

PATUXENT RIVER
ISP / OSP
REQUIREMENTS

NAS Patuxent River
Revision 7

ISP / OSP REQUIREMENTS

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1. OVEVIEW

The following Telecommunication Requirements are provided for Naval Air Station Patuxent River. These are minimum requirements that are to be followed for all projects. (dtd 6/2010)

2. INSIDE TELECOMMUNICATION PATHWAY (ISP) REQUIREMENTS

TELECOMMUNICATION ROOM (TR)

All buildings shall have telecommunication rooms sized for the cabling requirements of the facility. The attached Telecommunication Room Specification Requirements Rev. 7 (or latest revision) provides a minimum communication room size requirement. A minimum of one Telecommunications Room per floor, (stacked vertically) shall be provided unless approved otherwise. The Telecommunication Room shall house all telecommunication equipment, cable terminations and cross connect equipment; backbone support hardware and equipment; video equipment/cabling; security equipment/ cabling; building automation systems [BAS] equipment/cabling; PA system equipment/cabling; etc. Provide conduits, trays, slots, sleeves and ducts as required to support backbone pathways requirements between multiple rooms on the same floor or multiple floors. Telecommunication Backbone Pathways shall be sized for building requirements with minimum 50% growth. Telecommunication Room layouts shall be provided as part of the design package providing equipment racks layouts, electrical, HVAC, etc. showing coordination with all disciplines. Under **no** circumstances shall an electrical transformer be installed within any communications room.

HORIZONTAL PATHWAYS

Provide a min of 12" x 6" ladder type or approved equal cable tray, supported per manufacturer's recommendations to accommodate cabling changes, minimize occupant disruption when accessed, and be sized to accommodate future additions and changes to the cabling, equipment, and services. Pathway shall be sized to support a minimum 6 cable runs per individual work station outlet (WSO). Although only 4 cables per WSO are required for voice/data, the additional pathway capacity is needed to facilitate future additions and changes. Avoid EMI by locating the cable support pathways away from electrical power cabling & transformers, radio frequency sources, large motors & generators, welders, X-ray equip., copiers etc. See BICSI Telecommunication Distribution Methods manual for additional requirements. Cable tray system will not be used as support structure for any other utility systems (do not attach elect conduits or boxes to cable tray system or supporting structures).

WORK AREAS

Each occupant work area must have a minimum of one (1) telecommunication outlet box location. In areas where it will be difficult to add future work station outlets, a minimum

of two (2) telecommunication outlets shall be provided. All work station telecommunication outlets shall be composed of an 11B (4-11/16" square) electrical box and associated hardware to allow mounting of a dual gang faceplate to provide a minimum face plate capacity of 12 each, RJ 45 or equal connectors. The 11B box shall be able to accommodate and shall have 2 each 1" EMT conduits with associated connectors and supports from the telecommunication outlet box to the cable tray unless otherwise noted. Where "J" type open air premise cable support systems are allowed, every partition / room shall have a fire-blocked metallic conduit nipple (sized for the cable capacity + 50% growth). The box size and conduit pathways are required to meet current and future cabling requirements and are a minimum requirement for all projects unless specifically stated otherwise. All rooms shall meet the user occupancy requirements plus 50% growth, unless otherwise noted in the design. The Contractor shall use NMCI printer density requirements of maximum travel distance of 50 feet per printer, and/or maximum. 25 people per printer. This requirement will service electrical outlet requirements also.

SPECIALTY ROOM REQUIREMENTS:

All mechanical and electrical rooms shall have a minimum of one (1) each telecommunication outlet cabled back to the nearest Telecommunication Room regardless of the specific room requirements document. These outlets shall be identified separately on the D3 termination patch panel.

All conference rooms shall have a min of one (1) each combination; telecommunication (quad cap.) / electrical (quad cap) floor box, mounted and coordinated with the furniture layout. We are not talking about electrical outlet boxes mounted together. As an example of an approved floor box, see FSR type boxes (FL-500P series floor box and wall boxes WB-X boxes w/ hinged door). Go to the following web site (www.fsrinc.com) for additional info. The floor box shall be suitable for the floor material it is installed in, and shall have an access door for connections to outlets and to blend with floor finishes. Provide a minimum 2" conduit in or below the floor between the floor-mounted box and the wall-mounted pull box. Mount the wall box approx 24" AFF. In addition, provide a minimum 2" conduit from the wall box stubbed out above the dropped ceiling within the conference room. This pathway will be used for all VTC cabling between the ceiling and the conference room table, as well as data voice drops to the table. In addition, provide wall-mounted communication outlets on at least two walls.

Open office furniture will be serviced from telecom poles. Poles shall match furniture manufacturer, maximum number of office units per pole shall not exceed four (4).

All communication rooms shall have 3/4 " fire-rated plywood on all walls. Do not paint plywood. HVAC units shall adhere to EF/POP specs and shall be a split unit. Interior unit shall be wall-mounted. Mount as high as possible on the wall, coordinate with other communication components within the room.

Horizontal pathways shall consist of government approved **aluminum** cable tray, sized to meet the service outlet density per the design plus 50% growth factor. The cable tray shall use approved fire-rated systems when passing through any fire-rated wall. Where conduits or sleeves are required to pass through floors or egress pass pathways, such

conduits or sleeves shall be sized to cable requirements, or a minimum of two (2) each 4” EMT conduits shall be used. Cable tray system **will not** be used as support structure for any other utility systems (do not attach elect conduits or boxes to cable tray system or supporting structures).

INSIDE TELECOMMUNICATIONS CABLING REQUIREMENTS:

The minimum cabling requirement shall be 3 data, 1 voice, 4 pair, Category 6 UTP plenum-rated or latest approved standard, and shall terminate to 568B standards. All cable termination components (work station outlets, racks or wall-mounted patch panels) shall be of the same category level as the cabling and shall be certified/warranted system guaranteed for a minimum of 15 years. All data cabling will be terminated in equipment enclosures or open racks as follows:

- NMCI will have an approved equipment enclosure to house D1 cabling
- D2 & D3 cabling will be terminated in open 19” racks
- Voice cabling shall be terminated in wall-mounted Cat 6 or standard equal 110 blocks, coordinate with incoming copper service and phone electronics.

Provide open 19” equipment rack for telephone equipment, and provide 19” open rack for BB/video cabling/electronics.

The following color code referenced in the *Pax Cable Labeling Requirements* document shall be used for color matched cable jacket, outlet connectors and patch panel.

- Data: D1-Blue, D2-Green, D3-White
- Voice: T1-Gray

All cabling will be identified using the Pax River Labeling Requirements

VIDEO REQUIREMENTS

The base video is distributed via the single mode fiber. The Contractor will be required to provide coaxial cable backbone distribution from the entrance room to all distribution rooms, as well as RG6 coaxial cable sub-distribution to all video drop locations. The Contractor will also be required to provide the Fiber video receiver (BNI TR 2200-750-X17) in the BB rack.

SECURE NETWORK REQUIREMENTS

All Telecommunication Rooms shall have floor space available to mount a secure floor-mounted Rittal equipment enclosure (24" x 38") whether required in the project or not. As stated above, the Telecommunication Room shall be sized for current and future requirements with government approval. The only approved secure PDS equipment enclosure is the Rittal brand with the following part number

Part Number	Nomenclature	Unit of Issue	Quantity
Rittal Cabinet			
DK 7821.410	TS8 Enclosure, 1400H0600W0800D	EA	1
DK 7824.148	TS Sidewalls, for 7821.410 Enclosure	PR	1
DK 7827.140	TS Mounting Rail, 29U	PR	1
TS 8612.080	TS System Chassis Set, F/800	EA	1
DK 7824.510	Internal Latch Kit	EA	1
TS 8611.290	TS Comfort Handle, Insert & Padlock Style	EA	2
TS 8611.180	TS Lock Insert	EA	2
Total			

This is the only approved cabinet. No substitutes will be allowed.

A secure pathway consisting of conduit, pull boxes, junction boxes, and work station outlet boxes shall be installed in accordance with IA PUB 5239-22. Pathway shall be sized for current and future requirements with a minimum 50% growth. Pathway design and routing shall be coordinated with the government, and approved by the government, prior to final design or installation. All secure premise cabling will be two strand MIC multi-mode fiber, 50 micron, OM3 laser enhanced. Secure outlets shall be separated from unclassified outlets by a minimum of three (3) feet at all WSO locations.

OUTSIDE PLANT (OSP) FIBER DISTRIBUTION NODE (FDN)

All OSP fiber cabling (secure or unsecure) entering an existing or new FDN shall enter into an existing or new OCEF fiber termination cabinet, be spliced to new MIC fiber or approved equal, and run through existing or new cable runway to an existing or new rack-mounted 144 port minimum fiber termination housing. The Government shall have final approval on route and location of all equipment. All splice trays and associated equipment required for OCEF cab shall be included.

When existing OSP pathways are used, new fiber shall be installed within the existing inner duct. If an inner duct is not available, the Contractor shall be required to install a min of three (3) each 1.25" inner ducts into the next available spare conduit to support future use.

Copper cable requirements: Within every FDN, OSP copper shall be terminated in an approved splice closure mounted in the copper area. Provide new 100 pair copper pigtailed & cable heads (Commscope Cableheads part number #310A2-100-100). Note that straight or angled (25 degree) heads may be required. Coordinate with base phone office on type required.

