VA OI&T Standards and Criteria

Cabling contractor will ensure that all projects at any VA facility will adhere to the standards and criteria as defined by the Office of Information and Technology (OI&T) in this document.

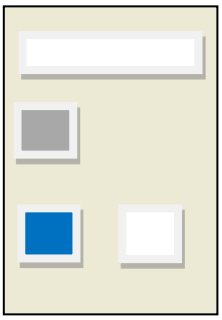
A. CABLE REQUIREMENTS

1. The cabling contractor shall be responsible for all parts and labor required to completely install, test, and turnover the new cable infrastructure.
2. Connectivity to existing infrastructure
    a. Fiber
        i. When multimode fiber optic cabling is installed and connected to the existing infrastructure, the minimum pull shall be 24 strands of 62.5 micron orange cable terminated at both ends with connectors to be determined by OI&T representative and provided by contractor.
        ii. If installation of fiber cabling bypasses the existing infrastructure, fiber specifications will be provided by VA OI&T.
        iii. When singlemode fiber optic cable is required, the minimum pull shall be 24 strands of 8 micron yellow cable.
        iv. For both singlemode and multimode fiber, contractor will terminate at both ends with connectors to be determined by OI&T representative and provided by contractor.
    b. Copper
        i. Minimum number of CAT 5A cable pairs to be installed will be decided by VA OI&T representative.
        ii. For all installations in existing buildings located at the primary Medical Center:
            1. Cable must be terminated on 110 blocks at the MDF.
            2. In new IDF, cable must be terminated on modular patch panels on the rack, one pair per jack. Pairs 24 and 25 will be a single two pair jack.
        iii. For all installations in new buildings constructed on the primary Medical Center campus:
            1. Cable must be terminated on 110 blocks at the MDF.
            2. In the new building, terminate cable at ground floor IDF and branch cables evenly to all other IDFs.
            3. All cables run outside of a building must have gas tube protection at each end to protect it from the environmental elements.
        iv. For installations in buildings other than on the primary Medical Center campus:
            1. Contractor must provide feed cable from the MPOE to the ground floor IDF (server room). Feed cable must be located in close proximity to the existing telco infrastructure.
            2. In new IDF, cable must be terminated on modular patch panels on the rack, one pair per jack. Pairs 24 and 25 will be a single two pair jack.
    c. Wireless Access Points (WAPs)
        i. All new construction must include cabling for the VA wireless network using green CAT 6 cable.
        ii. Where applicable, new construction must include cabling for the guest wireless network separate from the VA network.
        iii. WAPs must be installed based on the diagram provided by VA OI&T.

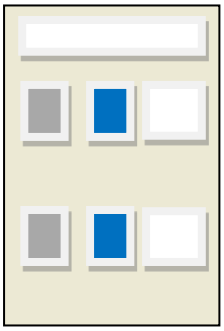
iv. When renovation occurs in areas where wireless network is already installed, existing WAPs must be reinstalled upon construction completion.

3. Voice / Data drops will primarily be in a three or six jack configuration. All drops shall be wired to a T568a standard. All Voice/Data drops will be labeled in accordance with VA guidance per this spec. Terminate the station side with Panduit gray, blue, and white jacks. Terminate the IDF end according to the patch panel specifications defined below. Each station will be tested and certified with full documentation provided to the VA representative. Contractor will provide "as built" documentation identifying all jack locations and their associated labels.
4. There will be a minimum of one drop location installed on every wall in all rooms.
5. Voice/Data cable shall be CAT 6, four pair, 100 ohm UTP. Ideally the brand Superior Essex or equivalent will be used unless otherwise specified by VA OI&T representative and terminated on a blue, white, or gray RJ45 jack.

a. In a triple jack configuration:



b. In instances where six jacks are installed, the configuration shall be as follows on a six position face plate in a single gang box:



B. ADDITIONAL REQUIREMENTS

1. All cable runs shall follow the cable trays that are above the drop ceilings and terminated to a data closet specified by OI&T.
2. Copper cable runs must not exceed a distance of 100 meters (~328 feet).
3. All cable runs inside walls will be pulled by the contractor and shall be enclosed in Electrical Metallic Tubing (EMT) and single gang boxes.
4. The cabling contractor will be responsible for ensuring that the fire-rated structures (core walls) retain their existing fire-rating by installing proper sleeves and fire stops at all the accesses from the core area once the cabling effort has been completed. Any openings created by or for the contractor and left unused shall also be sealed as part of this effort. The cabling contractor shall use only VA standard-approved fire stop materials. No wall penetrations shall be made without the prior consent of VA Facilities Management Department.
5. Cables shall not be attached to removable ceiling grid supports or laid directly on the ceiling grid. Cables shall not be attached to or supported by fire sprinkler heads, delivery systems or

any environmental sensor in the ceiling air space.

6. All previously abandoned voice and/or data cable in the construction area shall be removed completely from end to end by the contractor once verified by VA OI&T representative.
7. The cabling contractor is responsible for grounding and bonding the entire infrastructure provided in this project. Specifically:
    a. Use #6 grounding conductors and two-hole irreversible compression connectors to bond racks to the room's telecommunications grounding bus-bar (TGB).
    b. The contractor shall provide and install the proper grounding kits for the voice terminations and patch panels as required by manufacturer.
    c. The contractor shall ground and bond the telecommunications rack.
    d. Contractor is also responsible to ensure grounding bus bar is properly grounded per NEC section 606.
8. Two dedicated NEMA L5-30R 120V 30A electrical circuit terminations shall be mounted directly above the rack. The two 120V 30A circuits will have a dedicated uninterruptible power supply (UPS) plugged into the outlets. The equipment rack will require two 6 Ft multiple outlet power strips mounted at the back of the rack. Each individual power strip will be plugged into a separate UPS to prevent the loss of power to any device in the rack in the event a circuit or UPS has a power failure.
9. The National Electrical Code (NEC) will be adhered to for all installations in addition to the any site specific requirements.
10. Data and phone closets are to be cleaned of all dust and debris from racks, walls, and floor.
11. The cabling contractor is responsible for labeling the following:
    a. Contractor is responsible for labeling and terminating cable at both ends (patch panel and faceplate)
    b. All data/voice locations on the design plans will use standard symbol 
12. Numbering convention shall be:
    a. Building number (where applicable)
    b. Floor, to include wing designation if applicable
    c. Panel
    d. Jack labeled as room number followed by sequential alpha characters (i.e., 1476-A, 1476-B, etc.) beginning to the left of the entrance and continuing in a clockwise sequence.
13. Prior to labeling, contractor shall obtain approval from OI&T representative for numbering scheme utilized.
14. The cabling contractor shall certify the cables as a TIA Cat6 Permanent Link. Test results shall be furnished to OI&T upon completion of testing via electronic format. If the connected cable in the faceplate does not pass certification, the cable shall be re-terminated and re-certified.
15. Contractor must meet OI&T's entire requirement before Project Planning/ Engineering signs off on the project.

C. DATA CLOSETS

1. Physical Requirements:
    a. IT closets shall house nothing other than IT equipment
    b. The room must be at a minimum 120 sq ft. and allow for 3ft of clearance on all sides of the racks
    c. The IT closet needs to be enclosed with a hard lid ceiling
    d. The doors need to be fire rated in accordance with specifications required by VA Engineering management
    e. The closet requires a dedicated Environmental Control Unit (air conditioning) not part

of the facility system

f. The closet requires one NEMA L5-30R 120V 30A power outlet at the top of each rack. Each receptacle must be powered by a separate electrical panel.

g. One electrical receptacle connected to E-power in all locations within the Medical Center campus or where otherwise available
h. Two 4-inch conduit stubs leading to the nearest accessible drop ceiling location, preferably in a hallway
i. Data and phone closets are to be cleaned of all dust and debris from racks, walls, and floor

2. Racks:
   a. Two 7' x 19" two-post racks
   b. Minimum three feet of clearance on front and back of racks
   c. Cable managers will be provided by the contractor. Vertical cable management will be provided on both sides of each rack for front and rear cable management from the floor to top of rack. Horizontal cable management will be placed between each patch panel, with six additional managers provided to OI&T personnel for installation of switches.
   d. Horizontal cable managers shall be installed starting at the top of the rack, alternating with each patch panel
   e. Racks shall be separated only by vertical cable managers
   f. Cable management will include ladder racks above the racks and on both sides of racks, extending to the wall where cables enter the closet
   g. Racks must be securely mounted to the floor
3. Patch Panels:
   a. Fiber panel must be mounted in the highest position moving down with 3½" cable management panels alternating with 3½" data panels
   b. Jack panels to be sequentially numbered with electronic labels of OI&T number scheme as stated above
   c. All patch panel terminations must be labeled with corresponding faceplates from
4. UPS:
   a. Two uninterruptible power supply (UPS) units will be installed in each IT closet by the contractor. Where there are two racks, one UPS will be installed in each. UPS must be at the bottom of the rack.
   b. The model to be installed will be a rack mountable APC SMART-UPS X 2200VA LCD 100-127V with NIC (model SMX2000RMLV2UNC) or equivalent

D. TELCO SERVICE

1. VA will order all circuits for data connectivity.
2. Contractor will extend circuit to the MDF or IDF as applicable.