



MPTN MIS WIRING SPECIFICATIONS

This document defines the MPTN MIS preferred standards of installation for communications services (internal and external) for voice, video, and data services in all existing or new MPTN properties. Generally, the scope of work will outline the specific installations requirements for each project. Installation requirements specified within this document are drafted with the intent to ensure all Communications Equipment Rooms adhere to current publications of EIA / TIA, ANSI, IEEE, BICSI, NFPA, NEC, FCC and UL Standard's. For more detailed information refer to applicable EIA / TIA Standard.

All contracted vendors are expected to be BICSI certified installers and all work performed is required to comply with the National Electrical Code, Local Building codes, MPTN Land Use Department, BICSI, ANSI and IEEE standards.

The proposed scope of work must be presented to MIS for approval. MIS will provide project clarification and expectations for finished work. All questions and project proposals must be presented to Marie Dickson and she will include any other MIS department as needed. MIS needs to be notified in writing of any scope of work or changing conditions as the project progresses. Contact for all communication is the Manager of Installation and Planning

1. TELECOMMUNICATIONS ROOMS AND CABLE TERMINATION

Telecommunication rooms are special-purpose rooms that house telecommunications equipment and wiring. These rooms have specific requirements due to the nature, size and complexity of the equipment and wiring housed in the room.

There are two different types of telecommunications rooms within a building, each supporting critical functions as part of the building wiring, gaming and communications systems. In general, each room must be large enough to accommodate the wiring and equipment, which will be located within them, plus additional space for growth. The two types of rooms are:

The Telecommunications Main Distribution Frame (MDF) or Main Cross-connect (MC). MDF will be used here. There is normally only one MDF per building. This room may serve as what is sometimes called the demarcation room and house Data Switches, Routers, and Telecom related electronic equipment.

The Wiring Closet, Intermediate Distribution Frame (IDF), Intermediate Cross-connect (IC), Horizontal Cross-connect or Telecommunications Closet (TC). IDF will be used. More than one IDF per floor is required when the terminated wiring distance between any communications jack and the IDF exceeds 295 feet (90 meters).

MIS will be responsible for determining the design of the closet based on the services needed this will include:

- Conduit and sleeve size and count
- Floors shall be static free tile, carpet is prohibited
- Keyed access
- Fire rated plywood
- Environmental control
- No plumbing, HVAC, or electrical conduit shall pass through or be directly above any Telecommunications room.
- All electrical requirements will be specified in the SOW.
- Grounding
- Lightning Protection
- Bonding

2. LABELING

Communications, data and CATV conduit is to be clearly identified, at every junction box, via a painted section or by use of conduit stickers indicating each conduit run:

Orange = DATA & VOICE (VOIP INCLUDED)

White = CATV

Yellow = FIBER OPTIC

All Telecommunication IDF Closet Frames, Main Distribution -connect Frames and connecting blocks must be properly identified by destination.

All riser cables shall be properly marked with "from and to" indicators. Marker is to be a flat piece of aluminum or wire tied plastic labels. This marking shall be permanent and indicate:

The Origination (Cable it is feeding from MDF Room #) to

The Destination (Telecommunications IDF room# it is feeding)

All riser cables that extend from the Main Distribution-connect Room to each Telecommunication IDF Closet must be 100 percent terminated in the Main Distribution-connect Room and in each IDF Telecommunication Closet.

To facilitate future cable installations, a new pull string, tied off at both ends, shall be installed in conduit simultaneously with the pull-in of cable.

3. PROJECT SCOPE

Clarification for all project installations will be provided by MIS based on the scope of the project. MIS will provide all requirements that are needed to meet minimum standards for our IT network. These items include but are not limited to:

Material part numbers
Type and color of cabling
Placement within closet

Termination of low voltage
Closet penetrations
Wire Dress
Fiber optic backbone and terminations
Patch Panel location
Connection Blocks
Fire Stopping
Cable Counts per jack
Pathway installation
Conduit installation
Manholes
Outside Plant work

All part numbers that need to be purchased by the vendor will be provided to the vendor selected for the project. It is the responsibility of the vendor for all material quantities.

4. INSPECTION, TESTING AND DOCUMENTATION

INSPECTION OF WORK

MPTN or its designees shall have access to construction sites.

Immediately notify MPTN of any change in architectural drawings and/or plans affecting telecommunications.

All underground work must be inspected and approved by Telecom Engineering, MPTN Land use and MPTN Public Utilities, MPTN Public Works before the site is covered with sand, dirt or concrete. Failure to have the work inspected shall result in uncovering the area at the contractor's expense.

Per contract documents, the contractor shall provide a final checkout certification letter and inspection reports to MPTN on all telecommunications work.

TESTING

The contractor shall submit to MIS Manager of Installation and Planning a detailed test procedure to be used for every project. All cables shall be tested for length, attenuation, impedance, grounds, shorts, reversals, cross talk, and continuity of communications conductors and shields.

All test equipment must be ISO calibrated and certified.

Upon completion, test results shall be submitted to MIS Wiring Manager for final approval and acceptance and made part of the document. The contractor shall guarantee 100 percent continuity on all conductors on all cables.

MPTN will perform verification testing it deems necessary before accepting a job. Failure during testing will result in repair of cables at the contractor expense.

DOCUMENTATION STANDARDS

Cable records during installation and complete sets of cable records are required at project completion.

Submission of a complete set of as-built drawings upon completion of the project, both on marked up blueprints and in AutoCAD type (e.g., DXF format on CD). to the MIS project representative or in cases where the project is handled by a non-MIS staff member a copy the asbuilts will be sent to the MIS Telecom Engineering manager. MPTN will specify the version/release number of AutoCAD acceptable at the time of the project award.

OTDR test results to manufacturer's specifications and MIS Engineering standards for all fiber optic cable installed. Results shall be furnished both in hard copy and on CD in Spreadsheet format. The documentation must include OTDR readings, fiber route diagrams and end-to-end attenuation results for multimode and single mode fiber cable. All fiber OTDR readings shall be made bi-directionally on all fiber cable.

Station cable tests shall be performed to manufacturer's specifications and MIS Engineering standards. Test results shall be provided in both hard copy and in AutoCAD or Spreadsheet format on CD.

Riser cable tests shall be performed to manufacturer's specifications and MIS Engineering standards. Test results shall be provided in both hard copy and in AutoCAD or Spreadsheet format on CD.

Trunk cable tests shall be performed to manufacturer's specifications and MIS Engineering standards. Test results shall be provided in both hard copy and in AutoCAD or Spreadsheet format on CD.

5. FIBER OPTIC TECHNOLOGY

Every effort was made to ensure that the information in this document was complete and accurate at the time of printing. However, technology is ever changing, becoming more efficient and effective and is subject to change. MIS Engineering shall approve all fiber optic planning, installation and specifications in advance.

EXTREMELY IMPORTANT: The installing contractor and/or its designee for all communication outlets of low voltage structured cabling must be a BICSI certified installer. This is a mandatory requirement in order for the MPTN to ensure the installation of its communication infrastructure is current with industry standards. NO exceptions will be permitted on this requirement.

AGENCIES

The following agencies and their codes, standards and regulations shall govern all telecommunications work performed at the MPTN:

- ANSI American National Standards Institute
- BICSI Building Industry Consulting Service International
- Telecommunications Distribution Methods Manual
- Building Officials and Code BOCA Administrators (Standard Building Code)
- EIA Electronic Industries Association
- FCC Federal Communications Commission
- International Conference of ICBO Building Officials (Uniform Building Code)
- IEEE Institute of Electrical and Electronic Engineers, Inc.
- NBC National Building Code
- NFPA National Fire Protection Association
- NEC National Electrical Code
- TIA Telecommunications Industry Association
- UL Underwriters Laboratories
- MPTN Low Voltage Communications Standards

6. LABELING OF FIBER

GENERAL FIBER AND COPPER

Fiber LIU panels – Label on the front of each LIU starting on the top left corner describes the panel number within the cabinet, the cable type, count and remote terminations.

Example: SM – PAN3 1-12 Closet C3

Fiber Riser cables at each termination end will be labeled as follows: Building name, Floor, Closet, Count (number of fiber strands within the cable.)

Example: 6B, L9, 1–12

25 pair riser cables or feeders between closets will be labeled at both ends of the cable as follows: Building name, floor, closet#–closet#, count.

Example: 6B, L7–L8, 100pr

Feeder between Cabinets

Feeder cabling will be labeled at both ends of the cable as follows: Building name, floor, closet, cabinet#–cabinet#, count.

Example: RM-4-L5, cab4–cab5, 100pr

Closet to Jack - Backbone strands to a jack will be labeled at each termination point as follows: Building name, floor, closet, run#, count#, jack letter (A=voice, B=data1, C=data2.)

7. Qualified Installation

The installing contractor and/or its designee for all communication outlets of low voltage structured cabling, coax cabling and fiber cabling must be a BICSI certified installer and must hold a valid license with the State of Connecticut to perform such work. This is a mandatory requirement in order for the MPTN to ensure the installation of its communication infrastructure is current with industry standards. NO exceptions will be permitted on this requirement.

8. Warranty

All components & Labor shall be warranted for a minimum of (15) Fifteen years from the date of MPTN acceptance. Within the warranty duration any component found to be defective shall be repaired or replaced with an equitant component at no cost to MPTN. All manufacturer warranty forms must be completed by the contractor prior to MPTN acceptance of warranty and provided to MIS at the completion of the project.

In the event that a manufacturer offers a warranty beyond 15 years the longer duration warranty shall prevail. The contracted vendor shall honor the extend warranty within the same conditions as the standard warranty.

All components shall be warranted as both a component and part of a system.

9. Process & Responsibilities

Contractor shall be factory authorized to sell and service all equipment outlined in this specification. Contractor is also required to be a certified installation contractor for the products and services being offered and must provide proof of such certifications. Failure to provide such information will disqualify the bid.

Contractors shall provide three (3) reference sites consisting of similar size and complexity projects. References should involve voice and data (Cat 6, 6A), video (RG6, RG11 (coax) and network backbone fiber optic cabling (single mode and multimode). In addition, contractors must provide examples of Outside Plant cabling installations projects including telephone cabling and fiber optics cabling. References should be within the proceeding twenty-four (24) months.

RESPONSIBILITIES

Furnish, install, test and warranty all cabling installations and terminations and any other services as defined in these specifications for the Mashantucket Pequot Tribal Nation (MPTN) and its enterprises, including the Foxwoods Resort and Casino & MGM Grand at Foxwoods. The completed installation must comply with applicable sections of the latest MPTN Land Use Commission, local and national fire and safety codes, and with any other authorities having jurisdiction for these locations.

All phases of the installation must adhere to current applicable hardware manufacturer.

Contractors shall furnish all items listed in this specification including staging, storage, unpacking, and delivery to the premise, installation and removal of all debris.

All hardware and materials will be new, unmarred and in working order with the original manufacturer's warranties in place. MPTN MIS reserves the "right to refuse" any product selected by the contractor for installation (this includes non-specified installation products and materials.)

Before responding to this bid, bidders must carefully examine all the specifications, regulations and drawings and shall include in this bid all charges to cover the cost of all work included in these bid specifications and its appendices in their stated rate submittal.

The Contractor is responsible for the daily removal of all debris and rubbish accumulated as a result of this installation and must leave the premises clean and ready for use.

The premise shall be left as a safe environment at the end of each workday to insure that others that may be in the area of the work site are not in harm's way. This includes cleaning the area, securing all tools and materials, tying back hanging wires, blocking off work area not suitable for entry, placing safety cones and barricades or fencing, returning covers to crawl spaces, hand holes and manholes, etc.

The Contractor is required to repair, replace or reimburse the Owner for any hardware, materials or constructions damaged by the Contractor during the course of this installation.

Incidental materials, tools, and test equipment needed to complete this installation as defined by this specification are the responsibility of the Contractor to provide. This includes tape, tie wraps, plaster rings, ladders, scaffolding, lifts, blowers, pumps, confined access materials, etc.

Perform all work in a craftsman like manner with emphasis on esthetics, functionality, reliability, and serviceability. Current work standards will not be compromised.

Majority of the work included will be in public areas. A clean, safe area and courtesy to our patrons and employees is essential. Work in harmony with the Project Manager, MIS Manager of Installation and Planning, other contractors and/or consultants and the end user department to help ensure a successful transition of the work involved.

Follow all design and implementation guidelines as specified. Reasonable variations may be considered, but must be submitted in writing with the bid response for approval. Each variation must be accompanied by complete specifications together with drawings or samples (as needed) to properly appraise the materials, equipment, or process.

Prior to installation, the Contractor is required to confirm the final equipment and circuit drop distributions with the MIS Manager of Installation and Planning. The circuit drop distributions will be provided for each project, and is presented for general design and pricing purposes. Changes will be added only with pre-approval of the MIS Manager of Installation and Planning. Actual drop count installed will be agreed to with the MIS Manager of Installation and Planning who will verify locations, labeling, wire mapping, as built drawings and the installation workmanship prior to signing off on the project completion.

The Contractor shall at the completion of work present to the MIS Manager of Installation and Planning with all operating manuals, maintenance manuals and warranty registration cards provided with equipment and the cable run information from the cable reels.

Provide name, address, and telephone number of the manufacturer's representative and service company for each piece of equipment so that the source of replacement parts and service for each item of equipment can be readily available.

The Contractor shall supply the Owner with a complete list of equipment, model numbers and respective serial numbers.

10, PARTIAL AND FINAL COMPLETION INSPECTION AND REVIEW

When the work under a specific project has reached a mile stone, the contractor will submit an inspection request via e-mail to the MIS Manager of Installation and Planning. MIS milestones will be agreed upon at the onset of the project between the contractor and the MIS Manager of Installation and Planning. The following will be inspected:

Work has been completed in accordance with Bid specifications.

Equipment and systems have been completed and tested. All test reports and other required documentation is received.

Work is complete and ready for departmental review and use.

At the end of the project a complete inspection will be held to determine if all MIS requirements have been met.

Contacts
Manager Installation and Planning