

USDA Service Center
USDA/OCIO/ITS REQUIREMENTS

Addendum, Data/Voice Requirements
(Kansas – Revised June 2007)
New Space Only

This addendum provides a description of the data and voice cabling requirements for the proposed office in _____ (City). Wiring consists of CAT6, cable, terminating at quad/hex wiring plates and a central Lan/Wan wiring cabinet. The cabinet incorporates wiring for both computers and telephone systems. A wiring cabinet, with patch panels, will be supplied by the Government.

The local Site Coordinator, in consultation with the USDA State ITS Team, will coordinate the following requirements with the landlord/lessor. The floor plan must be approved by all parties.

Channeling for data and voice cable within the office building:

1. There is no distinction between data and voice cables.
2. The data/voice cables will run through the same conduit.
3. Channeling is to be via Wall Conduit or Power Poles. (Floor conduit in cement is not recommended.)
 - a. Separate or divided channels are required to separate electrical wires from computer/phone wires.
 - b. Wall conduit must be at least 1.25" inside diameter and be equipped with a dual (i.e. 2-gang) type insert box.
 - c. Power Poles – must be at least 2" inside diameter. (Recommend using Wiremold Model 25TP-4D. These are 2" square "divided" poles with area for 3 general use electrical outlet plus one orange outlet wired for "computer use only".)
4. Larger channels or multiple conduits/power poles must be used in the Computer Room (centralized CPU area) at designated "LAN/WAN cabinet" location. They must be of sufficient size or number to accommodate the convergence of ALL computer/voice cables from throughout the new office building.
5. Quad/Hex Plates will need to be provided and terminated using the T568A wiring specifications. Typically each employee will require a quad/hex plate, and in most cases will fall within the ratio of plates as follows:

Office Size	Number of quad/hex plates
3 – 5 people	1 per person plus 5
6 – 14 people	1 per person plus 6
15 – 22 people	1 per person plus 7
23 – 29 people	1 per person plus 8
30 – 45 people	1 per person plus 9
46 – 57 people	1 per person plus 9
+ 1 in break room and 1 in conference room	

6. Typically three ports in the quad plate will be available for computer cables and one port for telephone. Depending on the number of devices at a desk, it may require a hex plate.
7. All cable runs will be CAT6, 568B for new construction.
8. Cables will terminate at the LAN/WAN cabinet and be punched down with the numbering on a quad/hex plate basis; i.e., 1A, 1B...1D, 2A, 2B,2E, 2F, etc...

COMPUTER ROOM ENVIRONMENTAL REQUIREMENTS

When cable consists of multiple runs, the Lessor shall provide cable trays or J hooks to insure that the cable does not come into contact with suspended ceiling.

DEDICATED ELECTRICAL CIRCUITS AND OUTLETS FOR ADP EQUIPMENT

1. Provide and install dedicated electrical circuits with isolated grounds in the Computer Room. Dedicated circuits must be 110 volt, 20-ampere standard three-prong circuits with true earth ground terminated into orange or other uniquely marked ("computer use only") duplex outlets. Provide and install duplex outlets for each dedicated electrical circuit in the Computer room. Dedicated electrical circuits will be used for the telephone systems. The main electrical panel for the computer/voice (if computer/voice is available) equipment will be properly grounded to meet EIA/TIA and FIPS standards
2. Provide dedicated electrical circuits with multiple outlets at designated locations throughout the service center with multiple outlets to accommodate the peripheral equipment (i.e. computer workstations, printers).

3. Provide circuits for servers

The Electrical Requirements:

- a. Dedicated Circuits – will be required for use by the Uninterruptible Power Supply (UPS).
- b. Circuit – will be 2 (two) 120 volt, 30 amp minimum with true earth ground, terminated into a twisting-lock receptacle. Each dedicated circuit must have insulated, isolated earth ground; conduit ground is not acceptable.
- c. Receptacle – will be a NEMA L5-30R twist-locking receptacle. (See Figures 1 & 2 below for plug and receptacle).
- d. Location for the UPS receptacle– will be located in the ADP/Computer room where the LWV cabinet is installed. The receptacle will be located within a maximum of 4.5 feet from the back of the USDA wiring cabinet.

Figure 1

Illustrated to the right is a 30AMP plug (NEMA L5-30P) which has three prongs.



Figure 2

Illustrated to the right is a 30AMP receptacle (NEMA L5-30R). After inserting the plug into a 30A receptacle (NEMA L5-30R), twist it slightly to ensure a solid connection.



4. Peripheral outlet locations should be in sufficient number to provide for flexibility in moving the location of the peripherals and/or allow for future acquisitions.
5. Load on each circuit with multiple outlets is to be balanced and is not to exceed 80%. PCs pull max. of 4.0 amps each, laser printers 7.0, impact printers 5.0.

PLYWOOD

Installing one 4 foot x 8 foot of plywood vertically mounted on the wall in the Computer Room within 3 feet of an electrical outlet and the wiring cabinet. The backboard should be attached to the wall using correct mounting hardware and procedures. If the wall is sheet-rocked, attach the backboard to the studs. If the wall is concrete, attach the backboard using anchors. The backboard should be painted with fire retardant paint the same color as the interior walls of the building. This will be the extended demarcation point and for the installation of phone equipment.

TELEPHONE SYSTEM

The local phone company is to pull phone lines from outside the building into the wiring cabinet area leaving 3' of cable hanging from wall for later termination by a contractor under the USDA National Telephone Contract.

The USDA phone system contractor will mount the "key" system (KSU) and terminate the lines with connections by punchdown onto blocks. The KSU will be wall mounted and will be located adjacent to the wiring cabinet in the ADP room area (NOT a mechanical closet or similar). Phone System Contractor will label key system and panel at time of termination.

A telephone demarcation point (D-mark) must be provided on a type 66S block on the backboard for all telephone lines prior to the move date. The telephone system will be moved by USDA to the new office and will be installed by USDA technicians during move-in.

The landlord/lessor will be responsible for integrating the phone system into the wiring of the office by connecting the blocks terminated by the phone system contractor into the "voice" patch panel (provided by USDA) in the wiring cabinet.

When completed, the telephone system will connect to the wiring cabinet and the 25 pair cable will bring phone service to the wiring cabinet. This will allow the desk telephone sets to connect to the phone system using the quad/hex plates at the desk locations and a connection by patch cable in the wiring cabinet.

Fax and Modem Lines: The new office space will have one fax line. One modem line will be installed if required by specific agency applications.

Other Office Voice Lines: All phone system lines to work area throughout the new office space are included in the data lines from the patch panel to Quad Plate connections and no separate phone cabling or separate outlets are required. The phone system will be provided by the Government.

DATA CABLING/TELECOMMUNICATIONS

1) General Specifications

All premise data/telecommunications cabling will comply with TIA/EIA 568B. All cabling will meet local building codes.

2) Copper Cable Installation

- a. Provide, place, terminate and test CAT6 certified Unshielded Twisted Pair (UTP) cables according to applicable standards.
- b. Data cable and voice cables shall be terminated with CAT6 compliant terminations (patch panels, wall outlets, etc.).

3) Copper Cable Specifications

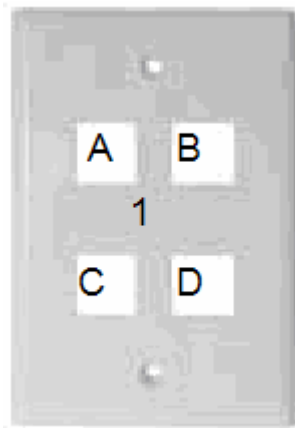
All cable equipment and materials must be manufactured by facilities that are International Organization for Standardization (ISO) 9001 registered and certified as follows:

- a. Shall be CAT6 rating in accordance with ANSI/TIA/EIA 568B.
- b. Shall be four-pair, UTP, 100-Ohm, 24 American Wire Gage (AWG).
- c. The selected cable must have contiguous, two-foot segment-length markers printed on the cable jacket. The markings must also show cable manufacturer, cable model number or name, cable part number, CAT6 designation, a UL or ETL verification designation, a CMP type, and a “tested to 350 Mhz” or above designation.
- d. Shall be tested and certified by the installer to comply with the previous requirements.

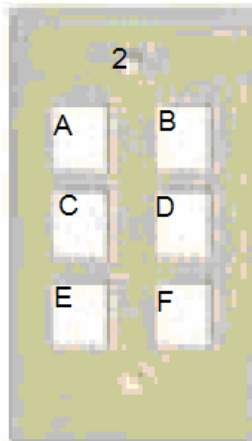
4) Wall I/O Face Plates

Work Area Input/Output Connections

Work areas will have a quad or hex outlet plate connector with four or six RJ-45 connectors (see diagram). Extra outlet plate connectors will also be required in some common areas. All drops will be identified and numbered on the office floor plan prior to installation. Each of the four or six connectors will be cabled with 4-pair UTP cable. The data cables will be category 6 as listed in the cable specification block. These cables will be terminated with RJ-45 connectors at the device end. The other end will be punched down on an RJ-45/110-type patch panel in the Lan/Wan/Voice wiring cabinet. Each quad plate MUST be labeled with the work station number (1,2 etc.) and the A, B, C etc. format. Each connection MUST be identified as (1A, 1B, 2A, 2B, etc.) on the corresponding patch panel location.



Quad Plate
 Quad Plate – Ports A, B, C – Data
 Port D- Phone



Hex Plate
 Hex Plate – Ports A, B, C, D, E - Data
 Port F – Phone

LAN/WAN/VOICE CABINET

The government will provide this wiring cabinet. A wire service loop will be provided during wiring to allow the cabinet to freely move a minimum of 6 feet in any direction. The RJ-45/110 type patch panel

must be mounted in the cabinet in the place designated by the Government. The contractor will supply the appropriately-sized patch panel based upon the number of quad and/or hex outlet plates. It will be the responsibility of the USDA State ITS Team to move the LAN/WAN cabinet to the new location prior to the moving in of the agencies to avoid downtime.

Lessor is responsible for:

TESTING AND CERTIFICATION

All cables, both data and voice, will be tested and certified after installation, by a Category 6 certified installer, to meet Category 6 requirements and continuity via electronic format. A printed CAT6 certification will be signed by the CAT6 certified installer and provided to the lessee(s) by the Lessor.

CABLE PLANT DRAWINGS

Once the electrical work and cabling is completed, a cable plant drawing showing all wiring, including data and voice drops will be provided to the lessee(s) by the Lessor.

JOINT UNDERSTANDING BETWEEN THE GOVERNMENT & LESSOR REGARDING STANDARD WIRING STANDARDS & SECURE ADP ROOM

The Government reserves the right to make any modifications to comply with the above specifications and install its own voice and data cabling.

Certification

I, _____ certify that the work described herein
(printed name of Lessor)

This Addendum, Data/Voice Requirements, has been completed as specified.

Date: _____ Signature: _____