

VA248-17-R-1141 - EXHIBIT J

Telecommunications Room (TR) Specifications

All cabling shall be Category 6A cabling as specified in standard ANSI/TIA-1179 Healthcare Facility Telecommunications Infrastructure for new installations. All Work Area Outlets (WAOs) within the building shall be installed by the Lessor. All WAOs shall consist of four (4) RJ45 interfaces, locations shall be determined by VA Office of Information and Technology (OIT) and communicated to the lessor in writing via the CO or COR.

All modifications to this standard must be approved by the VA. Lessor shall supply all labor and material needed to accomplish the installation of the Healthcare Facility Telecommunications Infrastructure. All work shall be done in a clean and professional manner, and comply with ANSI/EIA/TIA Technical Specifications and Standards.

NON-GOVERNMENT STANDARDS:

The contractor shall operate under, but not limited to, the following national codes, telecommunications industry standards and practices, and in accordance with accepted EIA/TIA, and NCS standards.

National Electric Code (NEC), part 800 article 250.

Building Industry Consulting Service International (BICSI) standards.

Electronic Industries Association/Telecommunications Industry Assoc. EIA/TIA 569 Standard for telecommunications pathways and spaces requirements.

Telecommunications Industry Assoc/Electronic Industries Association TIA/EIA 568B (Telecommunications cabling standard).

ICEA Publications S-80-576-1988.

Telecommunications Industry Assoc/Electronic Industries Association TIA/EIA 607 (Building grounding and bonding requirements).

Telecommunications Industry Assoc/Electronic Industries Association TIA/EIA 606-C (Standard for records, labeling and space & pathway administration)

Installation of outside plant, inside riser, and station cabling shall conform to meet the requirements of ICEA Publications S-80-576-1988 (Ref.B1.6) as to size and installation practice.

The installation of the cable shall conform to appropriate OEM, ANSI/EIA/TIA recommendations.

Federal Communications Commission (FCC) part 68.

Americans with Disabilities Act (ADA).

National Fire Protection Association (NFPA).

Underwriters Laboratories (UL).

An end-to-end certification test will be performed on all WAO cables in accordance with / 568B.2 and ISO/IEC 11801 certification. Both ends of cables shall be labeled to identify outlet supplied. WAO outlets shall be labeled with identifier to identify connection point in TR. Labeling scheme: Starting with the back right corner of suite and working clockwise, cables will start at the number #1-A/B/C/D, #2-A/B/C/D and continue to highest number, proceeding in one direction systematically. Inside of rooms, work from left to right from doorway when entering room. Certification test results to be provided to the VA in an electronic format that can be read without the need to purchase/use special software. A diagram of every WAO cable run within the facility shall also be provided as an as built documentation

TR:

Provide a centrally located TR room with a minimum of 180 sf for contiguous tenant space.

Ceiling shall be a minimum of 12 ft. above finished floor, if space permits. Room shall have hard ceiling, with no opening greater than 96 square inches. Vents, ducts, and similar openings that enter or pass through the space, and which are greater than 96 square inches, shall be protected with either bars or grills. If one dimension of the duct measures less than six inches (150 mm) or duct is less than 96 square inches (620 cm²), bars or grills are not required; however. If bars are used, they must be 1/2 inch (12.7 mm) diameter steel welded vertically and horizontally six (6) inches (150 mm) on center; if grills are used, they must be of 9-gauge expanded steel.

TR Room shall fully support BICSI standards.

TR shall be designed and used by VA OIT equipment and shall not be used for any other purposes.

Room shall have door fitted with the following hardware:

1. Automatic door-closer
2. Mortise lock, with an auxiliary security dead latch, where the latch bolt is operated by key from outside or by rotating inside lever. Outside lever is always fixed.
3. Deadlock, with a minimum $\frac{3}{4}$ inch dead bolt and inside thumb turn, where the dead bolt is operated by key from outside and thumb turn from inside. Thumb turn will retract dead bolt, but will not project dead bolt.

4. A PIV Class, RPK40EKNR, SRD Model RPK40-H, Model 921PHRNEK0002D (dual factor), 13.56 MHZ only, 200 bit, manufactured by HID, or approved equal. Operation of the card reader will disengage the mortise lock.
5. Mortise lock and dead bolt shall be keyed alike and individually from other locks in building.

Any slab or rated wall penetrations must be sleeved and the appropriate fire rated protection used.

Installation of the cable in conduit, raceway and cable tray(s) will not exceed the standard of 50% fill ratio.

Layout of TR shall be approved by VA OIT prior to any work being done on installation of equipment racks, patch panels, electrical outlets, backboard and termination of cables. There shall be a signed and dated layout plan between the VA and the Lessor.

Provide ¾" fire treated, painted, plywood 8 ft. high on all walls with the bottom one foot above the finished floor.

Provide one (1) each 20-amp double-duplex (quad) electrical outlets, on all three walls each on a dedicated circuit. Provide two (2) each 20-amp double-duplex (quad) electrical outlets, and two each 208 volt receptacles, each on a dedicated circuit, on the back wall as designated by VA OIT. Coordinate location of receptacles with VA OIT.

Provide ground bus bar, grounded to building ground at the source. Bus bar shall be copper, a minimum of 1/8 inch thick X 1 inch wide X 6 inches long, and shall be mounted on stand offs on plywood backboard.

Provide three (3) standard 19" relay rack(s), floor mounted type. All associated cable trays, ladder racks, are to be supplied. All vertical and horizontal wire management shall be covered, double-hinged metal only (no plastic). Horizontal wire management shall be installed between every 2 RU of patch panels. Ladder rack shall be installed around the perimeter of the TR with waterfall type structure to support cable weight.

Cabling shall be installed in conduit or cable trays which will provide physical security for the cables in accordance with VA requirements. Cabling to WAO in individual rooms may be installed with J-Hooks.

Provide two each 4 inch conduits, with pull strings, from TR to public utility demarcation point.

Three Blank/Open CAT6 patch panels shall be installed for Telecommunication PBX equipment connectivity.

VA OIT Preferred equipment list:

Ortronics	48 Port Patch panel	OR-PHD66U48
Ortronics	Series 2 wall jack	For Cat 6A Cable
Chatsworth	19" Standard Rack 3" Deep	55053-703
Chatsworth	Universal Horizontal Cable Manager	30130-719
Chatsworth	Global Vertical Cabling	30130-703

Provide a minimum of two (2) WAO outlets in each room, except toilets. Outlet locations shall be coordinated with VA OIT. WAO outlet locations shall have four (4) Cat 6A cables and shall be terminated on RJ-45 female type flush mounted data wall jacks. A 15 foot service loop shall be maintained at the outlet end. Each WAO outlet shall consist of four data multi pin jacks for a quad outlet. Outlet; shall be mounted with a faceplate that shall be industrial grade plastic with clear permanent labels. The WAO shall be quad type jacks, with a four position, flush mounted faceplate. The quad wall outlet shall include a minimum eight positions RJ-45 female type unkeyed (sometimes called centered keyed) jacks. The WAO shall support the following minimum operating parameters:

WAO:

1. Isolation 24db
2. Impedance 600 ohms, balanced
3. Signal Level 0 decibel per milli-volt (dBmV) + 0.1 dBmV
4. System Speed Minimum 1 gbps
5. System Data Error Minimum 10 to the -8 Bps

Items Lessor to supply :

- All cabling
- All WAO, wall plate spacers, and wall plates.
- All 48 Port Patch panels to support WAO cabling.
- 4'x8'x3/4" fire treated plywood backboards, painted.
- Grounding busbar, wiring for ground, and related mounting hardware.
- Other items not listed, but indicated herein.

At the completion of this work, an accurate and legible location drawing in .pdf format for the Healthcare Facility Telecommunications Infrastructure shall be provided to VA by the Lessor.