	70°F
[BOC, NOC, SCIF,] Communication Room	72°F
[*Server Room]	[*72°F/50%RH ± 5%]
Mechanical Rooms (freeze protection)	40°F
Cooling	
General Indoor Design Temperature	75°F
[BOC, NOC, SCIF,] Communication Room	72°F
[*Server Room]	[*72°F/50%RH ± 5%]

[* Areas in which humidity control (i.e. humidification, reheat, etc.) is required.]

C. HVAC SYSTEM REQUIREMENTS FOR CRITICAL AREAS [AND CLASSROOMS] [AND UPS SYSTEM]

- 1) **The Brigade Operations Center (BOC), the Network Operations Center (NOC), and the Sensitive Compartmented Information Facility (SCIF).** The BOC, NOC, and SCIF will be served by an independent and dedicated air-handling system. These areas are allowed to be combined on a common system depending on the load profile and zoning requirements for each space. Equipment redundancy shall be provided per Table <REV>III</REV> Redundancy/Reliability Matrix.][Omitted.]
- 2) **Communication Rooms.** Communication rooms will each be served by an independent and dedicated air-handling system. Air handling unit system(s) shall not be floor-space mounted within the actual space served.[Communications rooms for the Brigade Headquarters shall be provided with equipment redundancy per Table <REV>III</REV> Redundancy/Reliability Matrix.]
- 3) **Server room(s).** Server room(s) will each be served by an independent and dedicated air handling system. Air handling unit system(s) are allowed to be floor-space mounted within the actual space served. Equipment redundancy shall be provided per Table <REV>III</REV>. Computer room type air conditioning units shall be provided to condition server rooms.][Omitted.]

- 4) **The BOC, NOC, and SCIF areas are to be located on raised floors.** The use of an Under Floor Air Distribution (UFAD) system for these areas is not mandatory, nor a requirement.][Omitted.]
- 5) **Classrooms.** Each classroom area shall be individually temperature-controlled by the DDC System. Temperature setpoint adjustment shall be accomplished via DDC System by authorized personnel.][Omitted.]
- 6) **UPS system.** An UPS system to serve the BOC, NOC, SCIF, server rooms, and communications rooms is required to be provided (see electrical requirements). HVAC system(s) shall be designed and provided to maintain appropriate interior environmental conditions (i.e. temperature, humidity, pressure, etc.), and to limit hydrogen gas accumulation to less than an explosive mixture. Design of HVAC system(s) shall meet the system manufacturer's requirements and applicable code requirements such as OSHA, NFPA 1, NFPA 111, NFPA 70, etc. Ventilation/exhaust system shall be provided as required and shall be an independent and dedicated system which is separate from all other building systems. Air recirculation within the battery area is not allowed, and where required, mechanical components of the ventilation system shall be explosion-proof. Appropriate alarms and automatic controls shall be provided to automatically detect and sound audible(s) alarm upon malfunction of ventilation system. A malfunction of ventilation system shall prevent the battery charging system from operating. Design features of the battery area/room shall address all requirements such as ventilation, fire protection, hazardous material reporting and disposal, and spill control.][Omitted.]

TABLE III: REDUNDANCY/RELIABILITY MATRIX (BRIGADE ONLY)

Category	Area Served	Emergency Power	Requirement
[Heating/]Cooling Equipment and Associated Controls	BOC, NOC, SCIF, Server Rooms, and Communications Rooms	Yes	100% Dedicated redundancy required for [heating and] cooling equipment.
Air-handling Equipment and Associated Controls	BOC, NOC, SCIF, Server Rooms, and Communications Rooms	Yes	100% Dedicated redundancy is required
Piping	BOC, NOC, SCIF, Server Rooms, and Communications Rooms	N/A	Provide 100% redundant cooling [and heating] piping feeds from the cooling [and heating] source equipment to the air-handling equipment serving these areas.

Category	Area Served	Emergency Power	Requirement
Notes:			
<ol style="list-style-type: none"> 1. Provide all required equipment, components, controls, and other appurtenances on emergency power such that 100% cooling [and heating] capacity is available and provided to the BOC, NOC, SCIF, Server Rooms, and Communication Rooms. 2. Where redundancy requirements dictate the use of packaged equipment for an area or combination of areas, two (2) separate sets of packaged equipment, each at 100% capacity, are required to be provided. 3. The above categorized equipment requiring emergency power is not required to be on UPS. 4. For equipment requiring emergency power, controls must have battery back-up or non-volatile memory to facilitate automatic re-start upon restoration of emergency or normal power. 5. Where centralized underground piping distribution system is utilized as a cooling [and heating] fuel source, it must be available year-round, 24-hrs/day, 7-days/week, and an additional and separate cooling [and heating] system shall be provided to serve as the required 100% capacity backup. 6. System redundancy requirements for the BOC, NOC, SCIF, Server and Communication Rooms include the capability of automatic monitoring and automatic system switch-over in the event of a system operational failure or malfunction, and also to equalize systems run time. System operational failure or malfunction shall produce an audible and visual alarm for the occupants. [7. Redundant heating piping feeds are not required to be extended to the individual air terminal units (i.e. VAV boxes) in VAV air handling systems.] 			

D. HVAC SYSTEM REQUIREMENTS FOR ADMINISTRATIVE AREAS: The capability of extending the regularly-scheduled operating hours of the HVAC systems (Administrative and Classroom areas) shall be provided. A pass-word protected control device (i.e. control panel) located within the staff duty station is the preferred design approach and arrangement. A separate, dedicated HVAC unit independent of the main building HVAC system shall be provided for the staff duty station, and shall be scheduled for after-normal hour operation only. Administrative areas shall be temperature-controlled by the DDC System. Temperature set-point adjustment shall be accomplished via DDC System by authorized personnel.

3.12. ENERGY CONSERVATION REQUIREMENTS.

- A. GENERAL. Energy conservation shall be in accordance with Paragraph 5, GENERAL TECHNICAL REQUIREMENTS, of the RFP Statement of Work (SOW), subparagraph ENERGY CONSERVATION. An energy efficiency and sustainability study, jointly conducted by the U.S. Army Corps of Engineers and the Department of Energy, was recently completed and the summary report is available at http://mrsi.usace.army.mil/sustain/Documents/2011_EISA_Study.pdf. Designers are encouraged to make use of the summary report as a reference tool to aid in meeting energy conservation mandates and targets. Measures that exceed the requirements of ASHRAE 189.1 shall be justified by a life cycle cost analysis.
- B. SCHEDULES. The following facility load schedules shall be used in energy simulations for purposes of documenting compliance with energy performance requirements.

1) Battalion and Brigade Headquarters Internal Load Schedules

Hr	Occupancy			Lighting			Plug Loads			Service Hot Water		
	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun
1	0.00	0.00	0.00	0.05	0.05	0.05	0.30	0.30	0.30	0.00	0.00	0.00
2	0.00	0.00	0.00	0.05	0.05	0.05	0.30	0.30	0.30	0.00	0.00	0.00
3	0.00	0.00	0.00	0.05	0.05	0.05	0.30	0.30	0.30	0.00	0.00	0.00
4	0.00	0.00	0.00	0.05	0.05	0.05	0.30	0.30	0.30	0.00	0.00	0.00
5	0.00	0.00	0.00	0.05	0.05	0.05	0.30	0.30	0.30	0.00	0.00	0.00
6	0.00	0.00	0.00	0.05	0.05	0.05	0.30	0.30	0.30	0.00	0.00	0.00

Hr	Occupancy			Lighting			Plug Loads			Service Hot Water		
7	0.00	0.00	0.00	0.10	0.05	0.05	0.30	0.30	0.30	0.00	0.00	0.00
8	0.20	0.00	0.00	0.30	0.05	0.05	0.30	0.30	0.30	0.00	0.00	0.00
9	0.95	0.00	0.00	0.90	0.05	0.05	0.90	0.30	0.30	0.00	0.00	0.00
10	0.95	0.00	0.00	0.90	0.05	0.05	0.90	0.30	0.30	0.00	0.00	0.00
11	0.95	0.00	0.00	0.90	0.05	0.05	0.90	0.30	0.30	0.00	0.00	0.00
12	0.95	0.00	0.00	0.90	0.05	0.05	0.90	0.30	0.30	0.00	0.00	0.00
13	0.50	0.00	0.00	0.90	0.05	0.05	0.80	0.30	0.30	0.00	0.00	0.00
14	0.95	0.00	0.00	0.90	0.05	0.05	0.90	0.30	0.30	0.00	0.00	0.00
15	0.95	0.00	0.00	0.90	0.05	0.05	0.90	0.30	0.30	0.00	0.00	0.00
16	0.95	0.00	0.00	0.90	0.05	0.05	0.90	0.30	0.30	0.00	0.00	0.00
17	0.95	0.00	0.00	0.90	0.05	0.05	0.90	0.30	0.30	0.00	0.00	0.00
18	0.30	0.00	0.00	0.50	0.05	0.05	0.50	0.30	0.30	0.00	0.00	0.00
19	0.00	0.00	0.00	0.30	0.05	0.05	0.30	0.30	0.30	0.00	0.00	0.00
20	0.00	0.00	0.00	0.30	0.05	0.05	0.30	0.30	0.30	0.00	0.00	0.00
21	0.00	0.00	0.00	0.20	0.05	0.05	0.30	0.30	0.30	0.00	0.00	0.00
22	0.00	0.00	0.00	0.20	0.05	0.05	0.30	0.30	0.30	0.00	0.00	0.00
23	0.00	0.00	0.00	0.10	0.05	0.05	0.30	0.30	0.30	0.00	0.00	0.00
24	0.00	0.00	0.00	0.05	0.05	0.05	0.30	0.30	0.30	0.00	0.00	0.00
Peak	See Note 1 Below for occupancy info			1.0 W/ft ² (10.8 W/m ²)			0.75 W/ft ² (8.1 W/m ²)			0 gal/hr (0 L/hr)		
Note 1: See "Standard Design Program Areas & Unit costs" table at the COS Website for staff (i.e. occupancy quantities) based on applicable facility sizes.												

2) Battalion Headquarters Internal Load Schedules
(Duty Office & Main Entry Area - 2 occupants continuously)

Hr	Occupancy			Lighting			Plug Loads			Service Hot Water		
	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun
1	0.417	0.417	0.417	0.50	0.50	0.50	0.30	0.30	0.30	0.00	0.00	0.00
2	0.417	0.417	0.417	0.50	0.50	0.50	0.30	0.30	0.30	0.00	0.00	0.00
3	0.417	0.417	0.417	0.50	0.50	0.50	0.30	0.30	0.30	0.00	0.00	0.00
4	0.417	0.417	0.417	0.50	0.50	0.50	0.30	0.30	0.30	0.00	0.00	0.00
5	0.417	0.417	0.417	0.50	0.50	0.50	0.30	0.30	0.30	0.00	0.00	0.00
6	0.417	0.417	0.417	0.50	0.50	0.50	0.30	0.30	0.30	0.10	0.10	0.10
7	0.417	0.417	0.417	0.50	0.50	0.50	0.30	0.30	0.30	0.40	0.40	0.40
8	0.417	0.417	0.417	0.50	0.50	0.50	0.30	0.30	0.30	0.20	0.20	0.20
9	0.95	0.417	0.417	0.90	0.50	0.50	0.90	0.30	0.30	0.00	0.00	0.00
10	0.95	0.417	0.417	0.90	0.50	0.50	0.90	0.30	0.30	0.00	0.00	0.00
11	0.95	0.417	0.417	0.90	0.50	0.50	0.90	0.30	0.30	0.00	0.00	0.00
12	0.95	0.417	0.417	0.90	0.50	0.50	0.90	0.30	0.30	0.00	0.00	0.00
13	0.50	0.417	0.417	0.90	0.50	0.50	0.80	0.30	0.30	0.00	0.00	0.00
14	0.95	0.417	0.417	0.90	0.50	0.50	0.90	0.30	0.30	0.00	0.00	0.00
15	0.95	0.417	0.417	0.90	0.50	0.50	0.90	0.30	0.30	0.00	0.00	0.00
16	0.95	0.417	0.417	0.90	0.50	0.50	0.90	0.30	0.30	0.00	0.00	0.00
17	0.95	0.417	0.417	0.90	0.50	0.50	0.90	0.30	0.30	0.00	0.00	0.00
18	0.417	0.417	0.417	0.50	0.50	0.50	0.50	0.30	0.30	0.10	0.10	0.10
19	0.417	0.417	0.417	0.50	0.50	0.50	0.30	0.30	0.30	0.10	0.10	0.10
20	0.417	0.417	0.417	0.50	0.50	0.50	0.30	0.30	0.30	0.10	0.10	0.10
21	0.417	0.417	0.417	0.50	0.50	0.50	0.30	0.30	0.30	0.00	0.00	0.00
22	0.417	0.417	0.417	0.50	0.50	0.50	0.30	0.30	0.30	0.00	0.00	0.00
23	0.417	0.417	0.417	0.50	0.50	0.50	0.30	0.30	0.30	0.00	0.00	0.00
24	0.417	0.417	0.417	0.50	0.50	0.50	0.30	0.30	0.30	0.00	0.00	0.00
Peak	5 occupants			1.0 W/ft ² (10.8 W/m ²)			0.75 W/ft ² (8.1 W/m ²)			6.4 gal/hr (24 L/hr)		

3.13. FIRE PROTECTION REQUIREMENTS

- A. STANDARDS AND CODES. All fire protection and life safety features shall be in accordance with UFC 3-600-01 and the criteria referenced therein. [Battalion][and][Brigade]Headquarters Facilities shall be classified as mission essential and shall be provided with complete sprinkler protection.
- B. FIRE PROTECTION AND LIFE SAFETY ANALYSIS. A fire protection and life safety design analysis shall be provided for all buildings in the project. The analysis shall be submitted with the interim design submittal. The analysis shall include classification of occupancy (both per the IBC and NFPA 101); type of construction; height and area limitations (include calculations for allowable area increases); life safety provisions (exit travel distances, common path distances, dead end distances, exit unit width required and provided); building separation or exposure protection; specific compliance with NFPA codes and the IBC; requirements for fire-rated walls, doors, fire dampers, etc.; analysis of automatic suppression systems and protected areas; water supplies; smoke control systems; fire alarm system, including connection to the base-wide system; fire detection system; standpipe systems; fire extinguishers; interior finish ratings; and other pertinent fire protection data. The submittal shall include a life safety floor plan for all buildings in the project

showing occupant loading, occupancy classifications and construction type, egress travel distances, exit capacities, areas with sprinkler protection, fire extinguisher locations, ratings of fire-resistive assemblies, and other data necessary to exhibit compliance with life safety code requirements.

- C. **SPRINKLER SYSTEM.** The Facility shall be fully protected with automatic sprinkler systems. All floors and all areas of the facilities shall be protected. The sprinkler system design shall be in accordance with UFC 3-600-01 and NFPA 13. The sprinkler hazard classifications shall be in accordance with UFC 3-600-01, NFPA 13, and other applicable criteria. Design densities, design areas and exterior hose streams shall be in accordance with UFC 3-600-01. The sprinkler systems shall be designed and all piping sized with computer generated hydraulic calculations. The exterior hose stream demand shall be included in the hydraulic calculations. A complete sprinkler system design, including sprinklers, branch lines, floor mains and risers, shall be shown on the drawings. The sprinkler system plans shall include node and pipe identification used in the hydraulic calculations. All sprinkler system drains, including main drains, test drains, and auxiliary drains, shall be routed to a 2-foot by 2-foot splash block at exterior grade.
- 1) **Sprinkler Service Main and Riser.** The sprinkler service main shall be a dedicated line from the distribution main. Sprinkler service and domestic service shall not be combined. The sprinkler service main shall be provided with an exterior post indicator valve with tamper switch reporting to the fire alarm control panel (FACP) The ground floor entry penetration shall be sleeved per NFPA 13 requirements for seismic protection. The sprinkler system shall include an indicating control valve for each sprinkler system riser, a flow switch reporting to the FACP, and an exterior alarm bell. All control valves shall be OS&Y gate type and shall be provided with tamper switches connected to the FACP. Facilities with multiple floors shall be provided with floor control valves for each floor. The floor control valve assembly shall be in accordance with UFC 3-600-01, Figure 4-1.
 - 2) **Exterior Hose Stream.** Exterior hose stream demand shall be in accordance with UFC 3-600-01. Exterior hose stream demand shall be included in the sprinkler system hydraulic calculations.
 - 3) **Backflow Preventer.** At minimum, a double check backflow preventer shall be provided on the fire water main serving each building. This shall be located within the building unless otherwise required by the installation or private water utilities management contractor. An exterior test header (preferably wall-mounted) with at least two hose connections shall be provided to allow testing of the backflow preventer at design flow, as required by NFPA 13. The test header piping shall be connected to the service riser upstream of the alarm check valve. Flow to the test header shall be controlled by an OS&Y valve with a tamper switch connected to the FACP.
 - 4) **Fire Department Connection.** A fire department connection shall be provided for each building with sprinkler protection. These shall be located so as to be directly accessible to the fire department. Whether wall-mounted or free-standing, the F.D.C must be no further than 150 feet from the nearest fire hydrant.
- D. **ELEVATORS.** The fire protection features of elevators, hoist ways, machine rooms and lobbies shall be in accordance with UFC 3-600-01, ASME A17.1, NFPA 13 and NFPA 72.
- E. **SYSTEM COMPONENTS AND HARDWARE.** Materials for the sprinkler system, fire pump system, and hose standpipe system shall be in accordance with NFPA 13 and NFPA 20.
- F. **PROTECTION OF PIPING AGAINST EARTHQUAKE DAMAGE.** Sprinkler and fire pump piping systems shall be protected against damage from earthquakes. Seismic protection shall include flexible and rigid couplings, sway bracing, seismic separation assemblies where piping crosses

building seismic separation joints, and other features as required by NFPA 13 for protection of piping against damage from earthquakes.

- G. **FIRE WATER SUPPLY.** Fire flow test data is provided in Appendix D.
- H. **FIRE PUMP.** The requirement for a fire pump installation shall be determined by the Contractor based on fire flow test data from the project site and fire protection system design requirements for the project. If required a complete fire pump installation shall be provided for the facility. It shall comply with the requirements of UFC 3-600-01, NFPA 13 and NFPA 20. The Contractor shall submit fire pump design analysis and drawings in the design requirements.
- I. **FIRE DETECTION AND ALARM**
- 1) **Fire Alarm and Detection System.** A fire alarm and detection system shall be provided for this facility. It shall comply with the requirements of UFC 3-600-01 and NFPA 72. The system shall be addressable and fully compatible with and integrated with the local installation wide central monitoring system.
 - 2) **Server Rooms.** Server rooms are the only areas of the facility which house MISSION CRITICAL electronic equipment installations as identified in section 6-8 of UFC 3-600-01, and are the only areas considered to be "information technology areas" as defined by NFPA 75. Server rooms are to be protected as information technology areas in accordance with NFPA 75, except as modified by UFC 3-600-01 and herein. In server rooms with raised floors, under-floor detectors shall be provided and shall be connected to the fire alarm system. The smoke detectors shall be wired so as to immediately shut down power to the electronic equipment in the protected room upon activation. Shutdown devices shall be supervised by the fire alarm control panel in accordance with NFPA 75.
 - 3) All initiating devices shall be connected to signal line circuits (SLC), utilizing Class A, Style 6 wiring. All alarm appliances shall be connected to notification appliance circuits (NAC), Class A. A looped conduit system shall be provided so that if the conduit and all conductors within are severed at any point, all NAC and SLC shall remain functional.
 - 4) Break-glass pull stations shall not be used.
 - 5) Over-voltage and surge protection shall be provided at the input power of all panels.
- J. **BUILDING CONSTRUCTION.** Construction shall comply with requirements of UFC 3-600-01, the International Building Code, NFPA 101 and NFPA 75.
- 1) **Interior Wall and Ceiling Finishes.** Interior wall and ceiling finishes and movable partitions shall conform to the requirements of UFC 3-600-01 and NFPA 101.
 - 2) **Server Rooms.** Server Rooms house MISSION CRITICAL electronic equipment installations (as defined in section 6-8 of UFC 3-600-01), and shall be separated from surrounding occupancies by fire-resistance rated construction in accordance with NFPA 75.
 - 3) The requirement of NFPA 75 to incorporate provisions for drainage and a leak detection system under raised-floor installations shall be modified as follows: Provisions for drainage and a leak detection system shall only be required under raised-floors in Server Rooms since they are the only areas that house MISSION CRITICAL electronic equipment installations (as defined in section 6-8 of UFC 3-600-01).

3.14. SUSTAINABLE DESIGN – NOT USED

3.15. ENVIRONMENTAL – NOT USED

3.16. PERMITS – NOT USED

3.17. DEMOLITION – NOT USED

3.18. ADDITIONAL FACILITIES – NOT USED

3.19. EQUIPMENT AND FURNITURE REQUIREMENTS

3.19.1. FURNISHINGS - [BRIGADE][AND][BATTALION] HEADQUARTERS BUILDINGS

A. THE CRITERION CONTAINED on the following pages describes the furnishing requirements for all room types and for all headquarters building(s). Furnishings, other than installed equipment, are to be GFGI unless otherwise specified in this document. The following furnishings list is provided for coordination of room and office layouts to ensure suitability for their intended function. Large interior spaces such as open office areas can be subdivided into smaller areas by using office partitions, storage units and file cabinets or similar devices. In general, the interior design shall provide a comfortable, efficient and flexible work environment. All open office workstations in the headquarters are predicated on 6-foot by 8-foot cubicles.

B. ROOM SIZE AND FURNISHINGS CHART

Room Size and Furnishings Chart			
ROOM TYPE	MIN. SF	COMMENTS	FURNITURE REQUIRED
Senior Executive Office	200	Private Office	U-shaped desk unit executive single pedestal desk w/ center drawer, box/box/file pedestal, full modesty panel; executive bridge 42" min.; credenza unit w/ two drawer lateral file and hutch unit w/ door storage, 4-drawer lateral files, one conference table, four conference chairs, two guest chairs, one executive chair.
Executive Office	150	Private Office	L-shaped executive desk unit with single pedestal desk w/ center drawer and storage pedestal w/ box/box/file configuration, full modesty panel; executive return with storage pedestal box/box/file configuration, two 4-drawer lateral files, two guest chairs, one executive chair.
Office	110	Private Office	L-shaped executive desk unit with single pedestal desk w/ center drawer and storage pedestal w/ box/box/file configuration, full modesty panel; executive return with storage pedestal box/box/file configuration, one 4-drawer lateral file, one guest chairs, one task chair.
Open Workstation	48	Open Workstation	Systems furniture workstation, approx. 48 SF, with work surfaces, file drawers and overhead storage.
Brigade Command Conference Room	600		Conference table with 18 chairs and 18 side chairs.
Battalion Command Conference Room	330		Conference table with 14 chairs and 8 side chairs.
Medium Conference Room	200-300		Conference table with 12 chairs and 4 side chairs.

<REV>Team Room	120-150		Conference table with 6 chairs and 2 side chairs. </REV>
Reception Area	Varies	Executive Reception Area	Systems furniture open office area for one staff member and 5 visitors (5 guest chairs).
Classroom	Varies		1 desk and chair for each 20 SF. Provide movable partitions to divide large classroom space into three equally-sized spaces.
Lobby	Varies	Building Reception Area	Lounge seating if space allows. Provide one recessed building directory near each main entrance, and in a multiple-story building, provide one recessed building directory near elevator doors above the first floor. Provide one 4'-0" x 6'-0" wall mounted bulletin board for each headquarters unit. Provide one glass front 4'-0" wide min. built in display cabinet for unit memorabilia, awards, trophies, etc.
Omitted			
File Room	Varies		Minimum of 1 linear foot of 4-drawer lateral file cabinet for every 4 SF of room (250 SF room = min 62.5 LF 4-drawer horizontal base files ; (1) 36"(w), 4-drawer file cabinet = 12 LF).
Break Room	Varies		Contractor furnished, contractor installed minimum 20 LF base and wall cabinets, dishwasher and space for a full size refrigerator with ice-maker. Note that in BG HQ- S-1 Break Room also supports Command group. Provide recessed space for two vending machines per building (machines are not in the contract) not in view of the lobby.
Shower	Varies		Contractor furnished, contractor installed lockers with benches will be provided on a 3:1 ration of lockers/shower. Minimum locker size shall be 12"(w) x 18"(d) x 36"(h).
Secured Documents Room	Varies	Secure Documents Room conforming to requirements in AR 380-5	2 four drawer safes per authorized company within each battalion secure document room. 2 four drawer safes per coordinating staff section within each battalion and/or brigade secure documents room, not to exceed a total of 12 safes per the battalion document room.
BOC	Varies	Brigade Operations Center	Provision for Government-Furnished, Government-Installed television monitors (wall of knowledge). Systems furniture workstations, 30"D x 60"W, with 42"-48"H powered panels, and one stationary box/box/file pedestal and task chair per workstation as indicated on standard floor plans. Modular conference tables and chairs for 10 persons (with side chairs as space allows) at conference room. Contractor furnished, contractor installed raised flooring.
SCIF	Varies	Sensitive Compartmented Information Facility conforming to Office of the Director of National Intelligence – DRAFT Intelligence Community	50 - 52 total systems furniture workstations, 30"D x 60"W, with 42"-48"H powered panels, and one stationary box/box/file pedestal and task chair per workstation as indicated on standard floor plans. Modular conference tables and chairs for 12 persons (with side chairs as space allows) at conference room. Contractor furnished, contractor

		Standard (ICS) 705	installed raised flooring to accommodate weight of 7 four drawer safes. Primary entry vestibule (interior) shall accommodate (1) 24" D x 36" W standing height table. Provide (1) cell phone storage locker to accommodate 50 individual phones adjacent to primary SCIF entry at corridor side.
NOC	Varies	Network Operations Center	Systems furniture workstation, approx. 48 SF, with work surfaces, file drawers and overhead storage as indicated on standard floor plans. Space for GFGI communication racks, equipment, and 3 each work benches in server room. Contractor furnished, contractor installed raised flooring.

3.19.2. EQUIPMENT – NOT USED

3.20. FACILITY SPECIFIC REFERENCES

A. APPLICABLE INDUSTRY CRITERIA

- 1) American National Standards Institute (ANSI/Telecommunications Industry Association (TIA/Electronic Industry Association (EIA)
 - a) ANSI/EIA/TIA 568A Commercial Building Telecommunications Cabling Standard and all applicable Addendums)
 - b) EIA/TIA 568-B Commercial Building Telecommunications Cabling Standards (Addendums 561-B.1, 568-B.2, 568-B.2-1)
 - c) ANSI/EIA/TIA 606A Administration Standard for Commercial Telecommunications Infrastructure
- 2) ASHRAE
 - a) ASHRAE 55 Thermal Environmental Conditions for Human Occupancy
 - b) ASHRAE Hdbk-IP Handbook, Refrigeration I-P Edition
 - c) ASHRAE Hdbk-IP Handbook, HVAC Applications I-P Edition
 - d) ASHRAE Hdbk-IP Handbook, HVAC Systems and Equipment I-P Edition
 - e) ASHRAE Underfloor Air Distribution (UFAD) Design Guide, 2003
- 3) ASME B31.1 Power Piping
- 4) ASTM E413-04, Classification for Rating Sound Insulation
- 5) Clean Air Act Amendment of 1990
- 6) Discount Factors for Life-Cycle Cost Analysis, Annual Supplement to NIST Handbook 135
- 7) Memorandum of Agreement (MOA) on Criteria/Standards for Economic Analyses/Life Cycle
- 8) Costing for MILCON Design (March 1996)
- 9) NIST Handbook 135 (with the annual supplement of discount factors)
- 10) National Electrical Manufacturers Association (NEMA) PE 1 Uninterruptible Power Systems]
- 11) National Fire Protection Association (NFPA) 110 Emergency and Standby Power Systems]
- 12) SMACNA Seismic Restraint Manual: Guidelines for Mechanical Systems
- 13) Testing and Balancing Bureau (TABB)

- 14) Underwriters Laboratories (UL)
 - a) [UL 1008 Transfer Switch Equipment]
 - b) UL 1440 Transient Voltage Surge Suppressors
 - c) [UL 1778 Uninterruptible Power Systems]

B. APPLICABLE MILITARY CRITERIA

- 1) Army Regulation (AR)
 - a) AR 190-51, Security of Unclassified Army Property (Sensitive and Non-sensitive), 30 September 1993
 - b) AR 380-381 Special Access Programs (SAPS) and Sensitive Activities
 - c) AR 380-5, Information Security Program
- 2) Department Of Defense (DOD)
 - a) DOD MIL-HDBK-419A Grounding, Bonding, and Shielding for Electronic Equipment and Facilities
 - b) [DOD 5105.21-M-1 Sensitive Compartmented Information Administrative Security Manual]
 - c) DoD Regulation 5200.1-R, Information Security Program, dated January 1997, Appendix 7 –Physical Security for Vault and Secure Room Construction Standards
- 3) National Security Telecommunications and Information Systems Security (NSTISS)
 - a) NSTISSAM Tempest 2-95 Red/Black Installation Guidance
 - b) NSTISSI 7003 Protective Distribution Systems (PDS)
- 4) Office of the Director of National Intelligence
 - a) Intelligence Community Directive Number 705 Sensitive Compartmented Information Facilities
 - b) [Intelligence Community Standard (ICS) 705-1 Physical and Technical Standards for Sensitive Compartmented Information Facilities.
 - c) Intelligence Community Standard (ICS) 705-2 Standards For Accreditation And Reciprocal Use Of Sensitive Compartmented Information
 - d) IC Tech Spec-for ICD/ICS 705 Technical Specifications For Construction And Management Of Sensitive Compartmented Information Facilities]
- 5) Unified Facilities Criteria UFC
 - a) UFC 3-580-01 Telecommunications Bldg Cabling Systems Planning/Design Manual 22 June 2007
 - b) UFC 4-140-01, Brigade Operations Complex, Brigade and Battalion Headquarters

BRIGADE AND BATTALION
HEADQUARTERS

APPENDICES

US Army Corps of Engineers

DATE	DESIGNED BY	DESIGNATION	CONTRACT NO.
	DRAWN BY	PROJECT NAME	
	CHECKED BY	LOCATION	FILE NUMBER
	SCALE	DATE	FILE NAME
	BY		DATE

US ARMY CORPS OF ENGINEERS

EXTRA LARGE BRIGADE HEADQUARTERS

SECOND FLOOR PLAN

STANDARD DESIGN

SHEET IDENTIFICATION

A-102

OF 1



CONSOLIDATED HEADQUARTERS
SECOND FLOOR

1/16" = 1'-0"

16' 0 16' 32'

SCALE: 1/16" = 1'-0"

THE FLOOR PLANS INDICATE THE ARMY STANDARD SOLUTION IN SCHEMATIC FORM. THE DESIGNER OF RECORD (DOR) IS ALLOWED TO MAKE ADJUSTMENTS FOR THE EXTERIOR FACADE ARCHITECTURAL, THEME, AND/OR TO ACCOMMODATE SPECIFIC BUILDING ENGINEERING SYSTEMS (STRUCTURAL, MECHANICAL, ELECTRICAL, FIRE PROTECTION, SUSTAINABLE DESIGN, ETC.). THESE ADJUSTMENTS WILL BE EVALUATED BY THE CENTER OF STANDARDIZATION (COS) DURING ITS COMPLIANCE REVIEW.

THE OVERALL BUILDING DIMENSIONS AND THE VALUES FOR THE GROSS AREA AS INDICATED ARE FOR THE STANDARD LAYOUTS SHOWN AND ARE PREPARED ON AN ASSUMED EXTERIOR WALL THICKNESS OF 20 INCHES. IF IT IS UNDERSTOOD THAT THE ACTUAL GROSS BUILDING AREA WILL VARY DEPENDENT ON THE WALL SYSTEM MATERIALS SELECTED FOR A SPECIFIC PROJECT, IT IS REDUCED OVERALL GROSS AREA IS PERMISSIBLE IF ALL NET PROGRAM REQUIREMENTS AND ADJACENCIES ARE SATISFIED, BUT IN NO CASE MAY THE MAXIMUM GROSS AREA FOR THE FACILITY BE EXCEEDED.

FIRST FLOOR	61,714 GSF
SECOND FLOOR	47,667 GSF
THIRD FLOOR	27,667 GSF
TOTAL SF SHOWN	136,848 GSF
MAX ALLOWABLE	138,900 GSF



① LARGE BATTALION FIRST FLOOR PLAN
1/8" = 1'-0"

FIRST FLOOR	12274 GSF
SECOND FLOOR	7521 GSF
TOTAL SF SHOWN	19795 GSF
MAX ALLOWABLE	20400 GSF

THE FLOOR PLAN INDICATES THE ARMY STANDARD DESIGN IN SCHEMATIC FORM. THE DESIGNER-OF-RECORD (DOR) IS ALLOWED TO MAKE ADJUSTMENTS FOR EXTERIOR FACADE/ARCHITECTURAL THEME AND/OR TO ACCOMMODATE SPECIFIC BUILDING ENGINEERING SYSTEMS (STRUCTURAL, MECHANICAL, ELECTRICAL, FIRE PROTECTION, SUSTAINABLE DESIGN, ETC.). THESE ADJUSTMENTS WILL BE EVALUATED BY THE CENTER OF STANDARDIZATION (COS) DURING ITS COMPLIANCE REVIEW.

THE OVERALL BUILDING DIMENSIONS AND THE VALUES FOR THE GROSS BUILDING AREAS INDICATED ARE FOR THE STANDARD LAYOUTS SHOWN AND ARE PREDICATED ON AN ASSUMED EXTERIOR WALL THICKNESS OF 20 INCHES. IT IS UNDERSTOOD THAT THE ACTUAL GROSS BUILDING AREA WILL VARY DEPENDING ON THE WALL SYSTEM/MATERIAL SELECTED FOR A SPECIFIC PROJECT. A REDUCED OVERALL GROSS AREA IS PERMISSIBLE IF ALL NET PROGRAM REQUIREMENTS AND AGENCIES ARE SATISFIED, BUT IN NO CASE MAY THE MAXIMUM GROSS AREA FOR THE FACILITY BE EXCEEDED.



US Army Corps of Engineers

DATE	SKETCH/NOTATION	CONTRACT NO.					DESCRIPTION
DESIGNED BY	CHECKED BY	PLANT DATE					
DRAWN BY	APPROVED BY	PROJECT NO.					
		FILE NAME					
		FILE NO.					
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS							
FIRST FLOOR PLAN							
PLATE REFERENCE NUMBER A101							
SHEET							

