BY ORDER OF THE COMMANDER
SCOTT AIR FORCE BASE (AMC)

SCOTT AIR FORCE BASE
INSTRUCTION

17-200

18 JULY 2018

Cyberspace

MANAGEMENT OF THE SCOTT AFB DATA CENTER

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction implements Air Force Policy Directive 17-2, Cyberspace Operations, and Technical Order 00-33A-1001-WA-1, General Cyberspace Support Activities Management Procedures and Practice Requirements, and provides guidance on the management of the physical configuration of the Scott AFB data center. It identifies responsibilities for and provides shared management of the limited resources available in the facility. Ensure all records created as a result of processes prescribed in this publication are maintained IAW Air Force Manual (AFMAN) 33-363, Management of Records, and disposed of in accordance with (IAW) Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using AF Form 847, Recommendation for Change of Publication, through the appropriate functional chain of command to the Commander, 375th Communications Squadron (CS), 859 Buchanan Street, Scott AFB, IL 62225-5101. Personnel who fail to adhere to this guidance may be punished under the Uniform Code of Military Justice (UCMJ) Article 92(1) or civil equivalent.

SUMMARY OF CHANGES

This document has been substantially reviewed and revised. Major changes include: Improvements to Scott AFB data center standards agreed upon through the Configuration Control Review Board (CCRB) chair and members.

1. Overview.

1.1. Background. Since the establishment of the Scott AFB data center, problems have arisen repeatedly related to facility safety, security, and installation practices. A variety of informal agreements temporarily resolved issues; but over time, problems would resurface. The purpose of this instruction is to codify the operations and maintenance (O&M) standards for those using data centers managed by the 375 CS, and to provide a means to update and improve those standards over time.

1.2. Data centers functionally support those systems installed within the facilities. The basic design shall be simple, clean, modular, and most importantly, cost efficient. The policies and standards prescribed herein serve to provide the required functionalities, meeting the basic design criteria.

2. Applicability. This instruction applies to all organizations with equipment hosted by the Scott AFB data center.

2.1. Implementation of this guidance will be managed by the Data Center CCRB as designated by the CCRB Chair. The CCRB Chair is responsible for storage of records, coordination of plans, approvals of waivers, and dissemination of information related to the management of the facility. The Data Center CCRB Charter is included as **Attachment 2** of this instruction.

3. General.

3.1. All systems and equipment being installed into the data center will comply with this instruction. It is the responsibility of the functional system managers to advise their Program Management Offices (PMOs), project officers, contractors, and subcontractors of these standards.

3.2. Customers will provide all necessary materials or reimburse as necessary. The data center facility electricians will install, by default, two sets of redundant power source whips to each rack according to the standards identified in **Attachment 3** of this instruction. **Attachment 3** denotes specialized markings on the rack and power strip for the power above and below the floor and within the rack by the facility electricians and the customer to insure identification of each circuit and continuity of the panel schedule. The facility electrician will mark the base of the power strip and cord body and the customer will mark all power cords from the power strip to the servers. The power cord standard is red and blue for dual powered devices. Single powered devices will be orange. The 375th Communications Group (CG) Quality Assurance Office (QAO) will conduct inspections on new systems and equipment installations via CIPS specifically approved by CCRB. Inspections, using the checklist in **Attachment 4**, must be completed in accordance with TO 00-33A-1001, **Paragraph 19.7.5.1**.d.

3.3. Exceptions to **Paragraph 3.2.** will be considered on a case-by-case basis. Requests for exceptions will be submitted in writing to CCRB Chair. The 375 CS/SCX will respond

within 10 business days with a decision. Exceptions will not be connected to the electrical power source until the waiver has been officially approved. Noncompliant, non-sustained, or unapproved equipment/systems will be immediately removed from the power supply after facility manager attempts to determine ownership.

4. Operations.

4.1. All changes to existing physical configurations or new implementations will be requested through the 375 CS instance of the AF Cyberspace Infrastructure Planning System (CIPS) application. Proposed elevation drawings should be submitted in the CIPS request. A Memorandum for Record (MFR) may be used on a case-by-case basis to support removal of equipment (**Attachment 5**). Requests must include all the all request information. Submitted change requests will be reviewed by the CCRB for approval or disapproval.

4.2. All Authorized Service Interruptions (ASIs) or any activity that may create a hazardous condition (HAZCON) for the facility shall be coordinated and approved prior to occurrence. The Cyber Operations Center (CyOC) will serve as the gatekeeper for such requests.

4.3. Each mission partner with equipment installed in the data center will provide shutdown priorities, procedures, and Points of Contact (POCs) for use in the event of an emergency. During emergency conditions, when customers are not available, facility managers may need to power down equipment/systems based on mission partner-provided priorities if possible. Mission partner POCs will be contacted to re-establish operations when needed. Each mission partner will re-evaluate shutdown priorities and procedures annually during the month of April, if not more often if updates are required. A board of mission partner senior leaders (Colonels) will prioritize what order the most important systems among all the tenant systems.

4.4. All electronic devices in cabinets will be labeled on the device face using Standard Forms (SF) 710, Unclassified (Label), or 711, Secret (Label), as appropriate. The labels should be placed in the upper left corner of the face of the device, but this may be adjusted if the design of the device face does not permit application of the label in that location.

4.5. Hot spares/hardware will be stored in the functional's cabinet storage in the facility. Cold spares will be kept off-site and brought to the facility only when required.

4.6. Equipment that is removed from service will be removed from the server floor within 30 days unless an exception is pre-arranged with the facility/data center manager. The server floor will not be used as storage pending disposition of discontinued Information Technology (IT) assets or as a placeholder for a future installation.

4.7. The data center has spaces designated for three services: operations, staging, and storage. These locations are marked on the facility manager's door. The data center floor is the operations area and will be used only to house operational equipment. The staging area (reference **Paragraph 5.4.**) is the only area where materials may be removed from their shipping packages. Shipping and packing materials will not be brought into the server room. Pre-arrangement of placing equipment on server floor to accommodate large installs can be worked with the facility/data center manager. The facility/ data center manager will assist program and system managers in scheduling use of this temporary build-up area normally not to exceed 5 business days. Storage cabinets are permitted only in the storage area. The server room will not be used to store materials, even on a temporary basis.

4.8. All customers will provide new rack layouts during system technical refreshes which change the amount of equipment housed in a rack. Updates will be provided to facility/data center manager in building 1575. This process will eventually change to being housed in the CIPS 5.0 version effective Oct 18.

4.9. Cabinets on the server room floor will not contain drawers to be used for the storage of supplies, maintenance materials, tools, unmounted test equipment, or the like. These items will be stored in storage space areas only.

5. Facility Cleanliness.

5.1. Cleanliness of the data center is of primary importance. Dirt and trash present safety problems and can cause unexpected activation of the very early smoke detection apparatus (VESDA). Due to the sensitivity of the VESDA, no tobacco products, cartons, butts, or debris shall enter the facility. No alternative tobacco/chew or nicotine devices shall enter the facility. No machines that generate a heat greater than 200 degrees are allowed in the facility (popcorn machines). No trash will be permitted on the server floor. Continued issues with work area cleanliness can result in loss of facility access.

5.2. Cleaning contracts must be worked in concert with 375CES and the cleaning staff must be escorted by authorized customer representative with proper access to the facility.

5.3. Food and drinks are not permitted on the server floor. A dedicated break room is located in C18. Users of break room are required to clean up after themselves. In addition, tobacco products are prohibited in the facility. Violation of this will result in loss of access to the building. Please remember to clean up after yourselves.

5.4. A staging area has been created to allow personnel to uncrate equipment to eliminate the need to bring packing and shipping materials into the server room. Personnel using the staging area will remove all packing material and dispose of it outside of the facility. The staging area is not to be used for long-term storage of equipment, tools, or other materials. Personnel using the area are responsible for security of their materials. The area will only be used for same-day delivery and setup, and will be cleaned by the personnel using it at the end of each duty day.

6. Security.

6.1. Devices emitting radio frequency signals (i.e., pagers, personal digital assistants (PDAs), cell phones, Blackberries, vapor e-cigarettes, fitness monitors, etc.) are prohibited inside the facility. PDAs, cell phones, or blackberries may be temporarily stored in the secure electronic device locker located in the foyer near the main entrance to the facility. Secure mobility environment portable electronic devices (SME-PEDs), in the sensitive compartmented information facility (SCIF) mode, are permitted.

6.2. Tapes and system media will not be stored on the server floor, regardless of the security classification of the server room or the media. All media will be marked IAW current security classification guidance.

6.3. Facility Access.

6.3.1. All personnel who require daily unescorted access to the data center must submit AF Form 2586, Unescorted Entry Authorization Certificate, through their unit security manager to the 375 CS, Unit Security Manager, commercial (618) 256-4417, or DSN

576-4417. If approved, security forces will issue an AF Form 1199, Air Force Entry Control Card, with area 15 displayed.

6.3.2. Personnel requiring periodic access will submit a Visitor Access List (VAL) to 375 CS, Unit Security Manager. Visitors from other installations will submit a visitor access request (VAR) no less than 2 duty days before access is necessary to the 375 CS Security Manager through the Joint Personnel Adjudication System (JPAS) – security management office (SMO) Code: SF1LFMV16. The security manager will forward the validated requests to the M/ACCC, who will issue temporary badges to the visitor(s).

6.3.3. Access to the facility is ONLY through the front (West) entrance. Other doors shall not be used to depart the facility except in the case of an emergency. Facility personnel are the only authorized exception and may use the loading dock entry.

Figure 1.1. Data Center Compartments.

6.4. Possession of an AF Form 1199 with area 15 displayed DOES NOT automatically grant access to the entire facility. It provides access only to the main exterior door. The Facility manager will provide access to other areas (**Figure 1.1.**) based upon clearly defined need and unit provided memo. Access letters (**Attachment 6**) should be submitted to data center management as personnel change (data changes, personnel additions, or deletions) or on an annual basis. Access should be limited to personnel with a bona fide need for reoccurring access to 1575. The facility manager will complete an internal review semi-annually. As a result of this review, anyone who does not have a letter on file will have access terminated immediately.

6.5. Only equipment listed on an approved Scott AFB CIPS request or approved Exception Waiver will be permitted into the facility with exception of office automation equipment (i.e., approved use scanners, laptops, desktops, printers). Prior to bringing equipment to the facility, or having equipment delivered to data center, call the facility/data center manager to coordinate a delivery date/time. All equipment brought into data center will be brought in through the north loading dock door and checked by the facility data center manager. Equipment being brought in for emergency restoration after duty hours will be checked in through the M/CCC.

6.6. Vehicle Access.

6.6.1. Vehicles requesting access through the gated area must be met at the sliding gate for verification of the need to enter. Request for access is made with the facility/data center manager or M/CCC.

6.6.2. All contractor vehicles requesting entry into the gated area will be inspected. The person providing access will do a cursory look inside the vehicle for anything suspicious. Once completed, the person inspecting will conduct a walk-around of the vehicle.

6.6.3. During Force Protection Condition (FPCON) Charlie or higher, vehicles will not be allowed to enter the gated area without the approval of the 375 CS/CC or their designee.

7. System Requirements.

7.1. If the addition of the new program/system results in required facility infrastructure upgrades (electrical and/or heating, ventilation, and air conditioning [HVAC] expansions), then the cost to change the infrastructure to support the new start will be borne by the program/system, not by the facility. The CCRB will make that determination.

7.2. Power load and heat generation are critical concerns in large data centers. New installations, upgrades, additions, etc., shall use technologies that consume less power and generate less heat. Virtualization is recommended. Program/project managers and engineers will select equipment with 208-volt input power. (Most current equipment is multi-voltage compatible).

7.3. The Installation Completion Checklist (**Attachment 4**) will be successfully approved on all newly installed or changed systems or equipment BEFORE that system or equipment receives power (breakers turned on) and is placed into service. QA inspection will be scheduled by the customer and upon completion, QA will advise the Data Center facility team that power can be turned on.

7.4. Installations shall comply with the Air Force Instructions, Air Force Occupational Safety and Health (AFOSH) standards, and the Air Force Technical Orders (TO) listed in **Attachment 1** as well as all other applicable engineering technical documents. The other documents listed are provided for reference, and general compliance with those documents is strongly recommended.

7.5. Equipment cabinets shall be patina green in color with full side panels on each side. Classified equipment cabinets can be optional black or patina green. All others must submit a waiver to be evaluated on a case-by-case basis, with exception of the Tech Control areas. Panel blanks will be installed in all unused spaces in the cabinet. Cooling cabinet airflow will flow through the front of the cabinet, through the electronic device, into the cabinet interior, and out back of the cabinet using a fan to maintain positive airflow. No equipment shall blow warm air in the cold aisle. Engineering solution is at the mission partner’s expense. Equipment waiting until technical refresh will be handled by waiver to the CCRB chair. Cabinet installations shall include power strips that are compatible with the data center power management system (208V). Contact the facility manager for current cabinet technical criteria prior to purchase.

7.6. Cabinets (temporary or permanent) will only be sited by the facility/data center manager unless otherwise arranged. Prior to the approval of the installation of any cabinet, the

requester will advise the facility/data center manager of the cabinet weight to ensure that recommended floor loading is not exceeded (1,000lbs).

7.7. Floor penetrations will use a standardized hole compatible with Kold Lock 3030 grommets provided by the facility staff. The facility staff is responsible for making all floor penetrations. The program manager is responsible for the physical protection of the cable through the penetration (hole).

7.8. The sub-floor area is for the distribution of HVAC and thus considered a plenum. All cabling in the sub-floor area that is not in a metal duct or conduit must be plenum-rated IAW Article 800 of the National Electrical Code and National Fire Protection Standard 90A. All mission partners will utilize cable trays below the floor and above rack cabling in their design during technical refreshes of equipment. Cable management below the floor is done by each agency/program rows and racks. All abandoned wiring must be removed within 90 days of this regulation publication date, written notification from the CCRB or within 14 days of equipment removal. Cable management will be inspected semi-annually by QAO or the facility/data center manager. Data Cabling will conform to DISA stig colors; green for NIPR and Red for SIPR. Out of Band (OOB) management/administrative management shall be yellow or blue.

7.8.1. It is highly encouraged to transition to the above rack cabling for the safety of personnel not having to go into the subfloor. Above rack cable management will be installed above all racks. Two interconnection paths will be installed for row-to-row connections; mid and end of row. One is for customer use and the other is for inside plant use only as identified by data center management.

7.9. Obsolete equipment and cabling that are no longer required for operations shall be removed in its entirety. This directly pertains to subfloor under each agency's equipment rack/row.

7.9.1. Program managers or other personnel installing equipment in cabinets will ensure that the front and the back of each equipment cabinet are marked IAW **Attachment 7**. The front label will include cabinet number, program name and classification of processors, support point of contact, and point of contact phone number in at least Times New Roman 28 point font. The facility staff will mark rear label which will identify power distribution unit (PDU) or circuit breaker panel and the circuit breaker number(s). These labels will not be handwritten and will be easily readable by any person standing in the aisle in front of the cabinet. The labels will be prominently visible for use in emergency power shutdowns. Customers must update server ownership labels annually.

7.10. System managers will ensure the facility manager is provided a rack elevation diagram for each cabinet in PowerPoint or Visio format. Each agency will ensure that all programs will submit current rack layouts semi-annually or when a tech refresh takes place. Rack elevations will be provided within 90 days of this regulation publication date, written notification from the CCRB or within 14 days after technical refresh. The facility manager will maintain these documents for use by the Data Center CCRB.

8. Data Center Management.

8.1. The facility/data center manager will maintain a floor plan reflecting current and planned equipment locations. The data center will assign space for future expansion and customers will comply with their assignments.

8.2. The facility manager will develop a long-range plan for the management and assignment of power and HVAC load and brief this plan to the Data Center CCRB and the 375 CS/CC annually.

8.3. Rack/rows plus the subfloor cleaning beneath each customer's area is the responsibility of the customer/owner IAW AFI 91-203, Air Force Consolidated Occupational Safety Instruction, and **Paragraph 37.3.**

8.4. The facility manager will build an Equipment Designator Database (EDD) listing the electrical consumption, heat load presented, cabinet and equipment weight, and the rack space used by each device in each cabinet. Reports will be generated listing load by cabinet, load by power panel, load by room, cumulative load to the facility, and weight per square-foot of each cabinet. The database will reflect each piece of equipment brought into and out of the facility and include those used in administrative areas. The facility manager will maintain schematics of electrical services supporting IT in the facility and rack elevations (face equipment diagrams) of each cabinet.

8.5. The facility manager will publish and maintain plans and procedures for prioritizing and implementing the facility shed load plan should problems with the air conditioning or electrical services occur. The owner's board will make the restoral list to be followed by the Data Center staff.

8.6. The facility electricians will ensure each power distribution cabinet and each circuit breaker panel has an accurate panel schedule showing, at a minimum, all cabinets powered by that panel or power distribution unit circuit. These will be validated annually.

8.7. In the event of the loss of HVAC or power to the facility, the facility staff will contact the mission partner-provided POCs via M/CCC/CFP. Equipment will be shut down using shut down priorities and procedures previously identified in **Paragraph 4.3.** The customers must inform M/CCC/CFP of systems that are affected by power outages and continue to provide status updates until resolution.

8.8. Exceptions to Data Center policy will be considered on a case-by-case basis. Customer requests for exceptions will be submitted in writing to CCRB Chair. 375 CS/SCX will respond within 10 business days with a decision. Work on exceptions will not begin until the waiver has been officially approved. Noncompliant or unapproved equipment/systems or unapproved starts will be immediately removed/disconnected.

LESLIE A. MAHER, Colonel, USAF
Commander

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFI 17-130, Cyber Security Program Management, 31 August 2015

AFI 32-1062, Electrical Systems, Power Plants and Generators, 15 June 2015

AFI 32-1064, Electrical Safe Practices, 29 December 2016

AFI 91-203, Air Force Consolidated Occupational Safety Instruction, 15 June 2012

AFSSI 7702, Emission Security Countermeasures Reviews, 30 January 2010

T.O. 31-10-2, Air Force Communications Command (E-I Standard) – Standard Installation Practices, Fanning and Forming Conductors For Ground Comm-Electronic Equipment, 31 March 1999

T.O. 31-10-10, Air Force Communications Command (E-I Standard) — Standard Installation Practices, Anchoring Devices For Ground Comm-Electronic Equipment, 1 March 1973

T.O. 31-10-24, Air Force Communications Command (E-I Standard) – Standard Installation Practices – Comm Sys Grounding, Bonding, and Shielding, 15 November 2011

T.O. 31-10-27, Air Force Communications Command (E-I Standard) – Standard Installation Practices Equipment Designations, 1 September 1998

T.O. 31-10-29, Air Force Communications Command (E-I Standard) – Standard Installation Practices Erection and Assembly of CEM Equipment, 30 January 1992

T.O. 31-10-34, Air Force Communications Command (E-I Standard) – Standard Installation Practices — Fiber Optic Communications Cables and Connectors, 1 October 1998

BICSI Data Center Design and Best Practices, 002-2011, 15 March 2011

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ANSI/TIA/EIA TSB-67, Transmission Performance Specifications for Field Testing of Twisted Pair Cabling, October 1995

ANSI/TIA/EIA-526, Standard Test Procedure for Fiber Optic Fibers, Cables, Transducers, Sensors, Connecting and Terminating Devices, and Other Fiber Optic Components, September 1992

ANSI/TIA/EIA-568-B, Commercial Building Wiring Standard, May 2001

ANSI/TIA/EIA-607, Telecommunications Bonding and Grounding Standard, August 1994

ANSI/TIA/EIA-942, Telecommunications Infrastructure Standard for Data Centers, April 2005

GR-63-CORE, Issue 3 NEBS™ Requirements: Physical Protection, March 2006

DISA Circular 310-55-9, Base Level Support for the Defense Information System Network (DISN), 5 November 1999

MIL-HDBK-232A, Red-Black Engineering/Installation Guidelines, 24 October 2000

MIL-HDBK-419A, Military Handbook of Grounding, Bonding, and Shielding of Electronic Equipment and Facilities, 29 December 1987

MIL-STD-1542B, Electromagnetic Compatibility and Grounding Requirements for Space System Facilities, 15 November 1991

NFPA 70, National Electric Code, 2012 Edition

NFPA 13, Standard for the Installation of Sprinkler Systems, 2010 Edition

NFPA 72, National Fire Alarm Code, 2010 Edition

NSTISSAM TEMPEST/2-95, National Security Telecommunications and Information Systems Security Advisory Memorandum TEMPEST/2-95, 12 December 1995

UFC 3-560-01, Electrical Safety, O&M, 6 December 2006

Adopted Forms

AF Form 1199, Air Force Entry Control Card

AF Form 2586, Unescorted Entry Authorization Certificate

SF 710, Unclassified (Label)

Abbreviations and Acronyms

AFI—Air Force Instruction

AFMAN—Air Force Manual

AFOSH—Air Force Occupational Safety and Health

AFOSHSTD—Air Force Occupational Safety and Health Standard

AFRIMS—Air Force Records Information Management System

AMC—Air Mobility Command

ANSI—American National Standards Institute

ASI—Authorized Service Interruption

BICSI—Building Industry Consulting Standards Institute

CCRB—Configuration Control Review Board

CC—Commander

CG—Communications Group

CS—Communications Squadron

CIPS—Cyberspace Infrastructure Planning System

FPCON—Force Protection Condition

HAZCON—Hazardous Condition

HVAC—Heating, Ventilation, Air Conditioning

IAW—In Accordance With

IT—Information Technology

JPAS—Joint Personnel Adjudication System

MAC—Mission Assurance Category

M/ACCC—Major Command/Air Force Forces Communications Coordination Center

MIL-HDBK—Military Handbook

MIL-STD—Military Standard

NEC—National Electrical Code

NFPA—United States National Fire Protection Association

NIPRNet—Non-classified Internet Protocol Router Network

NISTISSAM—National Security Telecommunications and Information Systems Security Manual

OPR—Office of Primary Responsibility

PDA—Personal Digital Assistant

PDU—Power Distribution Unit

PM—Program Manager

PMO—Program Management Office

POC—Point of Contact

QAO—Quality Assurance Office

RDS—Records Disposition Schedule

RPP—Remote Power Panel

SCIF—Sensitive Compartmented Information Facility

SCX—Plans and Implementation Flight

SF—Standard Form

SIPRNet—Secret Internet Protocol Router Network

SME-PED—Secure Mobility Environment— Portable Electronic Devices

SMO—Security Management Office

TIA/EIA—Telecommunications Industry Association/Electronic Industries

T.O—Technical Order

UCMJ—Uniform Code of Military Justice

UFC—Unified Facilities Criteria

VAL—Visitor Access List

VAR—Visitor Access Roster

Attachment 2

DATA CENTER CONFIGURATION CONTROL REVIEW BOARD (CCRB) CHARTER

A2.1. Purpose. The Data Center CCRB provides oversight and management of equipment siting, electrical and HVAC load. The overall purpose of each board meeting is to ensure installed systems and equipment do not exceed facility capacity. Mandatory routings are EMSEC approval and QA notification prior to the CCRB board. After the board approval, the CIPS spreadsheet must be delivered to the data center manager prior to scheduling equipment arrival and installation. It is mandatory to have equipment QA inspection completed prior to power being authorized. Exemptions to this rule exist for emergency repair/replacement of mission essential equipment.

A2.2. Background. Demands for space in the Scott AFB Data Center continued to exceed available capacity of the facility. Previous incidents of excessive load jeopardized the ability of HVAC and generators to carry the load in HAZCON situations. An operational review board recommended establishing the Data Center CCRB.

A2.3. Scope. The Board will oversee implementation of this guidance and direct changes as necessary. The Board is responsible for coordination of plans, approval of waivers, and dissemination of information related to the management of the facility. The Board will review and approve/disapprove change requests at least bi-monthly. Technical considerations related to the HVAC and electrical load will be addressed. The board becomes a policeman for EMSEC, QA, ADPE, ATO, and other QA questions.

A2.4. Team composition. The Data Center CCRB is comprised of technical representatives from the following organizations:

A2.4.1. Voting Members:

A2.4.1.1. The 375 CS/SCX [Chair].

A2.4.1.2. United States Transportation Command (USTRANSCOM) J6.

A2.4.1.3. Army Surface Deployment and Distribution Command (SDDC) G6.

A2.4.1.4. Air Mobility Command (AMC) A6.

A2.4.1.5. Defense Information Systems Agency (DISA).

A2.4.1.6. Air Force Network Integration Center (AFNIC).

A2.4.1.7. The 561st Network Operations Squadron Det 3 (NOS).

A2.5. Membership Roles.

A2.5.1. Voting members review requests for changes/additions/removals, justifications, and approve or recommend strategies to reduce load.

A2.5.2. Representation by the chair and three voting members shall be considered a quorum.

A2.5.3. A simple majority of all voting members shall be used to determine if issues presented to the board pass or fail. In the event of a tie vote, the chair shall determine whether the issue passes, fails, or is tabled for further study. Upon approval of the this instruction this Charter will be considered approved.

Attachment 3

FACILITY MANAGER/CUSTOMER EXPECTATIONS

A3.1. Rack Power.

A3.1.1. Will be provided by the 375 CS/SCX electricians. They will provide/install a minimum of two red and two blue whips per rack; providing four 30A circuits using our standard L6-30 twist lock plugs. Breakers for unused whips would be set to off by default. Nobody but the facility electricians shall be in the facility's electrical panels. All four whip heads will be pushed up inside each rack for the customer to plug into.

A3.1.2. Each whip has a circuit designation, rack number and one or two stripes of colored tape to identify the source and corresponding panel. Customers will utilize A+B power by plugging of equipment to corresponding red and blue power strips. Power strip max capacity to ensure power redundancy and survivability is 12A (3890 Watts) per strip. This ensures that if A or B power fails that the other will continue to support to load. If 12A per strip is exceeded, utilization of another pair of strips is mandatory. Failure to follow this guidance may result in a loss of power to the rack in the event of communications equipment failure. Additional whips can be added for each rack by using a CIPS request.

A3.1.3. RPP sourced racks will have one or two strips of each color.

A3.1.4. PDU sourced racks can have up to four stripes.

A3.1.5. The power whip is the demarcation where the electrician's job ends and the customers' responsibilities' begin. The electrician shall place tape at the base of operational racks power strips to denote whether the whips red or blue keeping mission partners from getting under the floor.

A3.1.6. Rack mounted electrical strips without load (nothing plugged into them) may be plugged in by the customer.

A3.1.7. All new rack installations will have power plugged by the 375th electricians during the install.

A3.1.8. Do not use whips that are not designated for your racks. Customers must identify requirements for additional whips prior to installation.

A3.1.9. Customers will contact facility electricians during the prescribed time once QA inspection is complete to apply power to the in-use whips. Hours will be posted on the facility manager's door.

A3.2. Rack markings above the floor.

A3.2.1. The facility manager will provide C-Line envelope holder for each data center rack. Racks with multiple system owners will have multiple C-line holders.

A3.2.2. The facility manager will implement rack magnets for rack identity and circuit breaker information.

A3.3. Rack markings below the floor.

A3.3.1. The facility electrician is responsible for marking each whip head or just in front of the head with red or blue electrical tape denoting rack number and power source (A or B). The circuit number(s) will be written on the plug head.

A3.3.2. The mission partner/program/customer is responsible for marking their power strip plugs with facility provided electrical tape where the service cord (whip head) meets the strip so no confusion will exist as to which power source they are plugged into.

A3.3.3. Rack magnets with circuit marking must correspond with the whip head markings.

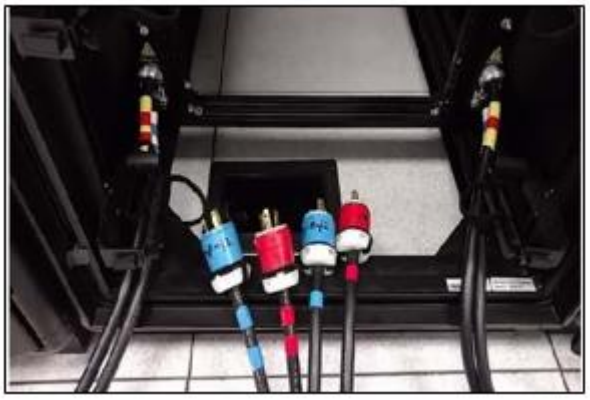
A3.3.4. Users will not use whips meant for other rows without first consulting the facility manager.

A3.4. Rack markings inside the rack.

A3.4.1. The mission/program/customer is responsible for marking the base of the power strip in the rack with facility provided electrical tape so no confusion will exist as to which power source they are plugged into.

A3.4.2. It is highly encourage to use colored red or blue power cords when performing a tech refresh or tape the server and power strip ends to demonstrate continuity so mistakes are reduced.

Figure A3.1. Example Power Strip Markings 1.



A3.4.3. Rack power strip example markings. Note the markings at the plug and where the cord at the strip are marked the same. Also, the plug head row-rack markings.

Figure A3.2. Example Power Strip Markings 2.

A3.4.4. Another example that shows uniformity of red/blue power on the power strips.

A3.5. Rack Grounding.

A3.5.1. General.

A3.5.1.1. The main components of the system under the floor is a Telecommunications Equipment Bonding Conductor (TEBC) which is run perpendicular to the rows in roughly the center of each row, the Rack Bonding Buss Bar (RBB) installed in each rack, and the internal ground connections to applicable devices in each rack. All grounding material will be purchased by the rack/equipment owners and installed by the facility electricians. All equipment will be grounded to the RBB in the rack by the rack/equipment owner. Noncompliance will result in QA findings which will impact the allowed support from the facility managers, electricians, and movement of equipment in and out of the facility. Below are the grounding specifications to adhere to.

A3.5.2. Telecomunications Equipment Bonding Conductor Connection.

A3.5.2.1. The TEBC is a pre-installed, stranded, 2/0 AWG wire with green insulation. The connection from the TEBC to each of the racks will be made with a green coated 6AWG stranded wire (REF: TIA-607-C, 7.5.8.1). The connection will be done utilizing an irreversible crimp connector sized to fit the 2/0AWG wire (REF: TIA-607-C, 7.5.8.1). Strip the insulation off the BC for 1.5 inches for each rack connection. Strip 1.5 inches off the end of the 6AWG conductor and using the split bolt, and bond the two wires together. Tighten using a combination of adjustable wrench and or standard wrench. See **Figure 1.1.** for details.

A3.5.2.1.1. Irreversible Crimp Connector Example: TIA-607-C, Page 26, **Figure 12**

A3.5.2.1.2. Do not daisy chain racks to the BC. Each rack MUST have a separate dedicated connection to the TEBC using 6AWG (REF: TIA-607-C, 7.1.4)

A3.6. Rack Bonding Buss Bar (RBB).

A3.6.1. The connection from the TEBC will terminate at the RBB using a 6AWG. The RBB will be installed on the bottom of the rack horizontally or vertically using insulators (REF: TIA-607-C, 7.4.1) Connections to the RBB to telecommunications equipment shall utilize two-hole lugs. Use an oxide inhibitor such as NO-OX to retard oxidation. (REF: TIA-607-C, 7.4.1)

A3.6.1.1. RBB example:

A3.6.1.2. For connecting the RBB to the rack, the use of nut and bolt or self-tapping, metal use screws are permissible however the RBB must have solid contact with the rack and no discernable movement once secured.

A3.6.1.3. Each RBB will have the cross section of at least 6AWG wire and will be UL listed IAW TIA 607-C 6.2.3.

A3.7. Required Equipment Connections.

A3.7.1. Any device that presents a ground terminal, stud, or hole for the express purposes of grounding the device is required to be connected back to the RBB.

A3.7.1.1. Whenever possible, utilize the manufacture provided hardware for grounding.

A3.7.1.2. If the connection layout is for a two-hole lug, a two-hole lug must be used and not a one-hole lug. If the connection layout is for a one-hole lug, a one-hole lug must be used.

A3.7.1.3. Use No-Ox in the lug prior to crimping the lug onto the conductor (REF: TIA-607-C, 7.4.1).

A3.7.1.4. Ensure the crimp connection on the end of the 6AWG wire is secure and less than 1/8" additional conductor is exposed once crimped.

A3.7.1.5. Two hole example (ensure hole size fits application): Panduit PN- LCC6-14A-L.

A3.7.1.6. One hole example (ensure hole size fits application): Panduit PN- 54905BE.

A3.7.2. Any device that does not present a manufactured grounding point is not required to be connected back to the RBB for the purposes of grounding. Ensure the equipment manufactures installation instructions are followed and all points of grounding are found and adhered to.

A3.7.3. All interior rack mounted Power Distribution Units (PDU) with a manufacture installed ground lug will be considered "REQUIRED EQUIPMENT" for grounding purposes.

A3.8. Tagging and Dressing Of Ground Conductors.

A3.8.1. All ground connections must be tagged on each end of the conductor with a ground tag. There is no exception for length of grounding conductor from RBB to equipment for double tagging of the conductor.

A3.8.1.1. The ground tag must identify that the cable is a ground and not to disconnect it. The tag must be affixed with a nylon cable tie tightened enough that the tag does not slide easily. Remove the tail of the cable tie flush with the head leaving a minimal tail.

A3.8.1.2. Ground Tag Example: PT-GND.

A3.8.2. The routing and dressing of the conductors should be done outside of the normal cable management for copper, fiber, and power. Keep the conductors neat and orderly but also visible for inspections.

A3.8.2.1. Do not hide the conductors in behind the edges of equipment.

A3.8.2.2. Do not use short pieces of cable that cannot be routed neatly against the side panels of the rack.

A3.8.2.3. When multiple runs are made in the same direction, bind them together with Velcro to enable modifications by future technicians.

Attachment 4

QA INSTALLATION COMPLETION CHECKLIST

Figure A4.1. Local Communications Quality Control Checklist (LCQCC), Part 1

LCQCC 300-4

375 CG Equipment Acceptance Inspections

Conduct a thorough inspection to determine whether or not, with regard to the inspection checklist item, the unit inspected is in compliance with standards (C), is in compliance, but with comments/improvement areas (CWC), is not in compliance with standards (NIC), or the item is not applicable (N/A). Capture specific examples in the report of how the item is assessed as either "C", "CWC", "NIC" or "N/A".

Use AFCQCCs IAW T.O. 00-33A-1001, General Cyberspace Support Activities Management Procedures and Practice Requirements

Bldg./Room #:		OPR:	375 CG/SCQ, DSN 576-5338
Date of Evaluation:		Report Date:	
Evaluator(s):			
Rating:			

375 CG/Quality Assurance, Form 3.2, revised May 2017 Previous Editions are Obsolete

- INSPECTION SUMMARY:

1. EQUIPMENT INSTALLATIONS WITH EXISTING INFRASTRUCTURE

Only items 1.1 - 1.23 will apply

Item #	ITEMS	Reference	Compliance (C, CWC, NIC)	N/A
1.1	Was a CIPS submitted to Base Communications Unit? Pertinent information required in the CIPS includes: - Electrical power consumed (amps) - Heat load (BTUs) presented - Cabinet and equipment weight - Rack space used by each component Do the installed materials match the CIPS request? Enter the CIPS number in the Comments Section. [Critical]	SAFBAFI 33-100, para 3.2		
Comments:			**CODE**	**CAT**
1.2	a) Was the cabinet sited by the data center manager and documented on the facility floor plan? b) Is the cabinet empty of all materials except the equipment identified on the CIPS? c) Have unused devices been removed from the cabinet?	AFI 91-203, para 30.1		
Comments:			**CODE**	**CAT**
1.3	Has a restoration priority been established with the customer for the new system/circuit? Has this information been provided to the CFP?	T.O. 00-33A-1001, para 3.3.6		
Comments:			**CODE**	**CAT**

Figure A4.2. Local Communications Quality Control Checklist (LCQCC), Part 2

1.4	Has accountability been established in AFEMS-AIM for all Sensitive IT Assets that were installed? Note: Sensitive IT Assets are IT hardware with persistent storage or are Internet Protocol (IP) network capable	AFMAN 17-1203, Para 2.1.2		
Comments:			**CODE**	**CAT**
1.5	Has accountability been established for equipment that was installed? (CA/CRL) Custodian Account & Custodian Receipt Listing?	AFI 23-101. para 5.3.8.1.3.4		
Comments:			**CODE**	**CAT**
1.6	Has the installation activity provided Interim Installation Records (IIRs) to the CSIR/CMDS/CVC manager?	T.O. 00-33A-1001, para 7.2.5		
Comments:			**CODE**	**CAT**
1.7	Did the owning work center ensure facility record drawings are updated in CIPS to include the new equipment? Cable and antenna data is to be maintained in CVC. Cyber transport equipment, drawings and records should be documented using the Inside Plant (ISP) function of CIPS.	TO 00-33D-3003 Para 3.1.2, 3.1.3, TO 00-33D-3004		
Comments:			**CODE**	**CAT**
1.8	Were rack elevations submitted to the facility manager?	Per local instructions		
Comments:			**CODE**	**CAT**
1.9	Does the location of the equipment conform to drawings?	T.O. 31-10-29, para 2-40		
Comments:			**CODE**	**CAT**
1.10	If the installed device(s) will process classified information, has the customer contacted Wing Cybersecurity Office to initiate the EMSEC process? [Critical]	AFSSI 7700, para 16.1		
Comments:			**CODE**	**CAT**
1.11	Are physical separation requirements met between classified processing cabinets, cables/wiring and unclassified processing cabinets, cables/wiring? Note: this requires an inspection by the Wing Cybersecurity Office. [Critical]	AFSSI 7702, para 4.1		
Comments:			**CODE**	**CAT**
1.10	If the installed device(s) will process classified information, has the customer contacted Wing Cybersecurity Office to initiate the EMSEC process? [Critical]	AFSSI 7700, para 16.1		

Figure A4.3. Local Communications Quality Control Checklist (LCQCC), Part 3

Comments:			CODE	CAT
1.11	Are physical separation requirements met between classified processing cabinets, cables/wiring and unclassified processing cabinets, cables/wiring? Note: this requires an inspection by the Wing Cybersecurity Office. [Critical]	AFSSI 7702, para 4.1		
Comments:			CODE	CAT
1.12	Is the equipment in the cabinet documented in the facility load shed plan?	Per local instructions		
Comments:			CODE	CAT
1.13	Is the data associated with the cabinet documented in the equipment designator database?	Per local instructions		
Comments:			CODE	CAT
1.14	a) Have all installation materials been removed from the facility? To include, alignment devices, technical literature, tools, test eqpt and electronic media. b) Has the area around the rack been cleaned of all scraps and minor pieces of trash?	Per local instructions		
Comments:			CODE	CAT
1.15	Is the cabinet front marked with the cabinet number, systems name, system classification, system point of contact, and point of contact phone number? Is the rear marked with the power distribution unit to which it is attached and the circuit breaker controlling its power?	Per local instructions		
Comments:			CODE	CAT
1.16	Is each electronic device installed in the cabinet marked in the upper left hand corner with a SF 710 or SF 711, as appropriate? Note that the location may be changed if the device face does not permit application of the label in that location.	AFI 17-1301 para 5.2.10, DoDM 5200.0, and DoD 5220.22-M		
Comments:			CODE	CAT
1.17	Have training products, AFJQS, AFQTP, for new systems been provided and added to the unit's training program?	AFI 36-2201, para 6.7.1.2, 6.7.1.23		
Comments:			CODE	CAT
1.18	Do mounting hardware, screws, bolts, or fasteners protrude beyond the uprights or nuts more than a distance equal to the diameter of the screw? Are all parts securely mounted? Are individual components mounted with the full complement of screws and washers?	T.O. 31-10-29, para 3-3a, 3-7, 3-32, 3-58h, and T.O. 31-1-75, para 1-47		
Comments:			CODE	CAT

Figure A4.4. Local Communications Quality Control Checklist (LCQCC), Part 4

1.19	Is all wiring between cabinets run in cable troughs?	ANSI/TIA Standard 942, para 7.5.2		
Comments:			**CODE**	**CAT**
1.20	Is all cabling run in the sub-floor plenum rated? [Critical]	ANSI/TIA Standard 942, para 7.5.5		
Comments:			**CODE**	**CAT**
1.21	Is a wire/cable management system in place and used?	T.O. 31-10-2, para 2-17, 31-1-75 para 1.2.9.2		
Comments:			**CODE**	**CAT**
1.22	Do communications-electronic grounding have an impedance to earth of 10 ohms or less?	AFI 32-1065, para 8, Table 1 and attachment A6.1; MIL STD 188-124B, para 5.1.1.1.3.1		
Comments:			**CODE**	**CAT**
1.23	Are cables marked at both ends with two separate identification markings at each end? ("To" & "From")	TIA/EIA-568-3.1 para 6.4.1.3		
Comments:			**CODE**	**CAT**
2. EQUIPMENT INSTALLATIONS WITH NEW INFRASTRUCTURE				
All items 1.1 - 1.23 and 2.1 - 2.13 will apply				
2.1	Are unclassified cabinets patina green? Are classified cabinets black or patina green? If not, has a waiver been approved by the data center management?	ANSI/TIA Standard 942, para 5.11.8 and local guidance		
Comments:			**CODE**	**CAT**
2.2	Are bases of equipment racks/cabinets secured to the floor?	T.O. 31-10-29, para 2-49 and 2-50		
Comments:			**CODE**	**CAT**
2.3	Do metal casings and cabinets have cracks, deep cuts, holes, or openings other than those required by specifications and drawings?	T.O. 31-1-75, para 1.3.6		
Comments:			**CODE**	**CAT**
2.4	Does the front cabinet door have at least 50% open space to facilitate cooling of equipment?	ANSI/TIA Standard 942, para 5.11.7.2		

Figure A4.5. Local Communications Quality Control Checklist (LCQCC), Part 5

Comments:			**CODE**	**CAT**
2.5	Is equipment plumb and level and aligned properly?	T.O. 31-10-29, para 2-39a and 2-42		
Comments:			**CODE**	**CAT**
2.6	Are cable racks level and aligned?	T.O. 31-10-6, para 3-34		
Comments:			**CODE**	**CAT**
2.7	Is the cabinet bolted to a seismic stand or bolted directly to the concrete slab? If the seismic stand is used, is it mounted I.A.W. its mounting instructions? [Critical]	ANSI/TIA Standard 942, para 5.11.6		
Comments:			**CODE**	**CAT**
2.8	Are overhead and under-floor cable racks properly supported? Are cable racks installed according to SIPTO guidelines?	T.O. 31-10-6, para 1-16, 2-4 to 2-50, 2-51 to 2-60, 2-69, 3-20, 3-21, and 3-31d		
Comments:			**CODE**	**CAT**
2.9	Are all conduits supported at intervals of 10-feet maximum?	T.O. 31-10-12, para 2-58		
Comments:			**CODE**	**CAT**
2.10	Are exposed conduit runs parallel or at right angles to the floor or walls?	T.O. 31-10-12, Para 2-20		
Comments:			**CODE**	**CAT**
2.11	When conduits penetrate walls, are the holes sealed once the conduit fixtures are in-place?	T.O. 31-10-12, para 2-24		
Comments:			**CODE**	**CAT**
2.12	a) Are cabinets and racks grounded properly? b) Is the effective path a permanent and continuous run? [Critical]	ANSI/TIA-607-B, para 7.1.4 T.O. 31-10-24 para 8.4.1		
Comments:			**CODE**	**CAT**
2.13	Are floor tile cuts no larger than necessary? Do floor tile cuts have edging or grommets along cut edges?	ANSI/TIA Standard 942, para 5.11.5		

Figure A4.6. Local Communications Quality Control Checklist (LCQCC), Part 6

Comments:	CODE	CAT

To:	(SCQ Superintendent)
Action Required:	Review/Route to Evaluatee's Supervisor
Action Required:	Action
Comments:	
Action Required:	Action
Comments:	
Action Required:	Info
Comments:	
Signature:	

Attachment 5

EQUIPMENT REMOVAL MEMORANDUM

Figure A5.1. Example Equipment Removal Memorandum.

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 375TH AIR MOBILITY WING (AMC)

Date

MEMORANDUM FOR 375 CS/SCX

FROM: Unit/Office Symbol
Address
Scott AFB IL 62225

SUBJECT: Equipment Removal From Building 1575

1. The following pieces of equipment from (your program) will be removed:

   a. Serial number list.

   b. Equipment

   c. Equipment

   d. Equipment

2. If you have any questions my point of contact for this effort is Mr. Douglas McKinney, facility manager, DSN 576-1887, email: douglas.mckinney@scott.af.mil

FULL NAME, Rank/Grade, USAF
Title

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ENABLING RAPID GLOBAL MOBILITY

Attachment 6

DATA CENTER ACCESS MEMORANDUM

Figure A6.1. Example Data Center Access Memorandum, Page 1

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 375TH AIR MOBILITY WING (AMC)

Date

MEMORANDUM FOR 375 CS/SCXF

FROM: Unit/Office Symbol
Address
Scott AFB IL 62225

SUBJECT: Building 1575 Access Letter

1. The following individuals are authorized unescorted access to building 1575. I have verified that all personnel have the appropriate security clearance, training, and a valid need to know.

Name, Last	First	MI	Rank	Required Room Access	Badge Number	CAC Expiration	Annual Controlled Area Training Date
Doe	John	D	A1C	C1,	5 digits	8/18/2016	Within last year

Please add these individuals:

Name, Last	First	MI	Rank	Required Room Access	Badge Number	CAC Expiration	Annual Controlled Area Training Date
Doe	John	D	CIV	C1,	5 digits	8/18/2016	Within last year

Please remove these individuals:

Name, Last	First	MI	Rank	Required Room Access	Badge Number	CAC Expiration	Annual Controlled Area Training Date
Doe	John	D	CTR	C1,	5 digits	8/18/2016	Within last year

2. This letter supersedes all previous letters from the office on this subject.

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ENABLING RAPID GLOBAL MOBILITY

Figure A6.2. Example Data Center Access Memorandum, Page 2

3. If there are any questions please contact XXXXXXXXX at phone number XXXXXXXXXX.

FULL NAME, Rank/Grade, USAF
Title

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Attachment 7

EQUIPMENT CABINET MARKINGS FOR C-LINE ENVELOPE HOLDER

Figure A7.1. Cabinet Marking Example.