NRE FS CIO

Facilities Move Support Team

GUIDE FOR TYPICAL INSTALLATIONS

USDA IT SERVICES INFRASTRUCTURE FOR SMALL FACILITIES

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1.01 ADI–GUIDELINES FOR TYPICAL INSTALLATIONS

A. Purpose-

1. The purpose of this document is to summarize information relating to USDA Agency Designated Internet (ADI) and USDAnet hardware if it is required to be co-located within a small site without any prior IT infrastructure.
2. Many requests have been made for new and additional IT services orders for facilities that have been neglected of improvements to the IT infrastructure, cabling, and space to install for these new orders, The guidance in this doc is to advise and guide local facility managers on minimum requirements to meet USDA infrastructure requirements for security and Access control of Government owned IT hardware and systems.
3. The goal for the information presented is for Facility IT infrastructure improvements needed for extension of the ADI network within the main facility and outlying facilities as applicable.
4. Examples and recommendations included for a typical IT Equipment installation and extension of services to other buildings on a compound.
5. Local Unit cannot acquire any other IT hardware, AKA wireless Access Points or additional switches to add to their existing system through Forest funding or acquisition channels. Only USDA OCIO can authorize acquisition of approved hardware.
6. Standard ADI or USDA net Installation can include the following hardware:
   a. Vender Provided hardware equipment may include -
      i. Fiber optic cable delivery
      ii. Broadband cable delivery
      iii. Wireless bridge delivery
      iv. Satellite delivery

1.02 REFERENCE DOCUMENTS

A. DR 3300-001-K for guidance or latest version

B. USDA ADP and wiring guide v3.0 or latest

C. ANSI/TIA-568 - a technical standard for commercial building cabling for telecommunications products and services.

1.03 ADI STANDARD HARDWARE INCLUDES

A. Meraki Router- MX-67 or 75

B. Meraki Switch MS 130-8FP

C. Meraki Wireless Access Point MR 36

D. Meraki Licenses for Equipment-

1. If additional switches or Access (AP's) are required, please notify the CIO for additional approval to ensure the solution to extend services does not hinder or violate the managed service terms and conditions for the overall delivery. Managed service of the non-enterprise ADI is through AT&T.

1.04 USDANET HARDWARE DEVICES

A. LEC owned -Cisco Network Switch 8 port

B. LEC owned -Cisco Catalyst 8200 router

C. LEC owned - ADVA Provider Network interface device

D. USDA Enterprise Cisco switch 12,24or 48 port switches for patching user devices

1.05 ADI DEFINITION AND USES

A. Agency Dedicated Internet (ADI), is for devices that have not traditionally been allowed on the USDA enterprise network, Facility Systems such as tree coolers, pump houses, fuel Monitoring Systems, building automation systems, alarms systems, (PIAB) Pots in a box device, remote monitoring devices, & co-operator visitors internet access and Interagency dispatch centers and Internet over Things (IoT).

B. When connected to the internet hard wired or Wi-Fi:

1. ADI is a convivence, broadband, wireless solution via wireless Access point (WAP)
2. ADI will allow you to connect to the USDA network via VPN with the USDA employee identification HSPD12 Lincpass card
3. ADI does not support Enterprise networked printing connected to VPN or not.
4. ADI will allow you to open and use your Outlook and Teams application on your PC without connecting through VPN and recreational Wi-Fi for admin use.
5. ADI is allowed for Bunkhouses and Shared Residence internet.
6. ADI with VPN will allow use for enterprise applications such as Box and HR connect
7. ADI can be used for internet access for students, cooperators, visitors and interagency collaborators for official work.

1.06 USDANET ENTERPRISE DIFFERENCES VS ADI USE

A. Typical office use for PC users and full access for all traditional enterprise government services and networked printers.

B. VPN not required for traditional applications and databases, networked printers, Box, HR connect, paycheck

C. For agency imaged PC users, Enterprise Wi-Fi connects automatically if you are in the office and not hardwired

1.07 ADI INSTALLATION REQUIREMENTS FOR INFRASTRUCTURE

A. If the facility has an established IT room with existing IT cabling infrastructure in place that includes IT room racks or cabinets, all ADI network equipment can be mounted in existing rack space and be used on the existing cabling infrastructure in already in place.

B. It is recommended to have a single Cat 6 cable run installed from the IT room above the ceiling to the desired coverage area needed for the standard offering wireless access point to be mounted to provide optimum signal for Wi-Fi users. Installation should follow reference document practices to address typical field conditions which could interfere with the performance of the Wi-Fi hardware.

1.08 FOR FACILITIES NEEDING IT INFRASTRUCTURE IMPROVEMENTS TO MEET USDA STANDARDS FOR SECURITY AND ACCESS CONTROL FOR INSTALLED GOVERNMENT OWNED IT HARDWARE AND SYSTEMS.

A. This section is for guidance and recommendations to install IT support infrastructure components for a basic standard offering for ADI system and its associated hardware in a facility without little or any prior IT infrastructure.

B. These basic requirements are for a dedicated IT cabinet for ADI network equipment and associated IT infrastructure. More detailed requirements are needed for a full IT room upgrade or remodel project.

C. If there isn't ethernet cabling already in place for this established facility, Refer to DR 3300-001-K and ANSI/TIA-568 for guidance running additional Cat 6 cabling to Wi-Fi locations if needed.

D. Identify a space in the intended facility.

1. It's recommended the new IT space be inside in a conditioned space on an outside wall on the front of the facility that leads to the roadway into the facility.

2. The following recommended requirements for facility IT infrastructure are the basic groundwork items needing installed-examples and recommendations to be provided in sections to follow.

a. **Plywood backboard** – 4'x8'size, fire-rated and properly secured to the wall (stud or masonry) with some modifications allowed to accommodate space

b. **Wall mounted IT cabinet** – choose 1 for scope of installation – (A) HWD 25"x24"x26.5" or (B) HWD 42"x24"x 36" - modifications are acceptable that meets the requirement for secure access.

i. Where a wall mounted enclosed cabinet rack is installed, it's recommended for a minimum of 36" of clear space around the wall mounted rack.

c. **Grounding** – Copper telecommunications ground buss bar with stand offs- see below section

d. **Dedicated 120vac 20amp AC circuit** if not already present to power a UPS- see below- recommend installing 20A receptacle in back box of cabinet if new addition,

e. **UPS** – uninterruptable power supply, rack or floor mount

f. **PDU**- Power distribution unit, 8 outlet capacity for ample power distribution

g. **Cat 6 cabling** for Wireless Access points and user workstations

h. **Conduit** - a pathway to the outside of the facility to allow the provider to route the entry cable inside to the hardware, a 2" minimum is standard - see below section for additional info, verify if other requirements are applicable

1.09 PLYWOOD BACKBOARD FOR WALL MOUNT CABINET

A. This backboard is only for installations where any previous IT backboard does not exist.

B. Backboard sheets shall consist of one, (4 feet by 8 feet by 3/4 inch), with deviations allowed for size to accommodate available space allowances. The plywood should either be CDX interior fire treated, or ACX plywood backboard painted with a minimum of 2 coats of light gray fire-retardant paint. (Fire-rating stamp must masked off and unpainted - visible.) Install

these backboards at locations where equipment rack is to be installed and allow for adequate NEC clearances for doors.

C. Install the plywood vertically at 18" Above floor finish (AFF) and anchor securely to wall substrate (masonry or studs) with equally spaced fasteners along each vertical edge and down the centerline of each sheet of plywood. Fasteners must be flush with surface of backboard. Fasteners shall be of the appropriate type for each substrate. Provide blocking or additional studs in framed walls to receive plywood backup panel fasteners. Installed plywood should be able to hold up to 300 pounds

D. Anchor the backboard securely to wall substrate with a minimum of five (5) equally spaced fasteners along each vertical edge and down the centerline of each sheet of plywood. Fasteners must be flush with the surface of backboard. Fasteners shall be of the appropriate type for each substrate. Provide blocking or additional studs in framed walls to receive plywood backup panel fasteners.

1.10 IT HARDWARE CABINET

A. IT wall mount equipment racks and cabinets are available in black and made of aluminum or steel metal and must have an internal width of 19-inches.

B. The rack depth needs to be coordinated with depth of UPS

C. Its recommended wall mount cabinets are the swing out / left or right style and have cooling fan options installed if they are placed in an unconditioned space

D. **Example A for Small to Medium sites** with ADI network and small-scale govt enterprise USDANet network, less than 18 cable runs or users. HWD =25”x24”x26.5”

1. Kendall Howard model # KH-3132-3-001-12
   a. 12U of equipment space for mounting hardware
   b. Follow manufacture assembly and installation instructions
   https://www.kendallhoward.com/product/12u linier-swing-out-wall-mount-cabinet-vented-door/
2. Procurement Source
   https://www.gsaadvantage.gov/advantage/ws/catalog/product_detail?gsin=11000058071465
3. Shelf for organization- Kendall Howard model # 1906-3-008-01
   https://www.kendallhoward.com/product/1u-vented-4-point-adjustable-shelf/
4. Procurement Source.
   https://www.gsaadvantage.gov/advantage/ws/catalog/product_detail?gsin=11000015595483
5. PDU for power distribution Hammond Part # 1589T8F1BKRR
   https://www.hammfg.com/dci/products/accessories/1589-rf-rr
6. Procurement Source.
   https://www.gsaadvantage.gov/advantage/ws/search/advantage_search?q=0:81589T8F1BKRR&db=0&searchType=0
7. Fan for Cooling: Kendall Howard model # 1908-4-001-01
   https://www.kendallhoward.com/product/high-speed-fan-assembly-kit/
8. Procurement Source.
   https://www.gsaadvantage.gov/advantage/ws/catalog/product_detail?gsin=11000058053949

E. **Example B for larger sites** with ADI network and multi-users devices with government enterprise USDANet network, more than 18 cable runs or user devices HWD =42”x24”x36”

1. Hammond model # HWM2420U26BK
   a. 20RU of equipment space for mounting hardware
   b. Follow manufacture instruction for assembly and installation
   https://www.hammfg.com/part/HWM2420U26BK?referer=132
2. Procurement Source.
   https://www.gsaadvantage.gov/advantage/ws/search/advantage_search?q=0:8HWM2420U26BK&db=0&searchType=0
3. Shelf for organization - Hammond model # ADSV2536BK
   https://www.hammfg.com/dci/products/accessories/ads
4. Procurement Source.
   https://www.gsaadvantage.gov/advantage/ws/search/advantage_search?q=0:8ADSV2536BK&db=0&searchType=0
5. PDU for power distribution Hammond Part # 1589T8F1BKRR
   https://www.hammfg.com/dci/products/accessories/1589-rf-rr
6. Procurement Source.
   https://www.gsaadvantage.gov/advantage/ws/search/advantage_search?q=0:81589T8C1BKRR&db=0&searchType=0
7. Fan for Cooling: Hammond model # DNFK1AC120
   https://www.hammfg.com/dci/products/accessories/fk
8. Procurement Source.
   https://www.gsaadvantage.gov/advantage/ws/search/advantage_search?q=0:8DNFK1AC120&db=0&searchType=0

F. Wall mount rack for network EQUIPMENT EXAMPLE

1. Typical layout of ADI hardware installation, all items shown may not apply, only shown for reference
   a. TMGB ground bar is mounted on the plywood next to the rack, expanded here to show more details

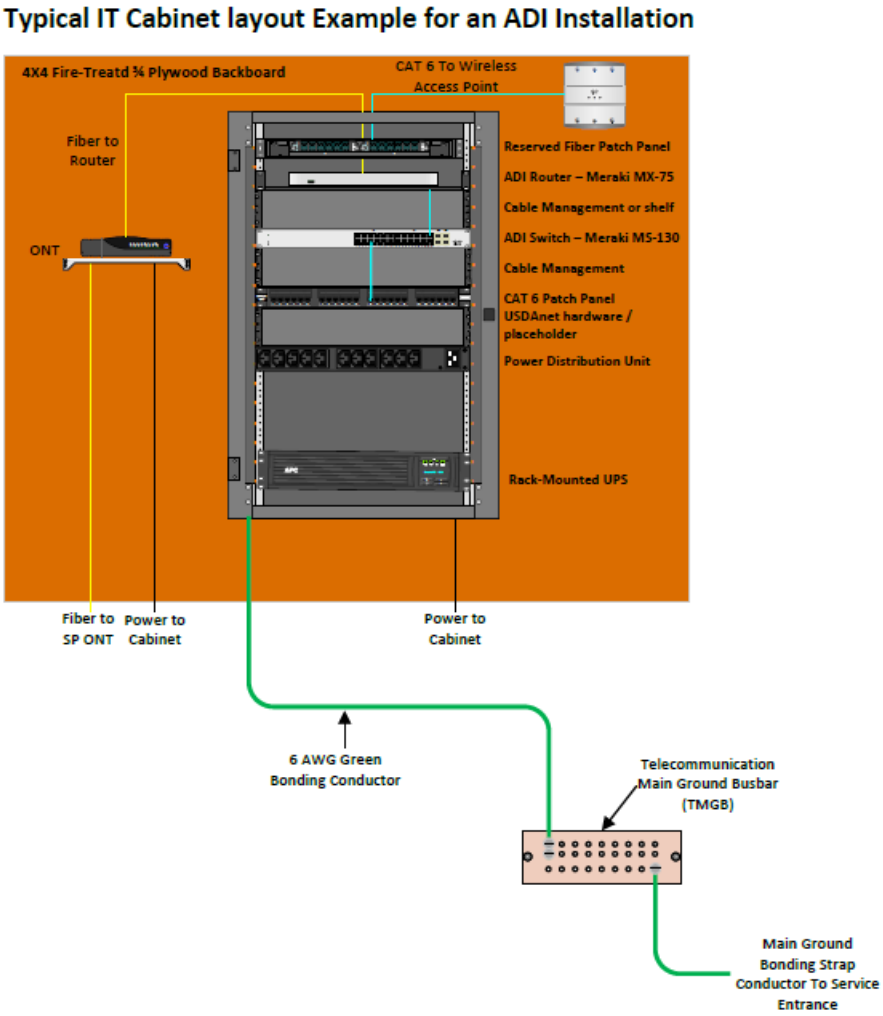

Figure 1 Typical Wall Cabinet layout

1.11 GROUNDING

A. If it is not already present, the main IT Equipment location will be equipped with a dedicated Telecommunication main bus bar (TMGB). The TMGB shall be bonded to the main building service ground bus bar PBB at the building service panel ground bus.

B. Provide for each affected building a main building ground bus PBB at the service panel locations. per EIA/TIA standards near wall mounted enclosed equipment cabinet and properly bond copper building entrance terminal and cabinet using conductors in table below, stranded, green jacketed ground cable with two-hole, long barrel (double crimp) grounding lugs on each end of the ground cable.

C. Bond wall mounted cabinets to TMGB with #6 AWG (American Wire Gauge) CU

1. Sizing of Ground Cable TMGB to PBB

TMGB/PBB **Length Linear (ft.)**	TMGB/PBB Size (AWG)
Less than 4m (13)	6
4 – 6 (14 - 20)	4
6 – 8 (21 - 26)	3
8 - 10 (27 - 33)	2
10 – 13 (34 - 41)	1
13 – 16 (42 - 52)	1/0
16 – 20 (53 - 66)	2/0
Greater than 20 (66)	3/0

D. Building grounding systems

1. Verify if existing building service ground systems has at least 2 10’ x 5/8” ground rods bonded to main service external PBB ground bus.

1.12 TELECOMMUNICATIONS GROUND BUS BAR AND PARTS EXAMPLE

A. Telecommunications Ground Bus Bar with standoffs and Parts example shown – TMGB

B. Example (TMGB) 2inch x 10inch in size, Hubbell Premise Wiring HBBB14210A

1. https://www.hubbell.com/hubbellpremisewiring/en/products/grounding-and-bonding-bus-bar-2-x-10-8d-insulated/p/557660
2. Procurement Source. https://www.gsaadvantage.gov/advantage/ws/search/advantage_search?q=0:8HBBB14210A&db=0&searchType=0

C. Proper lugs shown below for irreversible crimp style bonding to Facility’s grounding point

Figure 2 Telecommunication Ground Bus Bar with associated parts

1.13 POWER

A. Provide a minimum of 1ea, dedicated 120 V nominal, non-switched, AC duplex electrical outlet on a separate branch circuit for a UPS to power the network equipment. These receptacles shall be rated at 20 Amps, Nema 5-20R and be connected to a dedicated 20 AMP branch circuit. In some cases, a UPS may require a different receptacle.

B. If a new outlet is needed, install the 20A 120VAC receptacle in compliance with local electrical code, in the back pan of the cabinet to plug in a UPS.

C. It's recommended that electrical outlets be labeled with printed labels to indicate the serving power panel and breaker.

1.14 POWER DISTRIBUTION UNIT (PDU)

A. See Example B&C above for recommendations - Hammond Part # 1589T8F1BKRR

Figure 3 Example Power Distribution Unit

1.15 UNINTERRUPTABLE POWER SUPPLY, (UPS FOR CABINET) RACK OR FLOOR MOUNT

A. Coordinate UPS depth with cabinet ordered. UPS depth determines cabinet depth.

B. **Optional Example for a small site** with minimum devices to support-ADI network only

1. Tripp Lite SMART1500RXLTAA
https://tripplite.eaton.com/1440va-1440w-line-interactive-ups-sine-wave-8-outlets-taa~SMART1500RXLTAA
2. This model has a 15 amp, 5-15P input plug and fits within the Example A small site cabinet. 23lbs, HWD= 3.4 x 17.2 x 17.6
3. Procurement source
https://www.gsaadvantage.gov/advantage/ws/catalog/product_detail?gsin=11000116192052

C. **Example A for a Small to Medium site** with multi-users devices with govt enterprise

1. Tripp Lite-UPS – model SMART2200RMXL2TAA
https://tripplite.eaton.com/taa-smartpro-120v-2.2kva-1.92kw-line-interactive-sine-wave-ups-2u-extended-run-network-card-options-lcd-usb-db9~SM2200RMXL2UTAA
2. This model has a 20 amp, 5-20P input plug and fits within the Example B Medium site cabinet – 57lbs – HWD=3.46 x 17.32 x 19.29
3. Procurement source.
https://www.gsaadvantage.gov/advantage/ws/catalog/product_detail?gsin=11000005514226

D. **Example B for Large site** with multi-users devices with ADI & Govt enterprise IT hardware

1. APC Smart-UPS model SMX2000RMLV2U
https://www.apc.com/us/en/product/SMX2000RMLV2U/apc-smartups-x-line-interactive-2000va-rack-tower-convertible-2u-100v127v-3x-515r+3x-520r+1x-l520r-nema-smartslot-extended-runtime/
2. This model has a 20 amp, 5-20P input plug and fits within the Example B large site cabinet. 85lbs, HWD = 3.35 x17.01 x 26.26

3. Procurement source. https://www.gsaadvantage.gov/advantage/ws/search/advantage_search?q=0:8SMX2000RMLV2U&db=0&searchType=0

1.16 OUTSIDE CONDUIT

A. Define where outside conduits need to be placed per LEC FO cable for Internet Service Provider (ISP) incoming cable to the IT cabinet / wall rack area.

B. Any conduit exiting the ground cover will be UV rated, Schedule 40 PVC Sch 80 under traffic roadways as a minimum. All conduits will be placed in a trench or directional bore 36” to 42” depth to ensure a minimum coverage of 24 inches below the finished grade. Any new conduit installed below grade should include tracer wire, also called locating wire or locator wire, which helps locate conduits after they've been buried in the ground and prevents accidental disconnect.

C. Where ducts are placed under primary paved roads, separate bores for each duct shall be accomplished to minimize undermining of the roadway spaced as closely as possible to each other. Consult the unit engineering community and your IT specialist to verify the correct installation requirements.

D. It is recommended that a pull string be installed in all vacant conduits after final placement. After routing cables through the conduits, the conduit should be sealed around the cable with waterproof fire-retardant sealer to prevent water seepage and or pest infestation.

1.17 INSTALLATION

A. When a contractor is considered for installation, it is recommended they furnish and install all material required for a complete system, including installation of communication cables, installation of communication outlets, and termination and testing of all cables in the Entrance Facility, the Equipment Room, and TR.

B. A one-year materials and labor warranty is recommended to be provided on all cable and hardware installed by the telecommunications contractor. This is in addition to any factory warranties that product manufacture include with their products installed.

1.18 TEST RESULTS

A. It’s recommended the contractor test and certify all fiber optic and twisted-pair cables according to ANSI/TIA-568 requirements and provide documented results of the testing. If any cable run tests are defective, the contractor should be liable to replace defective cable, and retest and to meet network performance requirements. Pass or fail results.

1.19 AS-BUILT DRAWINGS AND INFORMATION:

A. It is recommended to request a low voltage Contractor to prepare as-built drawings and documents upon completion, all in electronic PDF format.

1.20 QUALIFICATIONS

A. Installation contractors are required to be licensed in the state where the work is performed, qualification verifications to be addressed in contact documents.

B. The Contractor shall be a company specializing in the installation of Telecommunications Structured Cabling Systems with the following qualifications:

C. Demonstrated minimum of 5 years' experience installing structured cabling and related pathways and spaces, grounding and bonding and firestopping systems for telecommunications material to the scope contained in the PWS.

D. Contractor selected must be an authorized installer of the approved end-to-end solution at the time of the proposal. Proof of manufacturer authorization must be provided at the time of the proposal.

E. Contractor shall provide personnel trained and certified as follows:

1. Single mode and multimode fiber optic cabling, splicing, termination and testing techniques in compliance with BICSI and manufacturer best practices and TIA standards. Personnel must have experience using a light meter and OTDR.

2. UTP, FTP, STP category-rated copper cable installation and termination including the use of a Level 3 tester

1.21 SUBMITTALS AND PROPOSAL REVIEW

A. Review proposal by contractor with COR and CIO SME.

1. Review proposed bill of material technical drawings and installation plan.

1.22 WIRELESS ACCESS POINTS INSTALLATION AREAS. (WAP)

A. Define where coverage areas are needed by local user requirements. Conference rooms, common areas, and types of devices to be supported.

B. Standard offering is for one (1each) WAP that typically provides good coverage within 20 meters (66 feet) of coverage in open air unobstructed space.

1.23 ETHERNET PATCH CORDS

A. Ethernet patch cords are recommended to match the grade of IT cabling installation. 2 Patch cords will be minimum for each drop location. Minimum of Cat 6.

1.24 LABELING AND DOCUMENTATION

A. User /device WAO Labeling should match corresponding numbers at the WAO and Patch panel.

1.25 EXTENTIONS TO OUTLYING FACILILITES USING FIBER OPTIC CABLE INFRASTRUCTURE ALREADY IN PLACE

A. It's recommended to use the existing fiber infrastructure between facilities that is already in place, if possible, Established Facilities usually have vacant fiber optic cable strands that can be utilized.

B. Provide photos to CIO SME to help determine if capacity is available and to identify type and grade of fiber optic cableing already in place between facilities that could be utilized.

1.26 IF FIBER CABILING INFRASTRUCTURE DOES NOT EXIST FOR NETWORK CONNECTIVITY TO OUTLYING BUILDINGS ON A COMPOUND

A. The recommended solution is Fiber Optic cable between buildings.

B. Fiber Optic F/O cables should be buried as site conditions allow. Underground conduit with innerduct or micro duct or new micro trench installations may be considered based on fiber pairs required. Aerial Fiber may be an option for some installations.

C. Multimode type for physical distances up to 985 feet for 62.5/125 OM-1 or longer for newer classifications of fiber (OM-2 through OM-5), Minimum recommendation of 6 Strands, OM-3 50 Micron (Laser Optimized), between buildings for new installations.

1. The interface to USDA Equipment is LC type connections. The local site may use LC. SC, ST type connections, verify with photography and coordinate/confirm with the Project IT Specialist.

D. Installations include testing and termination with LC connectorized type ends. Fusion splicing is preferred over cold crimp type of connectors.

E. Consult CIO SME IT specialist to confirm specifics.

1.27 OPTION - PRE-TERMINATED INDOOR / OUTDOOR 50/125 OM3 MULTIMODE PRETERMINATED FIBER OPTIC ASSEMBLIES

A. Example alternate solution 500 feet distance, various lengths are available

B. https://www.lanshack.com/

1. SKU:PRO-XIP6CC-LC-1P-500-RR

2. Custom-made Procurement sources may be limited, Consult CIO SME IT specialist to confirm specifics for compatibility

C. This solution can be used for extensions between facilities, the advantage is it will eliminate the cost for termination and associated skilled labor, consult an IT specialist to confirm specifics

1.28 FIBER OPTIC PATCH PANEL

A. Needed at near and far facilities if extensions to outlying buildings are in the scope of the requirements.

B. (1U) Rack Mount Termination Box Enclosure, 1 rack unit. *Note these 2 items complement each other and are both needed*.

1. CORNING model; CCH-01U FIBER OPTIC ADAPTER 1 PC

a. Procurement Source.

b. https://www.gsaadvantage.gov/advantage/ws/catalog/product_detail?gsin=11000001337549

2. Corning 6 Port Duplex LC Panel - 50 Micron OM3/OM4/10G CORNING model # CCH-CP12-E4 SKU: 22071344

a. Procurement Source; https://www.gsaadvantage.gov/advantage/ws/catalog/product_detail?gsin=11000016239340

1.29 FIBER OPTIC TRANCEIVERS- (SFP)

1. Needed to extend outlying facilities, 2ea required per point-to-point locations.

a. Multimode, 1 gigabit minimum, SFP, compatible for type fiber cable in place or existing to be used

b. Cisco part # GLC-SX-MM, only CISCO branded parts for USDAnet enterprise network hardware.

c. Meraki ADI network devices

E. Consult with CIO SME IT specialist to confirm specifics for compatibility.

1.30 RECOMMENDED INDOOR PRE-MADE FIBER PATCH CABLES

A. Fiber optic patch cables to connect devices for extensions to other facilities

1. Multimode, match type and grade of installed fiber between facilities
   a. Minimum 2 meters, multimode, LC To LC ends, match existing fiber terminations if using existing fiber optic cabling.
   b. Consult with CIO SME for exact compatibility to purchase.
   c. Procurement source; https://www.gsaadvantage.gov/advantage/ws/catalog/product_detail?gsin=11000006953956

1.31 CONCLUSION

A. The preceding information was for a Typical basic installation, not all locations will be the same conditions, deviations and modifications will be expected. Additional supplies for extensions to outlying facilities will be needed if the scope of requirements is included to extend to outlying facilities. Further Guidance and Recommendations is covered in these documents. consult with the CIO SME to provide copies of the latest versions.

1. DR 3300-001-K for guidance or latest version
2. USDA ADP and wiring guide v3.0 or latest
3. ANSI/TIA-568 latest version.

B. List of recommended installation supplies and skilled trade services for Forest / local site improvements to purchase to meet USDA minimum infrastructure standards for security and Access control of Government owned IT hardware and systems.

1. **Plywood backboard** – fire rated, 4x8 size, modifications allowed to accomidate space
2. **Wall mounted IT cabinet**, see above for examples and more details
3. **Grounding** – Copper ground buss bar with stand offs- see above section for example section
4. **4. Electrician (Licensed) or Cabling Technician (Certified) skills for services.**
   a. If not currently in place- to install Dedicated 120vac 20amp AC circuit
5. **UPS** – uninterruptable power supply, rack or floor mount. See examples above
6. **PDU** -Power distribution for multiple devices to be powered
7. **Cat 6 cabling** and associated installation parts for Wireless Access point and user workstations
   a. Low voltage Data installer skilled services and to provide materials and install needed IT cabling to WAPS and user workstations.
8. **Conduit-** pathway for provider cable entrance access**, (fiber optic and satellite)**

1.32 SHOPPING LIST

A. Local Procurement items

Manufacturer	Part Number	Description	Quantity	Unit Price	Subtotal
		For example A Small to Medium site			
Kendall Howard	KH-3132-3-001-12	12U Swing-Out Wall Mount Cabinet - Vented Door	1	$427.32	$ 427.32
Kendall Howard	1906-3-008-01	Adjustable Rack Shelf	1	$91.73	$ 91.73
Hammond	1589T8F1BKRR	Rack Mount Basic PDU	1	$102.25	$ 102.25
Kendall Howard	1908-4-001-01	High Speed Fan Assembly Kit	1	$50.63	$ 50.63
Tripp Lite	SMART1500RXLTAA	UPS 1500va - optional	0	$837.66	$ -
Tripp Lite	SMART2200RMXL2TAA	UPS 2200va - recommended	1	$877.35	$ 877.35
Hubbell	HBBB14210A	Telecommunications Ground Bus Bar with standoffs	1	$101.35	$ 101.35
Multiple		Misc electical, high and low voltage materials & installation services- Estimate	1	$1,200.00	$ 1,200.00
		Cost Estimate Medium site			$ 2,850.63
		For example B Large site			
Hammond	HWM2420U26BK	20U Heavy-Duty Swing-Out Wall Mount Cabinet	1	$ 1,344.24	$ 1,344.24
Hammond	ADSV2536BK	Adjustable Server Rack Shelf	1	$ 139.70	$ 139.70
Hammond	1589T8F1BKRR	Rack Mount Basic PDU	1	$ 103.20	$ 103.20
Hammond	DNFK1AC120	Heavy Duty Cooling Fan Kits	1	$ 59.65	$ 59.65
APC	SMX2000RMLV2U	UPS 2000va longer run time *note*large cabinet only 85lbs	1	$ 1,511.52	$ 1,511.52
Hubbell	HBBB14210A	Telecommunications Ground Bus Bar with standoffs	1	$ 101.35	$ 101.35
Multiple		Misc electical, high and low voltage materials & installation services- Estimate	1	$1,200.00	$ 1,200.00
		Cost Estimate Large site			$ 4,459.66

2.01 ANALOG PHONE LINE REPLACEMENT FOR BUILDING SYSTEMS -POTS IN A BOX (PIAB)

A. The purpose is to replace legacy copper analog phone lines for building systems that USDA has mandated that copper delivery will be retiring due to aging un-maintainable infrastructure.

B. Usually only affect the main office or site, remote or standalone locations may be affected if there is a requirement

C. Typical installations are wall mounted on existing facilities IT room backboard.

D. Examples of systems that may have copper (POTS) phone lines for communications

1. Elevators, emergency phone in cab,
2. Fire alarm panels, dial to answering service.
3. Intrusion detection panels alarm dialers to answering service such as mega center
4. IT room EPO panel dialers, IT room high temperature alarm phone dialer
5. FAX machines
6. Emergency phone lines, analog phone two wire connection via RJ-11 jack
7. Other systems that have analog POTS line dialers.

E. See POTS in box document and diagram below for (PIAB) illustration. Only outlined devices are part of PIAB for space consideration, other panels shown are for building support devices.

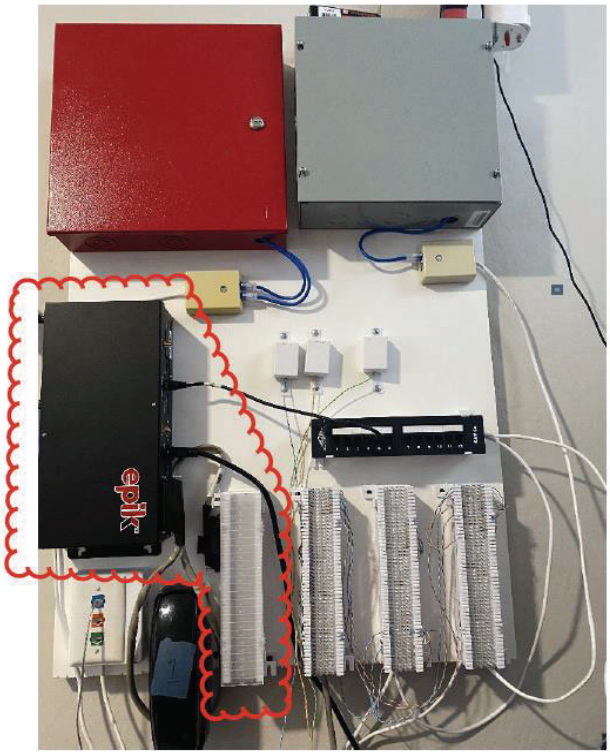

Figure 2 POTS IN A BOX

DEFINITION OF ACRONYMS

AFF-Above Floor Finish
AKA- Also Known As
Agency Designated Internet (ADI)
ANSI – American National Standards Institute
Entrance Facility (ER)
FO- Fiber optic
GBIC- Gigabit Interface Converter
HSPD12- Homeland Security Presidential Directive 12
HWD – height, width & depth
ISP – Internet Service Provider
IT – Information technology
LEC-Local Exchange Carrier
PBB – Primary bonding Busbar
PDU- Power distribution unit
POTS IN A BOX (PIAB)
POT- Plain old Telephone line
SFP- Small Form-factor Pluggable
SME -Subject matter expert
TIA- Telecommunications Industry Association
TMGB- Telecommunications Ground Bus Bar
TR-Telecommunication room
UPS- Uninterruptable power supply
WAO – Work area outlet
WAP -Wireless Access Point

End of Section