Subject: Proper Use of Appropriations for Air Traffic Control (ATC) Facility MILCON Project Planning, Design, Construction, and Equipment Outfitting

References: (a) Federal Aviation Administration (FAA) Act of 1958  
(b) OPNAVINST 3721.5K, Naval Air Traffic Control, Air Navigation Aids and Landing Systems (NAALS) Program  
(c) NAVAIRINST 5400.137C, Designation of the Air Traffic Control and Combat Identification System Program Manager Air (PMA213)  
(d) Space and Naval Warfare Systems Center Ltr 5720 Ser 5.3.7/296 dtd 07 Dec 2007, Support Agreement between Naval Air Systems Command PMA213 and Space and Naval Warfare Systems Center, Charleston  
(e) UFC 4-133-01N, United Facility Criteria – Design: Navy Air Traffic Control Facilities  
(f) NAVFAC Engineering & Construction Bulletin (ECB) 2007-01 – Proper Use of Military Construction (MILCON) Funds Policy  
(g) OPNAVINST 11010.20G, Facilities Projects Instruction

Enclosure: (1) SPAWAR Atlantic’s ATC MILCON Project Responsibilities and Funding Source

1. Purpose

This Engineering and Construction Bulletin (ECB) establishes the Naval Facilities Engineering Command (NAVFAC) policy for identifying the proper use of appropriations for the planning, design, construction, and equipment outfitting of air traffic control (ATC) military construction (MILCON) projects. Specifically, this ECB establishes the policy for funding Space and Naval Warfare Systems Center Atlantic’s (SPAWAR Atlantic) planning, design, engineering, construction services, and installation of ATC-unique equipment and infrastructure in support of all Navy and Marine Corps ATC MILCON projects. SPAWAR Atlantic is responsible for installing Other Procurement, Navy (OPN) funded ATC equipment and MILCON-funded ATC built-in equipment and permanent facility infrastructure to ensure fully operational and safe ATC facilities.

2. Background

Reference (a) establishes the federal policy of maintaining a National Airspace System (NAS) that meets the nation’s present and future national defense, civil aviation, homeland security, and economic and environmental protection needs. It assigns statutory responsibility for the NAS to the Administrator of the Federal Aviation Administration (FAA) in coordination with the Department of Defense (DoD). The FAA Administrator delegates selected NAS airspace responsibility to the Department of the Navy (DoN). Navy and Marine Corps ATC facilities
provide ATC services in the nation’s airspace and are part of the critical aviation transportation infrastructure. They must be equipped to provide safety-of-flight (SOF) ATC services for all users in DoN assigned airspace.

ATC facilities are unique and specialized. Improper or incomplete planning, design, construction, and/or installation of equipment can render these facilities inadequate or unusable from an SOF perspective. For example, air traffic control tower (ATCT) cabs can be constructed with an obstructed line-of-sight (LOS), which could curtail safe operations and potentially lead to catastrophic events. Additionally, failure to design and provide adequate back-up power, grounding, and lightning protection systems can lead to loss of communications and radar feeds during inclement weather, affecting critical phases of flight. Furthermore, in instrument flight rules (IFR) spaces of a Radar Air Traffic Control Facility (RATCF), improper room design, such as inadequate lighting, insufficient operating space, or poor room layout, can adversely impact safe and efficient flight operations. Early involvement of SPAWAR Atlantic in the planning, site approval, requirements development, design, renovation, construction, and equipment installation of an ATC facility is essential to avoid mistakes. Finally, Navy and Marine Corps ATC facilities play a role in the national defense of the United States. Accordingly, SPAWAR Atlantic must be involved in the design and construction of features unique to DoD ATC facilities such as ATCT siting, grounding and bonding, and lightning protection, and must be involved in the planning, design, construction, and installation of ATC equipment and related infrastructure such as power supply and cooling systems.

SPAWAR Atlantic acquires, integrates, installs, and supports ATC equipment at Navy and Marine Corps air stations worldwide. It is also the recognized center of excellence for DoN ATC facilities planning, design, and ATC-unique construction services. References (b) and (c) detail the relationship between the DoN ATC requirements officer [Chief of Naval Operations (CNO) N8853], the procurement agency [Naval Air Systems Command (NAVAIR)], and SPAWAR Atlantic. Per reference (d), SPAWAR Atlantic is responsible for reviewing the designs and drawings for ATC MILCON projects for accuracy and adequacy. It is also responsible for SOF facility recommendations and for providing input on related operational considerations. Reference (e) details the relationship between NAVFAC and SPAWAR Atlantic for ATC-unique planning, design, and construction services for ATC MILCON projects.

Reference (f) provides guidance on the proper use of design and construction appropriations by federal and DoD authorities on Navy Military Construction (MCON), Military Construction Reserves (MCNR), Family Housing Construction and Improvements (FHCON), and Base Realignment and Closure Construction (BRACON) appropriations. The Appropriations for ATC Facility MILCON Project ECB provides specific funding requirements for SPAWAR Atlantic’s support during the planning, project development (including site approval), design, construction, and equipment outfitting phases of ATC MILCON projects.

3. Policy

It is NAVFAC policy to use either Operations and Maintenance, Navy (O&MN), or MILCON appropriations to fund SPAWAR Atlantic’s contributions to the planning, design, construction services, and/or equipment installation support for ATC MILCON projects. The funding source is
dictated by the types of services provided and is defined in reference (g). Enclosure (1) describes SPAWAR Atlantic tasks and funding responsibilities/sources/programming agency during the different phases of a MIi.CON project, from inception to completion, including the following:

a. Tower Siting Assessment Report (TSAR)
b. Contributions to the development of the Installation/Public Works Department (PWD)
   DD1391
c. Contributions to the development of the Region/FEC Team revision of the DD1391
d. Update of the Facilities Requirement Document (FRD)
e. Development of the Facilities Requirement Supplement (FRS)
f. Contributions to the pre-construction award Request For Proposal (RFP)
g. Technical Evaluation Board (TEB) support
h. Provision of the Post-Construction Contract Award Services (PCAS) and of the construction support services
i. Development of Base Electronic Systems Engineering Plan (BESEP)
j. Development of the Installation Design Plan (IDP) and as-built drawings
k. Preparation, purchase, shipment, and installation of ATC-unique built-in equipment and permanent facility infrastructure, such as specialized ATC operator cabinetry or cabling
l. Relocate existing ATC equipment/systems
m. Procurement and installation of the facility infrastructure (e.g. cabling, wiring, foundation, power) required to operate the Transportable Air Traffic Control Facility (TATCF) and Transportable Air Traffic Control Tower (TATCT) systems
n. Provide test and maintenance equipment

4. Policy Guidelines


5. Action

ECB 2012-02 is effective immediately. The criteria documents, NAVFAC standard contract templates, and the Business Management System (BMS) will be updated to reflect this policy. Project managers and contracting officers will ensure that all applicable contracts are in compliance with this guidance.

This document has been reviewed by Headquarters, U.S. Marine Corps (USMC) and is fully applicable to all USMC installations.

JOSEPH E. GOTT, P.E.
Chief Engineer and Director,
Capital Improvements
SPAWAR Atlantic’s ATC MILCON Project Responsibilities and Funding Sources

SPAWAR Atlantic provides the following services on MILCON-funded ATC projects:

a. **Tower Siting Assessment Report (TSAR)**

SPAWAR Atlantic provides TSAR support during the early stages of project development—approximately five years prior to MILCON project completion. A TSAR is critical to the proper siting of a new ATCT. The TSAR analyzes numerous siting criteria including: visibility of aircraft traffic patterns and air traffic controlled movement surfaces, availability of existing roads and infrastructure, safety requirements, and compatibility with other planned air station development and construction. This document uses the siting criteria to evaluate several alternative locations for siting the new ATCT and provides a preferred siting alternative. The TSAR provides planners with design parameters and restrictions, such as tower height limitations, which comply with airfield transitional surfaces and clear zones, described in NAVFAC P80.3, Facility Planning Factor Criteria for Navy and Marine Corps Shore Installations, Appendix E: Airfield Safety Clearances. Each viable ATCT location that meets NAVFAC P80.3 criteria is provided to the Naval Flight Information Group (NAVFIG) to ensure there will be no impact to Terminal Instrument Approach Procedures (TERPS).

*TSAR efforts are supported using O&MN appropriations provided by either Commander Navy Installations Command (CNIC) or USMC, depending on the air installation.*

b. **Installation/PWD DD1391 development support**

SPAWAR Atlantic provides ATC-related equipment and operational floor space criteria during the development of the Installation/PWD DD1391 for ATC facilities. The Installation/PWD DD1391 is the start of the MILCON process. It is critical that this initial DD1391 contains accurate scoping information, including infrastructure and other support facilities, and preliminary costs associated with these items. SPAWAR Atlantic evaluates the anticipated facility floor area requirements for the electronic equipment and operational areas to ensure all ATC spaces, including the operational spaces and the equipment rooms, are sized and configured appropriately. SPAWAR Atlantic will assist with the identification of the unique ATC facility issues and with the impact to the costs shown on the Installation/PWD DD1391.

*SPAWAR Atlantic contributions to the development of the Installation/PWD DD1391 are funded by CNIC/USMC O&MN appropriations.*

c. **Region/Facilities Engineering Command (FEC) Team DD1391 development support**

The FEC develops the Region/FEC Team DD1391 in preparation for budget submission to the Navy, the Office of the Secretary of Defense (OSD) Comptrollers, and the United States (US) Congress. This DD1391 has a much higher level of engineering, design, and cost estimating than the Installation/PWD DD1391. The description of cost and scope resulting from this deliverable is the basis for the budget document DD1391 and the Congressional As-Enacted DD1391. Changes to the scope and cost of a project are extremely difficult after the budget has been submitted to the Navy Comptroller (NAVCOMPT).
SPAWAR Atlantic contributions to the development of the Region/FEC DD1391 are funded by MILCON design appropriations.

d. FRD update and support

SPAWAR Atlantic provides an updated FRD during development of the Region/FEC Team DD1391. The FRD is used by NAVFAC in the preparation of the RFP which is released to interested contractors. The FRD provides design requirements applicable to all ATCT and Radar Air Traffic Control Facilities (RATCF) construction projects. The FRD provides the Architecture and Engineering (A&E) firm with design concepts and requirements for safe and efficient integration of the installed electronic equipment into the facility being constructed or modernized. The FRD becomes an attachment to the RFP.

FRD efforts are funded by CNIC/USMC O&M appropriations because it is a generic planning tool and is not specific to individual projects.

e. FRS development and support

SPAWAR Atlantic provides an FRS during development of the RFP. SPAWAR Atlantic will conduct a site survey and develop the FRS which becomes an attachment to the RFP. The FRS is unique to each project and provides detailed, site-specific design and construction requirements, heat loads, inter-facility ducting, specific external ATC communications, and proposed space utilization, including the ATC equipment room and operational room layouts.

FRS development is funded by MILCON design appropriations because it is a project-specific design tool.

f. RFP development and review support

SPAWAR Atlantic provides RFP development support to the FEC. This support includes involves providing detailed analysis during the kickoff, preliminary, interim, and final RFP reviews to ensure FRD criteria is reflected in the RFP.

Most ATC projects are procured using the design-build acquisition strategy. In these cases, an RFP is applicable. On occasion, the complete design is developed prior to the construction contract award using the Design-Bid-Build acquisition strategy. In these cases, SPAWAR Atlantic works with the A&E firm in developing the total design package including the plans and the specifications necessary for construction.

RFP development and review efforts are funded by MILCON design appropriations.
g. Technical Evaluation Board (TEB) support

SPAWAR Atlantic participates in the FEC's TEB, either as a voting member or as an advisor, evaluating proposals for past experiences and for the soundness of technical solutions, including the evaluation of the proposed design, proposed design schedule, and proposed construction schedule as it relates to ATC facilities.

*MILCON award support efforts are funded by MILCON design appropriations.*

h. PCAS engineering and design support

SPAWAR Atlantic provides PCAS engineering and design support during construction of the ATC facility. PCAS efforts include participating in the kickoff meeting, attending design progress reviews and providing ATC specific design input. During construction, SPAWAR Atlantic conducts on-site quality assurance (QA) inspections for compliance with all applicable ATC specifications, and provides timely advice and information related to ATC issues. SPAWAR Atlantic provides briefs on construction workmanship to include lessons learned and examples of poor quality from previous projects.

*PCAS efforts are funded within the individual project's DD1391 (MILCON construction appropriations). Construction efforts are funded by MILCON construction appropriations approved by Congress as shown on the project's As Enacted DD1391.*

i. Base Electronics Systems Engineering Plan (BESEP)

SPAWAR Atlantic develops a project-specific BESEP. The BESEP is a planning and management document that governs electronic equipment installations. It translates resource/program sponsor requirements or user statements of operational need into a project-specific technical description of the electronics systems and facilities required to meet this need. It identifies the electronic systems, equipment, and devices to be used and lists their pertinent technical parameters, physical characteristics, environmental and interface requirements, and system performance objectives. Methods of verifying systems performance and compliance with identified installation requirements are included, as well as the roles and responsibilities of all involved parties. An installation BESEP serves as the basis for the development of an IDP.

*BESEP efforts are funded by NAVAIR OPN and CNIC/USMC O&MN appropriations. (Efforts associated with new equipment installation are funded by NAVAIR; efforts associated with relocation of existing equipment are funded by CNIC/USMC.)*

j. IDP

An IDP is a project-specific design blueprint for electronic equipment installation unique to a specific site, is developed in parallel with building design, and is a follow-on document to the BESEP. SPAWAR Atlantic provides IDP support in the time frame typically overlapping A&E design and facility construction. It will normally include the floor plans, elevations, and single line drawings developed for the BESEP. Additionally, it includes a bill of materials for
permanent facility infrastructure. The IDP defines the actual placement and connectivity of the electronics equipment and is very detailed. An as-built facility drawing package (FDP) is completed after equipment installation.

Permanent facility infrastructure includes specialized signal and communication connections and cabling, permanently mounted cabinets, consoles, racks, cable trays, permanent power cabling, power panels and circuit breakers, surge suppression, main and supplemental distribution panels and related hardware, uninterruptible power supplies, grounding cabling and hardware, lightning suppression cabling and hardware, antennas and mounting hardware, etc.

*Pre-construction IDP efforts are funded by MILCON design appropriations. Post-construction award as-built design documentation efforts are funded with MILCON project-specific construction appropriations.*

k. Installation of new ATC equipment and systems

SPAWAR Atlantic installs new equipment after the ATC facility has been accepted by the on-site Facilities Engineering and Acquisition Department (FEAD) or the Resident Officer in Charge of Construction (ROICC). Equipment installation includes preparation, purchase, and shipment of permanent facility infrastructure and electronic equipment to the station, travel of the installation team, on-site labor to install permanent facility infrastructure, and on-site labor to install electronic equipment in the newly constructed facility.

*New ATC system installations are supported with NAVAIR OPN funding. Permanently installed facility infrastructure supporting ATC systems is funded with MILCON construction appropriations.*

l. Relocation of existing ATC equipment and systems

SPAWAR Atlantic relocates existing ATC equipment from an existing ATC facility to the new MILCON facility after it has been accepted by the FEAD and ROICC. Equipment installation includes preparation, purchase, and shipment of permanent facility infrastructure and electronic equipment to the station, travel of the installation team, on-site labor to install permanent facility infrastructure, and on-site labor to install electronic equipment in the newly constructed facility.

*ATC systems and related equipment relocation and/or installation and plug-in connections are supported with CNIC/USMC O&M funding. Permanent built-in ATC equipment and systems related facility infrastructure and installation efforts (specialized connections and cabling, permanently mounted cabinets, consoles, and racks, permanent power and signal cabling, cable trays, etc.) are funded as part of the MILCON project.*

m. Temporary, transportable facilities

As part of the ATC MILCON project, SPAWAR Atlantic may provide and install a transportable air traffic control facility (TATCF) and/or transportable air traffic control tower (TATCT) as well as the necessary facility infrastructure to operate the temporary support facilities. The
TATCF and TATCT bridge the gap between deactivation of the existing ATCT and RATCF and the stand-up of the new, MILCON-funded ATCT and RATCF.

*Construction required to support transportable facilities (including site preparation foundations, utilities, roads and paving and force protection features) are appropriately funded by MILCON appropriations without regard to the cost of these construction items. Transportation, mobilization, and demobilization of the transportable facilities are also funded by MILCON appropriations.*

n. Test and Maintenance Equipment

As part of the ATC MILCON project, SPAWAR Atlantic may provide ATC system test and maintenance equipment for the facility.

*Test and maintenance equipment is funded using NAVAIR O&MN/OPN funding.*

SPAWAR Atlantic’s ATC MILCON Responsibilities and Funding Source Matrix.
<table>
<thead>
<tr>
<th>MILCON Project Phase</th>
<th>Tasks</th>
<th>Programming Agency</th>
<th>Timeline for funding SPAWAR Atlantic Efforts</th>
<th>Task Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATCT Siting</td>
<td>TSAR (ATCT)</td>
<td>CNIC/USMC (O&amp;MN appropriations)</td>
<td>At project initiation</td>
<td>ATCT siting including travel, site inspection, equipment, research, and report.</td>
</tr>
<tr>
<td>Planning</td>
<td>Installation/PWD DD1391 Support</td>
<td>CNIC/USMC (O&amp;MN appropriations)</td>
<td>At start of DD1391 development</td>
<td>SPAWAR Atlantic requirements review. Technical, operational, and practical validation of design parameters. SPAWAR Atlantic cost estimates.</td>
</tr>
<tr>
<td>Design</td>
<td>Region/FEC DD1391 Support</td>
<td>NAVFAC (MILCON design appropriations)</td>
<td>Prior to Project Readiness Review Approval</td>
<td>Higher level SPAWAR Atlantic requirements review. Technical, operational, and practical validation of design parameters. SPAWAR Atlantic cost estimates.</td>
</tr>
<tr>
<td>Design</td>
<td>FRD</td>
<td>CNIC/USMC (O&amp;MN appropriations)</td>
<td>At authorization of NAVFAC design development (RFP)</td>
<td>Update and publish generic ATC facility requirements.</td>
</tr>
<tr>
<td>Design</td>
<td>FRS</td>
<td>NAVFAC (MILCON design appropriations)</td>
<td>At authorization of NAVFAC design development (RFP)</td>
<td>Develop and publish site specific ATC facility requirements document.</td>
</tr>
<tr>
<td>Design</td>
<td>RFP Development and Review Support</td>
<td>NAVFAC (MILCON design appropriations)</td>
<td>At authorization of NAVFAC design development (RFP)</td>
<td>Review and provide ATC unique facility and operational requirements – travel and labor.</td>
</tr>
<tr>
<td>Award</td>
<td>TEB Support</td>
<td>NAVFAC (MILCON design appropriations)</td>
<td>Beginning of RFP development</td>
<td>Subject matter expert or member participation.</td>
</tr>
<tr>
<td>Construction</td>
<td>PCAS Engineering and Design Support</td>
<td>NAVFAC (MILCON construction appropriations)</td>
<td>2 months prior to award</td>
<td>Develop design for equipment layouts, design reviews, RFIs. Provide inspections, technical consultation, and QA.</td>
</tr>
<tr>
<td>Design</td>
<td>BESEP</td>
<td>CNIC/USMC (O&amp;MN appropriations for relocation of existing ATC equipment), NAVAIR (OPN appropriations for installation of new program ATC equipment)</td>
<td>At authorization of NAVFAC design development</td>
<td>Develop and publish technical description of ATC electronic systems, ATC operational requirements, and the ATC facilities required to meet the ATC operational mission at the site.</td>
</tr>
<tr>
<td>Design</td>
<td>IDP (pre-construction)</td>
<td>NAVFAC (MILCON design appropriations)</td>
<td>At Authorization of NAVFAC Design Development</td>
<td>Develop and publish equipment-related permanent facility infrastructure installation design.</td>
</tr>
<tr>
<td>MILCON Project Phases</td>
<td>Tasks</td>
<td>Sub-tasks</td>
<td>Programming Agency</td>
<td>Timeline for funding SPAWAR Atlantic Efforts</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------</td>
<td>-----------</td>
<td>--------------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>Construction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NAVFAC (MILCON construction appropriations)</td>
<td>At award of construction</td>
</tr>
<tr>
<td></td>
<td>Cabinet Procurement (Built-In Equipment)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cabinet Installation</td>
<td></td>
<td>NAVFAC (MILCON construction appropriations)</td>
<td>At award of construction</td>
</tr>
<tr>
<td></td>
<td>Cabling Procurement</td>
<td></td>
<td>NAVFAC (MILCON construction appropriations)</td>
<td>At award of construction</td>
</tr>
<tr>
<td></td>
<td>Cable Install</td>
<td></td>
<td>NAVFAC (MILCON construction appropriations)</td>
<td>At award of construction</td>
</tr>
<tr>
<td></td>
<td>Equipment Installation/Relocation &amp; Connection</td>
<td>CNIC/USMC (O&amp;MN) and NAVAIR (OPN)</td>
<td>At award of construction</td>
<td>Installation/Relocation of ATC systems and related equipment, and provide ATC test and maintenance equipment.</td>
</tr>
<tr>
<td></td>
<td>Communication demark</td>
<td></td>
<td>NAVFAC (MILCON construction appropriations)</td>
<td>At award of construction</td>
</tr>
<tr>
<td></td>
<td>Grounding and bonding and related facility infrastructure</td>
<td>NAVFAC (MILCON construction appropriations)</td>
<td>At award of construction</td>
<td>Permanent facility infrastructure required for equipment installation.</td>
</tr>
<tr>
<td></td>
<td>Lightning surge protection and related facility infrastructure</td>
<td>NAVFAC (MILCON construction appropriations)</td>
<td>At award of construction</td>
<td>Permanent facility infrastructure required for equipment installation.</td>
</tr>
<tr>
<td></td>
<td>Cable trays, conduit, and related facility infrastructure</td>
<td>NAVFAC (MILCON construction appropriations)</td>
<td>At award of construction</td>
<td>Permanent facility infrastructure required for equipment installation.</td>
</tr>
<tr>
<td></td>
<td>Equipment power and related facility infrastructure</td>
<td>NAVFAC (MILCON construction appropriations)</td>
<td>At award of construction</td>
<td>Permanent facility infrastructure required for equipment installation.</td>
</tr>
<tr>
<td></td>
<td>TATCF (temporary radar approach control facility) installation</td>
<td>Temporary power, foundations, set-up, transportation to and from site</td>
<td>NAVFAC (MILCON construction appropriations)</td>
<td>At award of construction</td>
</tr>
<tr>
<td></td>
<td>TATCT (temporary ATC tower) installation</td>
<td>Temporary power, foundations, set-up, transportation to and from site</td>
<td>NAVFAC (MILCON construction appropriations)</td>
<td>At award of construction</td>
</tr>
<tr>
<td></td>
<td>Incorporation of As-Built Drawings into IDP/FDP</td>
<td></td>
<td>NAVFAC (MILCON construction appropriations)</td>
<td>At award of construction</td>
</tr>
</tbody>
</table>