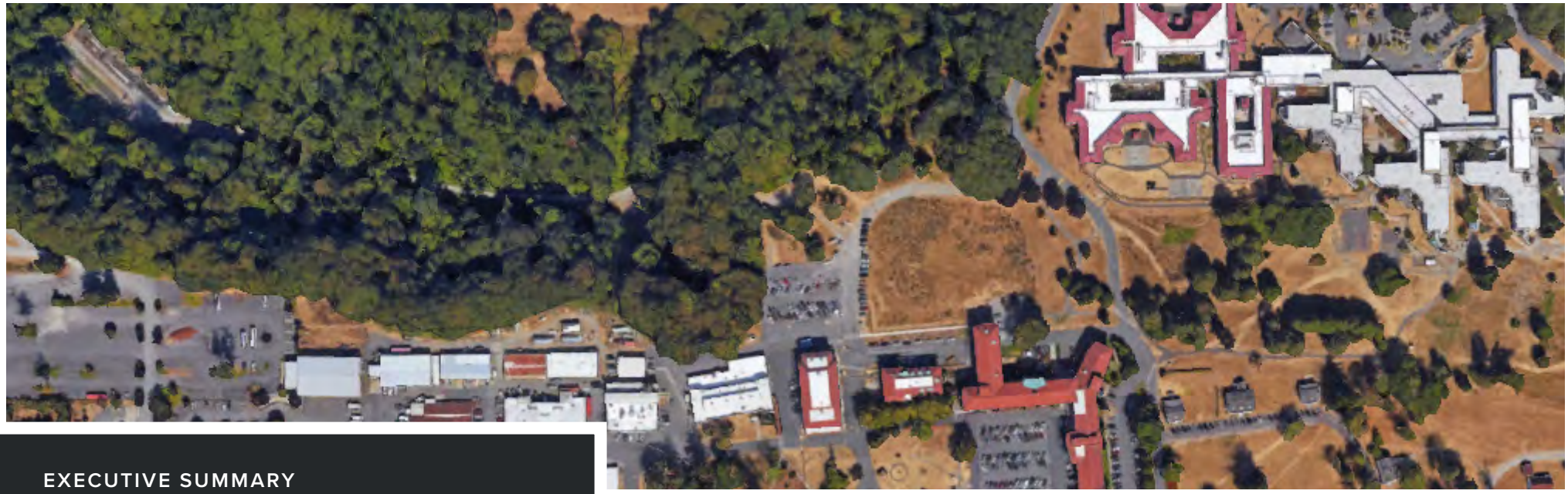
HARGIS TELECOMMUNICATIONS ASSESSMENT

DSHS

WESTERN STATE HOSPITAL

WA STATE PROJECT NUMBER: 2024-429 B (2)



EXECUTIVE SUMMARY

OVERVIEW

Western State Hospital (WSH) opened in 1871 and is the largest inpatient psychiatric hospital in Washington. It serves individuals in 20 counties in western Washington. The hospital provides evaluation and inpatient treatment for people with serious or long-term mental illness. The WSH campus in Lakewood, WA.

Hargis Engineers was retained to provide an assessment of the current Information Technology Network Infrastructure and develop recommendations for network improvements. The objective of the assessment was to review and evaluate the current campus backbone distribution system, the condition of horizontal cabling, telecommunications grounding, existing physical media types, physical pathways, physical spaces, and supporting electrical and mechanical systems and compare the existing conditions to current industry standards specific to this facility type. Excluded from the assessment were electronic systems, applications, and hardware, such as the network switches and servers. Buildings that have been planned for demolition or that have been decommissioned or included potential hazards have also been excluded from the assessment.

The existing campus telecommunications cabling backbone infrastructure includes inter-building optical fiber cabling and twisted-pair copper backbone cabling. The existing backbone cabling has been updated and modified several times over

CONSULTING TEAM

Hargis Engineers, Inc.

Seattle, WA 98101

Patrick Shannon, RCDD, PMP

Principal

Ben Helms, PE, RCDD

Associate

many years. The Category 3 rated twisted-pair copper backbone is rated for traditional telephony service, is antiquated, and is not able to support the deployment of new technologies, nor does it comply with current industry standards.

The existing horizontal cabling within buildings includes unshielded twisted pair copper cabling to provide connectivity to computers, telephones, printers, and other devices. The existing horizontal cabling is a mix of Category 5, Category 5e, and Category 6 cabling depending on building. A significant portion of the horizontal infrastructure is constructed with hardware that is discontinued and no longer supported. The existing horizontal cabling is not compliant with current standards for healthcare facilities, which require a minimum of Category 6A for all horizontal cabling.

Based on physical inspection and review of existing documentation, it is the determination of the team that the existing IT infrastructure does not comply with any of the current industry standards and that it will not support evolutions to modern and/or future technologies. The existing optical fiber infrastructure is obsolete, consisting mostly of OM1 multi-mode optical fiber cable. Improving the IP backbone connectivity will be a fundamental component to creating an environment that will permit WSH and DSHS to identify, adapt, and implement new technologies that contribute to safety and operational improvements.

The existing horizontal cabling within buildings includes unshielded twisted-pair copper to provide connectivity to computers, telephones, printers, and other network attached devices. The existing cabling consists of a mixture of Category 3, 5e, and 6A. The Category 6A cabling are primarily used for Wireless Access Points (WAPs) and areas of the campus that recently underwent renovation. The Category 6A cabling meet current industry infrastructure standards, but the Category 3 and 5e do not.

In addition to the cabling noted above, the existing telecommunications spaces do not meet industry standards. Per TIA-1179 a dedicated telecommunications room is required on every floor to support the horizontal cabling infrastructure. Complying with the standard will require new/additional telecommunications rooms to be built on floors that do not currently have a telecommunication room. The additional telecommunications rooms will need to be equipped with supporting systems to include grounding, conduit sleeves, temperature control, and physical security of the space.

OBJECTIVES

The project objectives are as follows:

- Inventory and document the condition of the existing telecommunications infrastructure, including telecommunications spaces, pathways, backbone, and cabling.
- Identify current deficiencies.
- Recommend infrastructure improvements to bring the campus infrastructure into compliance with current codes and standards.
- Provide As-built drawings, documenting current conditions.
- Provide a ROM cost opinion for infrastructure improvements.

CABLING INFRASTRUCTURE STANDARDS COMPLIANCE

INTER-BUILDING BACKBONE

HORIZONTAL CABLING

PROJECT APPROACH & STANDARDS

PROJECT APPROACH

Hargis conducted a site visit to review existing conditions including:

- Type of backbone cabling
- Overall architecture of backbone connectivity
- Supporting spaces and systems, including interior and exterior pathways and spaces (telecommunications vaults and rooms)
- Quantity, age, vintage, and condition of the horizontal cabling in each building.

The site review was limited by accessibility. Only what could be seen from plain view was evaluated, the team did not move furniture to look behind, and ceiling access was limited to minimize impact to the facility. Where cabling disappeared in walls and pathways, a certain level of deduction was used to determine the termination point, for example, we can assume that cabling for voice ports terminate at the voice cross connect on their respective floor.

As part of the assessment, the team recorded the existing conditions and the locations of voice and data ports for the purpose of creating as-built documentation. The as-builts include floor plans, enlarged telecom room plans, telecom rack elevations, butterfly diagrams, and a backbone cabling one-line diagram.

The team sought input from the stakeholder team and consulted current industry standards and best practices. Results from the assessment were analyzed and evaluated and a set of recommendations were developed to aid DSHS and Western State Hospital stakeholders in planning future network improvement projects, budget requests, and establishing priorities. Those recommendations were analyzed to determine a possible project sequence for constructability while limiting downtime for the facility, understanding that the facility will need to remain in operation during any project.

STANDARDS & CODES

- TIA-1179-B Healthcare Facility Telecommunications Infrastructure Standard
- TIA-5017 Telecommunications Physical Network Security Standard
- TIA-569 Telecommunications Pathways and Spaces
- BICSI Telecommunications Distribution Methods Manual, 14th Edition
- Health Insurance Portability and Accountability Act (HIPAA)

PROJECT APPROACH

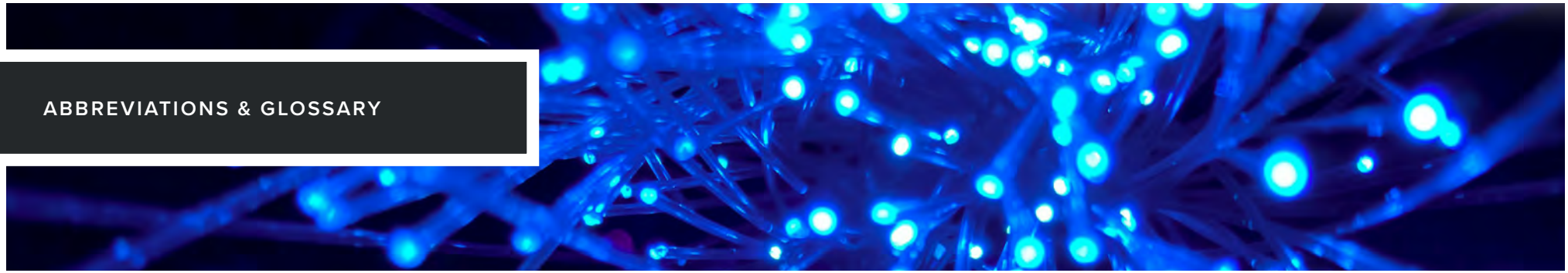
Review, assess and evaluate systems in each building

Identify the capabilities, deficiencies and vulnerabilities of each system

Provide recommendations for capital improvements to introduce, enhance, expand, or replace security system components as necessary

Develop a rough order of magnitude for the recommended improvement

Chart a migration path to optimize capital investments



ABBREVIATIONS & GLOSSARY

BEP **Building Entrance Protection**
Surge protective device used to mitigate risk of damage to equipment from conductive cabling exiting the building envelope.

BICSI **Building Industry Consulting Service International**
BICSI is a professional association supporting the advancement of information and communications technology (ICT) profession. They publish the Telecommunications Distribution Methods Manual (TDMM) and other Telecommunications standards.

EF **Entrance Facility**
An environmentally controlled centralized space for telecommunications equipment that usually houses a main or intermediate cross-connect. (TIA)

ER **Equipment Room**
A room in a building where public and private network services can enter the building and be consolidated.

HC **Horizontal Cross-Connect**
A cross-connect of horizontal cabling to other cabling, e.g., horizontal or backbone equipment.

IC **Intermediate Cross-Connect**
A cross-connect between first-level and second-level backbone cabling. This secondary cross-connect in the backbone cabling is used to mechanically terminate and administer backbone cabling between the main cross-connect and horizontal cross-connect (station cables).

IDF **Intermediate Distribution Facility**
Legacy term (no longer used) for what is now defined as the TR-HC or TR-IC

IP **Internet Protocol**
A standard addressing scheme and message routing protocol for communication between nodes of a data network.

ISP **Internet Service Provider**
A company that provides subscribers with access to the internet.

IT **Information Technology**
Use of any computers, storage, networking, and other physical devices, infrastructure, and processes to create, process, store, secure, and exchange all forms of electronic data.

LAN **Local Area Network**
Collection of devices connected together in one physical location, such as a building, office, or home. A LAN can be small or large, ranging from a home network with one user to an enterprise network with thousands of users and devices in an office or school.

MC **Main Cross-Connect**
The centralized portion of the backbone cabling used to mechanically terminate and administer the backbone cabling; this provides connectivity between equipment rooms, entrance facilities, horizontal cross-connects and intermediate cross-connects.

MDF **Main Distribution Frame**
Legacy term (no longer used) for what is now defined as the TR-MC and/or TR-MER

MER **Main Equipment Room**
Acts as the main IT location for a building. It is the transition point for all the voice and data cabling that enters the building, and we connect it further to the other equipment rooms.

MM **Multi-mode**
Type of optical fiber designed to carry multiple light rays or modes simultaneously, each at a marginally different reflection angle inside the optical fiber core.

OFC **Optical Fiber Cable**
An optical fiber cable is a type of cable that has a number of optical fibers bundled together, which are normally covered in their individual protective plastic covers. Optical cables are used to transfer digital data signals in the form of light up to distances of hundreds of miles with higher throughput rates than those achievable via electrical communication cables. All optical fibers use a core of hair-like transparent silicon covered with less refractive indexed cladding to avoid light leakage to the surroundings. Due to the extreme sensitivity of the optical fiber, it is normally covered with a high-strength, lightweight protective material like Kevlar.

OMX **Optical Mode**
(X represents the multi-mode fiber classification)
Optical Fiber Classification identifying the fiber type, core size, and properties for multi-mode optical fiber. Currently, OM1-5 are on the market. See Table 1 for more information.

OSX **Optical Single-mode**
(X represents the fiber construction)
Optical Fiber Classification identifying the fiber type and properties for single-mode optical fiber. Currently, OS1 and 2 are on the market. See Table 1 for more information.

OSP **Outside Plant Cabling**
Outside plant refers to all of the physical cablings and supporting infrastructure (such as conduit, cabinets, towers, or poles), as well as any associated hardware, placed between a demarcation point in one switching facility and another switching center or customer premises.

RMFC **Rack Mount Fiber Cabinet**
Also know as an LIU or Fiber Patch Panel. Enclosure mounted in a network rack to allow optical fiber to be terminated and cross-connected.

SM **Single-mode**
Common type of optical fiber that is used to transmit over longer distances. A single-mode fiber is a single glass fiber strand used to transmit a single mode or ray of light.

TIA **Telecommunications Industry Association**
Professional organization providing industry standards, professional certifications, and product standards to further the information communications technology industry.

TR **Telecommunications Room (previously known as IDF)**
An enclosed architectural space designed to contain telecommunications equipment, cable terminations, or cross-connect cabling.

VoIP **Voice over IP**
A technique that allows voice to be carried in a portion of the bandwidth of an Ethernet signal that is carrying IP traffic.

WAP **Wireless Access Point**
» A wireless access point (WAP) is a hardware device or configured node on a local area network (LAN) that allows wireless capable devices and wired networks to connect through a wireless standard, including Wi-Fi or Bluetooth. WAPs feature radio transmitters and antennae, which facilitate connectivity between devices and the Internet or a network.

» A WAP is also known as a hotspot.

SEQUENCING & RECOMMENDATIONS			
Phase	*Prerequisites*	*Scope*	*ROM Cost Opinion*
PHYSICAL CONSTRUCTION OF NEW TELECOMMUNICATIONS			
1	N/A	» Retrofit Telecommunications Rooms In Buildings 1, 3, 4, 5, 6, 8, 9, 16, 17, 18, 19, 20, 22, 27, 28, 29, 32, 33, 34, & 35 - Demolish any obsolete or non-operational existing equipment to make space. - Provide Electrical Infrastructure (Grounding, UPS, Convenience Receptacles, Equipment Receptacles, Power Distribution Units [PDUs]) - Provide a dedicated cooling systems for the MER and TRs. - Expand existing Access Control, add card reader and electrically locking hardware. - Install Supporting Equipment (Racks, Patch Panels, Cable Management, Rack Mount Fiber Cabinets (RMFC), Adaptor plates, Ladder Rack, etc.)	$3,757,000
INSTALL BACKBONE OFC TO NEW TELECOM SPACES			
2	N/A	» Pull 12 st OS2 and 12 st OM4 OFC from MER of Building 18 to each telecom room in Buildings 1, 3, 4, 5, 6, 8, 9, 16, 17, 19, 20, 22, 27, 28, 29, 32, 33, 34, & 35 - Terminate OFC Cabling if RMFC is installed.	$1,014,000
INSTALL HORIZONTAL CABLING TO NEW TELECOMMUNICATIONS OUTLETS			
3	1	» Install Back boxes and pathway at new telecommunications outlet locations - Existing jacks will need to be maintained in operation. » Install Category 6A cabling and terminate for new telecommunications outlets.	$9,889,000
OWNER COORDINATION REQUIRED			
4	1-3	» Install new Ethernet Switches » Install Patch cables for active ports. » Cut over Existing workstations to the new infrastructure to allow demolition of existing telecommunications outlets. » Deploy system on new telecommunications infrastructure.	By Owner
INSTALL HORIZONTAL CABLING TO EXISTING TELECOMMUNICATIONS OUTLETS			
5	1-4	» Install Category 6A using existing pathway to existing telecommunications outlets and terminate. - Demolish existing horizontal cabling to existing telecommunications outlets.	$4,615,000
DEMOLISH DEFUNCT INFRASTRUCTURE			
6	1-5	» Demolish OSP cable. - Demolish OM1 Multi-mode OSP OFC to from MER to buildings 3, 8, 9, 17, 19, 20, & 28 - Demolish Copper twisted pair OSP Backbone cabling from MER to Buildings 4, 6, 8, 16, 20, 22, 27, 28, & 29 - Demolish OM1 Multi-mode OSP OFC to from Building 3 TR to Buildings 1, 4, 5, & 32 - Demolish Copper twisted pair OSP Backbone cabling from Building 4 TR to Buildings 1, 3, 5, & 34 - Demolish OM1 Multi-mode OSP OFC to from Building 32 TR to Buildings 33 & 35 - Demolish Copper twisted pair OSP Backbone cabling from Building 1 to Buildings 32, 33, & 35 » Demolish backbone cabling from MER to Buildings 9, 17, 19, & 20 - Demolish OM1 Multi-mode OFC between MER and TRs. - Demolish Copper twisted pair cabling between MER and TRs. » Demolish backbone cabling between Buildings 28 & 29 - Demolish OM1 Multi-mode OFC between MER and TRs. » Demolish Building 9 backbone cabling - Demolish OM3 Multi-mode OFC between TRs. - Demolish Copper twisted pair cabling between TRs.	» Demolish Building 17 backbone cabling - Demolish OM3 Multi-mode OFC between TRs. - Demolish Copper twisted pair cabling between TRs. » Demolish Building 18 backbone cabling - Demolish OM3 Multi-mode OFC between TRs. - Demolish Copper twisted pair cabling between TRs. » Demolish Building 22 backbone cabling - Demolish OM3 Multi-mode OFC between TRs. - Demolish Copper twisted pair cabling between TRs. » Demolish Building 27 backbone cabling - Demolish OM3 Multi-mode OFC between TRs. - Demolish Copper twisted pair cabling between TRs. » Demolish Building 28 backbone cabling - Demolish OM3 Multi-mode OFC between TRs. - Demolish Copper twisted pair cabling between TRs. » Demolish Building 29 backbone cabling - Demolish OM3 Multi-mode OFC between TRs. - Demolish Copper twisted pair cabling between TRs. » Demolish Defunct telecommmunications rooms. - Remove any salvageable equipment from TR's. - Remove the remaining equipment and dispose of it.	$235,000

SERVICE PROVIDER CONNECTIONS

Phone service is provided by Category 3 twisted-pair copper backbone cabling entering the facility at the Administration Building (Building 18) MER. The telephone infrastructure is supported by 8 cables totaling 375 pairs of twisted-pair copper serving the campus from Lumen (formerly Century Link). The campus has upgraded to a digital phone system in recent years, but it still utilizes the analog voice cabling infrastructure.

Internet service is also provided to the campus by Lumen, and enters the facility at the Administration Building (Building 18) MER. The service is supported by a single-mode fiber infrastructure terminating in the MER.

OPTICAL FIBER COMPARISON

Fiber Mode	Fiber Type	Jacket Color	Core Size	Data Rate	Distance	Application	Notes
Multi-mode	OM1	Orange	62.5 µm	1 Gb @ 850 nm wavelength	Up to 300 m	Short-haul networks, Local Area Networks (LANs), & Private networks	None
	OM2	Orange	50 µm	1 Gb @ 850 nm wavelength	Up to 600 m	Short-haul networks, Local Area Networks (LANs), & Private networks	Generally used for shorter distances. Has twice the distance as OM1.
	OM3	Aqua	50 µm	10 Gb @ 850 nm wavelength	Up to 300 m	Larger Private Networks	Able to run 40 GB or 100 GB up to 100 meters utilizing an MPO Connector.
	OM4	Aqua	50 µm	Up to 100 G	Up to 400 m	High-Speed Networks, Data Centers, Financial Centers, and Corporate Campuses	Able to run 100 GB up to 150 meters utilizing an MPO connector.
	OM5	Lime Green	50 µm	Up to 100 G	Up to 500 m	High Speed Networks and Data Centers that require greater link distances and higher speeds.	Designed to support Short Wavelength Division Multiplexing (SWDM)
Single-mode	OS1	Yellow	8-9 µm	Up to 10 G	Up to 6 mi	Moderate distance telecom links, LANs, buildings, factories, office parks, or campuses.	Tight Buffered Cable
	OS2	Yellow	8-9 µm	Up to 100 G	up to 124 mi	High Fiber count, long distance telco backbones, direct bury applications.	Loose Tube Cable

INTER-BUILDING BACKBONE CABLING

The existing communications infrastructure interconnecting the campus is provided by a variety of different fiber optic cables. Currently the backbone is composed of both OM1 multi-mode and single-mode optical fiber cabling.

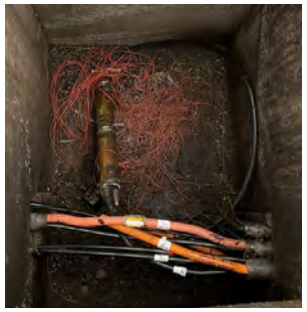
The current OM1 fiber backbone is extremely limited in bandwidth and data speeds. OM1 fiber is obsolete, is not readily available through distribution, and is not being manufactured in great quantity. TIA standards for healthcare facilities dictate the use of single-mode optical fiber or a minimum of OM4 rated multi-mode fiber for optical backbone cabling. To allow future network expansion, technology growth, and to meet current standards, it is recommended that the existing OM1 optical fiber backbone be replaced with an optical fiber backbone utilizing 12-strands of OM4 multi-mode and 12 strands of single-mode outside plant optical fiber cable supporting each building. The existing OM1 optical fiber backbone cabling should be demolished.

Telephone service for the campus is supported by a twisted-pair copper infrastructure. As the campus moves to new technologies, this infrastructure is not capable of continuing to support campus needs. The copper infrastructure should be reduced to just support code required needs and the voice infrastructure should be converged onto the new fiber infrastructure.

INTRA-BUILDING BACKBONE CABLING

Campus buildings are supported by a mixture of 12 strand OM1 and OM3 multi-mode and single-mode optical fiber cables. Some buildings have telecommunications rooms that are supported by Category 5e backbone cables. These rooms have no optical fiber backbone and are extremely limited in bandwidth and capacity. To meet TIA standards, backbone fiber cabling should be upgraded to a minimum of OM4 multi-mode and augmented with the addition of single-mode optical fiber cable. Providing 12-strand OS2 single-mode and 12-strand OM4 multi-mode optical fiber cables will provide an optical fiber backbone that is compliant with current industry standards.

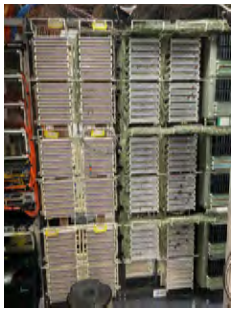
Category 3 twisted pair copper backbone cabling is utilized throughout the campus which originates from the MER. The cabling is then patched through 110 blocks to the outlet cabling coming from the workstation. The voice network should be collapsed to a single converged IP based network, and the existing Category 3 cabling should be demolished to align with current standards.



Existing Backbone Fiber and Copper

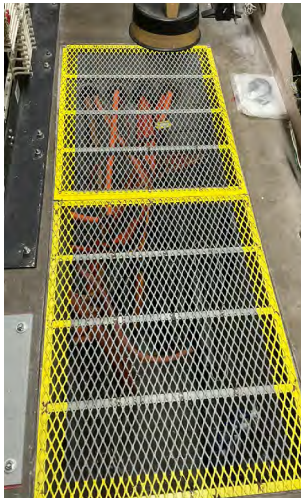
Existing Fiber and Copper Splices.

Existing Category 3 Backbone Cabling.



Existing Voice Cross-Connect.

Existing Fiber Patching.



Existing Backbone Cabling In Bldg 18 Tunnel.

HORIZONTAL CABLING

CATEGORY CABLE COMPARISON				
Category	Max. Data Rate	Bandwidth	Max. Distance	Usage
Category 1	1 Mbps	0.4 MHz		Telephone and modem lines
Category 2	4 Mbps	4 MHz		LocalTalk & Telephone
Category 3	10 Mbps	16 MHz	100 m (328 ft.)	Telephone & 10BaseT Ethernet
Category 4	16 Mbps	20 MHz	100 m (328 ft.)	Token Ring
Category 5	100 Mbps	100 MHz	100 m (328 ft.)	100BaseT Ethernet
Category 5e	1 Gbps	100 MHz	100 m (328 ft.)	100BaseT Ethernet, Residential Homes
Category 6	1 Gbps	250 MHz	100 m (328 ft.) 10 Gb at 37 m (121 ft.)	Gigabit Ethernet, Commercial Buildings
Category 6A	10 Gbps	500 MHz	100 m (328 ft.)	Gigabit Ethernet in Data Centers & Commercial Buildings
Category 7	10 Gbps	600 MHz	100 m (328 ft.)	10 Gbps Core Infrastructure
Category 7A	10 Gbps	1000 MHz	100 m (328 ft.) 40 Gb at 50 m (164 ft.)	10 Gbps Core Infrastructure
Category 8	25 Gbps (Cat8.1) 40 Gbps (Cat8.2)	2000 MHz	30 m (98ft.)	25 Gbps/40 Gbps Core Infrastructure

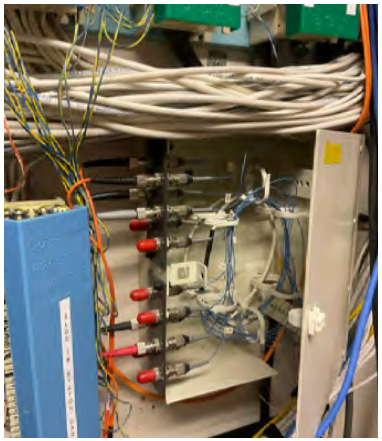
Source: https://tripplite.eaton.com/products/ethernet-cable-types

VOICE HORIZONTAL CABLING

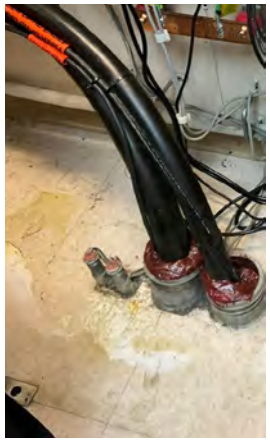
Upon review of the voice infrastructure at Western State Hospital, it has been identified as insufficient to meet the current and future communication needs. The existing phone system is a digital phone system supported by Category 3 and 5e cabling.

The existing voice infrastructure is not adequate to meet the current and future needs of Western State Hospital, and is not in compliance with TIA standards for infrastructure. It is recommended that the existing cabling infrastructure be replaced with new cabling infrastructure, and the voice network be collapsed onto a converged network infrastructure utilizing standards compliant Category 6A cabling.

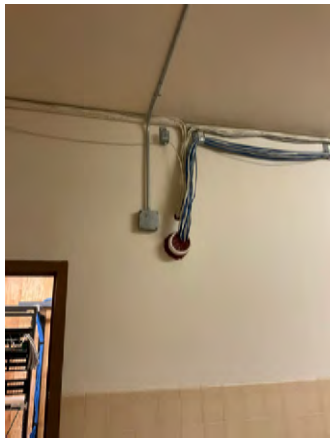
Building 17 Voice Backbone Cabling.



Existing Fiber Patching.



Existing Backbone Fiber and Copper.



Existing Horizontal Cabling

ETHERNET HORIZONTAL CABLING

The existing ethernet network is comprised of Category 5e and Category 6A cabling. The Category 6A cabling was installed recently as part of some building renovations. The existing patch panels, connectors, met Category 5e and Category 6A standards respective of the category of the cabling installed in each building. The Category 6A meets the current industry standard. And while the existing Category 5e cabling is sufficient to support the existing bandwidth and data speeds required by current network demands, it does not technically meet the TIA-1179 standards for healthcare facilities, therefore, our recommendation is to upgrade all horizontal cabling to Category 6A.

Meeting TIA-1179 standards requires the entire channel to be Category 6A certified, which requires all new patch panels, modular jacks, and wall outlets comprising a replacement of the entire infrastructure. Existing Category 5e patch panels will be removed in favor of the Category 6A infrastructure. See sequencing and recommendations for sequencing of the project to minimize down time while the infrastructure is replaced.

Existing Category 6A Cabling.

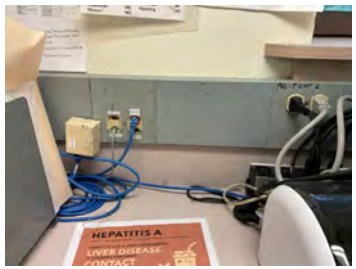
Existing Category 5e Cabling.

Existing Horizontal Cabling (2)

MICROSOFT TEAMS BANDWIDTH REQUIREMENTS PER ENDPOINT						
	MINIMUM		RECOMMENDED		BEST PERFORMANCE	
	Download	*Upload*	*Download*	*Upload*	*Download*	*Upload*
AUDIO						
One-to-One	10 kbps	10 kbps	58 kbps	58 kbps	76 kbps	76 kbps
Meetings	10 kbps	10 kbps	58 kbps	58 kbps	76 kbps	76 kbps
VIDEO						
One-to-One	150 kbps	150 kbps	1.5 Mbps	1.5 Mbps	4 Mbps	4 Mbps
Meetings	150 kbps	200 kbps	2.5 Mbps	4 Mbps	4 Mbps	4 Mbps
SCREEN SHARING						
One-to-One	200 kbps	200 kbps	1.5 Mbps	1.5 Mbps	4 Mbps	4 Mbps
Meetings	250 kbps	250 kbps	2.5 Mbps	2.5 Mbps	4 Mbps	4 Mbps
TOGETHER MODE						
Meetings	1 Mbps	1.5 Mbps	1.5 Mbps	2.5 Mbps	2.5 Mbps	4 Mbps

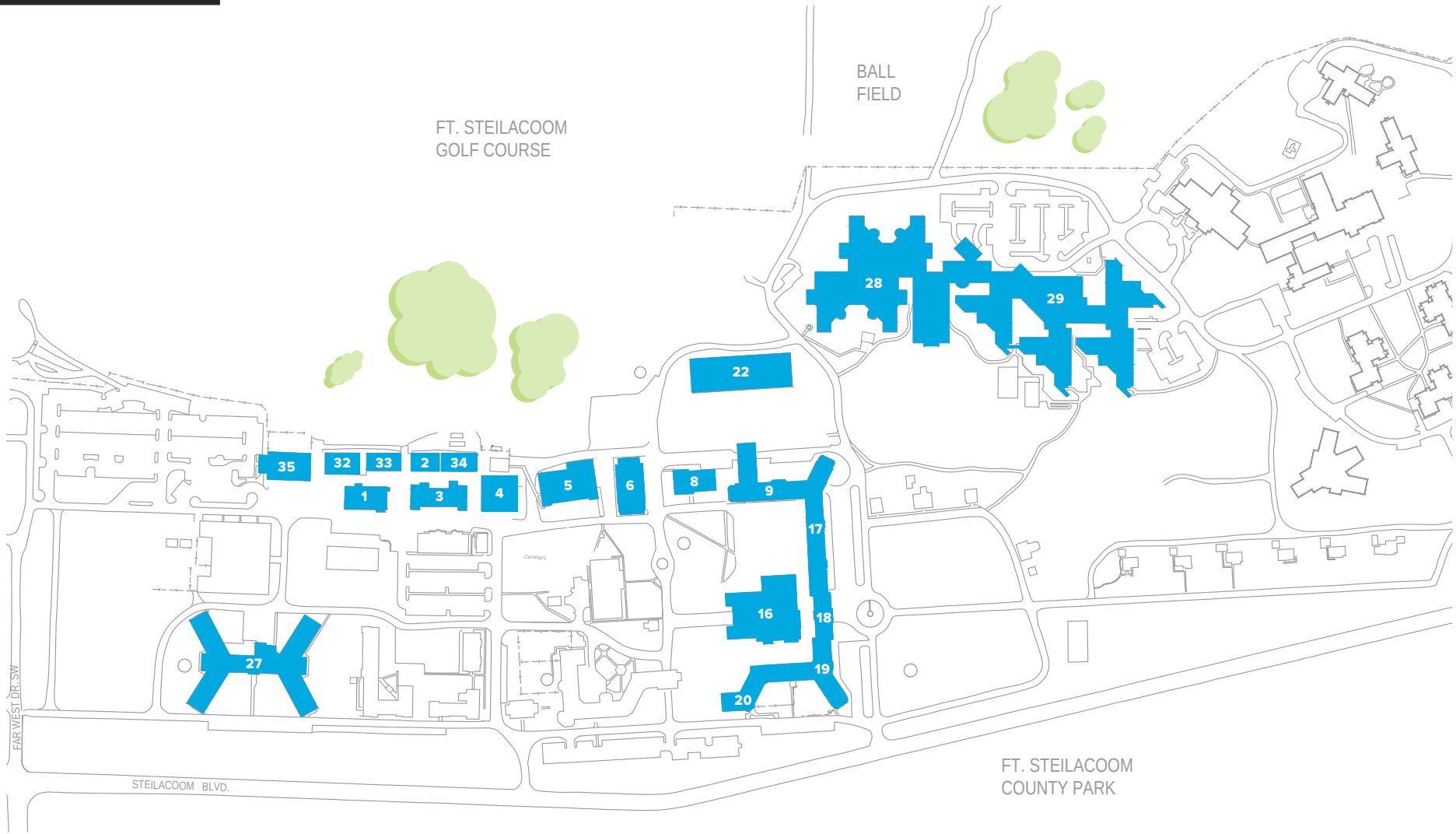
Source: https://learn.microsoft.com/en-us/microsoftteams/prepare-network

Existing Split Pair Voice Ports.



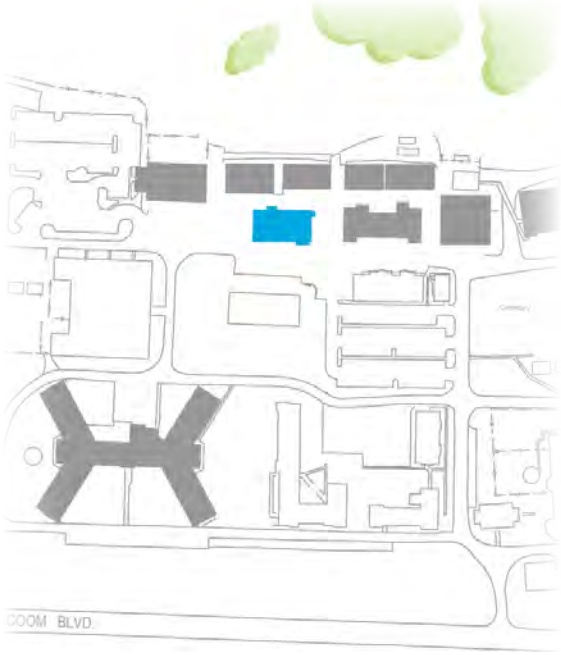
Existing Telecom Outlets.

CAMPUS MAP



HARGIS

EVALUATION CRITERIA FOR TELECOMMUNICATIONS ROOMS		
Room/Space	»	Quantity, Location, and Size of Telecommunications Room.
	»	Available space to install and terminate new cabling and rack space to mount new equipment
	»	Adequate working clearances to access and maintain additional equipment and cabling
	»	Space is dedicated to telecommunications
	»	Space is secured to prevent unauthorized access.
Racks	»	Equipment racks with available space for new rack mounted network equipment required to support programs housed in building or area
Grounding & Bonding	»	Grounding bus bar bonded to NEC recognized grounding systems
	»	Equipment and cabling bonded to ground
UPS	»	Uninterruptable Power Supply (UPS) in place and operational to provide backup power in case of power failure
	»	UPS sized to provide adequate run time to support new network equipment
Cooling	»	Dedicated cooling equipment for equipment housed in space
	»	Expected life span of existing equipment
	»	Adequate capacity to support new equipment
Backbone Cabling	»	Existing fiber backbone with bandwidth and capacity to support current and future applications
	»	Minimum of 12 single-mode and 12 multi-mode optical fiber cables.
Cable Management	»	Cable trays and wall mounted support systems
	»	Rack-mounted vertical and horizontal cable management systems
Pathway	»	Dedicated telecommunications standard compliant pathways
	»	Spare conduits available with capacity for new cabling



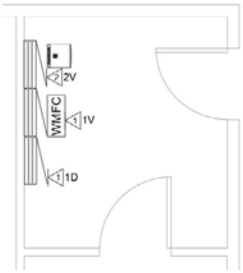
STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

MAINTENANCE OFFICE



TELECOMMUNICATIONS ROOM – TR-MAINTENANCE OFFICE

TR-Maintenance Office is in the corner of the building. The telecommunications space has a wall mount fiber cabinet, and a small wall mounted rack with copper patch panels. Connectivity is provided through a 4-strand OM1 multi-mode optical fiber backbone cable from the Maintenance Shops and a 100-pair twisted-pair copper backbone cable from the MER in Administration (Building 18). There are 25-pair twisted-pair copper backbone cables connecting from the Maintenance Office to Inventory Control, the Maintenance Warehouse, and the Warehouse. Existing horizontal cabling is Category 5e, voice horizontal cabling is Category 3. The space does not have any cooling, has limited cable management, and has no space for expansion. The room size is insufficient and is not compliant with standards.

The existing telecommunications space is not standards compliant. It is recommended to create a new, dedicated telecommunications room. The existing backbone and horizontal cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to provide a new, dedicated telecommunications room with standards compliant backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, rack space, cable management, and proper grounding. The addition of card-based access control is recommended to control and track access to the space.

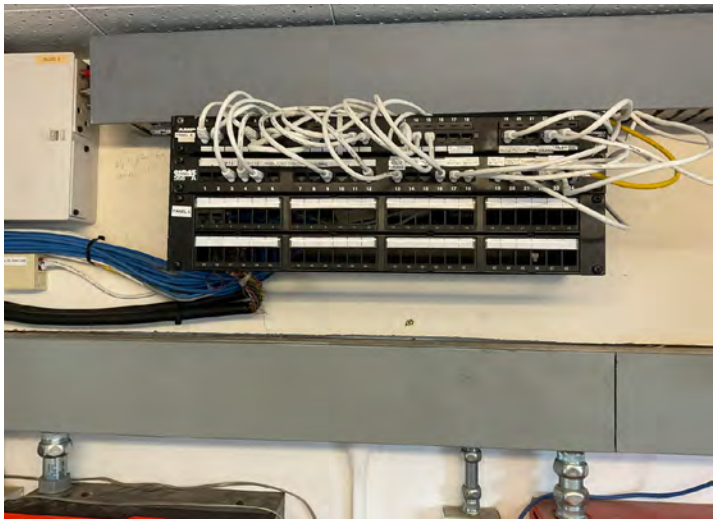
Deficiencies:

- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Electrical infrastructure does not meet minimum requirements per standards.
- Minimal overhead ladder tray for cable support, leading to cables being draped or placed directly on equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

Recommendations:

- Provide a new dedicated telecommunications room.
- Add ladder tray and cable management as needed.
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from Maintenance Shops (Building 3).
- Add power circuits and receptacles as needed.
- Provide a properly sized UPS.
- Add Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-MAINTENANCE OFFICE

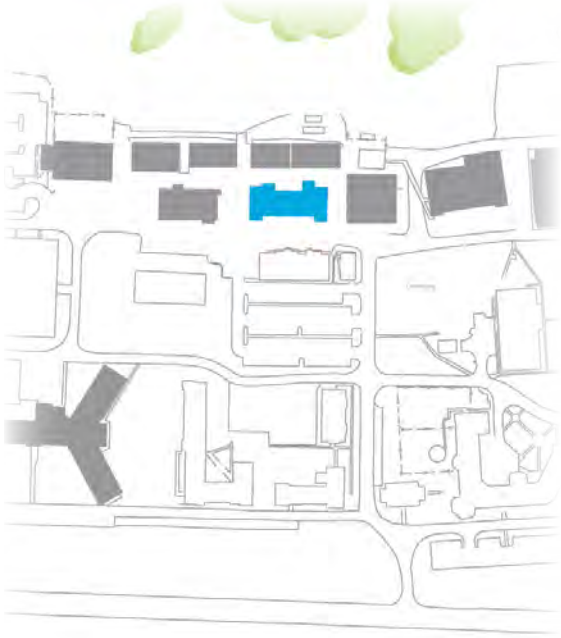


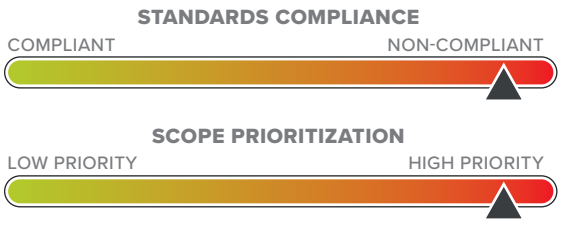
Existing Data & Voice Patching.

Existing Fiber Cabinet.

Existing Telecom Equipment.

Existing Horizontal Cabling.





MAINTENANCE SHOPS

TELECOMMUNICATIONS ENCLOSURE – TE-MAINTENANCE SHOPS

The telecommunications space in the Maintenance Shops is a section of wall space in the shop office. There is a wall mounted enclosure, wall mounted 110 blocks, and three wall mount fiber cabinets. The enclosure houses copper patch panels, cable management, network switches, a power distribution unit and a UPS. Connectivity is provided through a 12-strand OM1 multi-mode fiber optical backbone cable to the MER in Administration (Building 18). Additional connectivity is provided by two 4-strand OM1 optical fiber backbone cables, one connects to Building 1, one to Building 32, and two 6-strand OM1 optical fiber backbone cables, one to Building 5, one to Building 4. Voice backbone cabling is provided by a 100-pair twisted-pair copper backbone cable from the Powerhouse. Existing horizontal cabling is Category 5e for data and a mix of Category 5 and 5e for voice cabling. There is a telecommunications grounding busbar, and the enclosure is bonded to it, but the busbar is not grounded. There is a dedicated equipment receptacle next to the enclosure.

The existing telecommunications space is not standards compliant. However, due to the small size of the building, the limited telecommunications infrastructure, and the lack of other more suitable spaces, it is recommended to maintain the space as the telecommunications enclosure. The existing backbone and horizontal cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling and cable management are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal overhead ladder tray for cable support, leading to cables being draped or placed directly on equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Electrical infrastructure does not meet minimum requirements per standards.
- Uncontrolled access to space with no identity verification.

Recommendations:

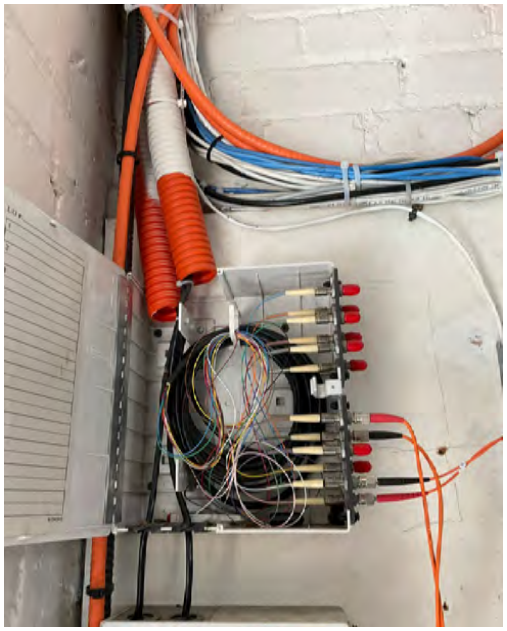
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add cable management as needed.
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ENCLOSURE – TE-MAINTENANCE SHOPS

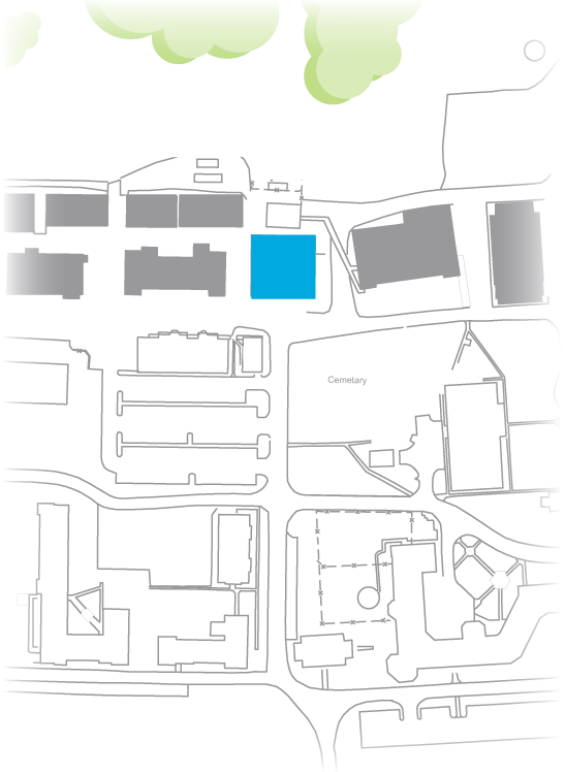
Existing Telecom Enclosure.

Existing Data Patching.

Existing Voice Patching.



Existing Fiber Patching.



STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

POWERHOUSE

TELECOMMUNICATIONS ENCLOSURE – TE-POWERHOUSE

The telecommunications space in the Powerhouse is a section of wall space in an office. There is a wall mounted enclosure. The enclosure houses copper patch panels, cable management, network switches, a power distribution unit and a UPS. Connectivity is provided through a 6-strand OM1 multi-mode fiber optical backbone cable to the TE in the Maintenance Shops (Building 3). Voice backbone cabling is provided by a 100-pair twisted-pair copper backbone cable from the MER in Administration (Building 18). Voice backbone cables are patched from the Powerhouse to Carpenter Shop, Laundry, Maintenance Office, and Maintenance Shops. Existing horizontal cabling is Category 5e for data and Category 3 for voice cabling. There is a telecommunications grounding busbar, and the enclosure is bonded to it, but the busbar is not grounded. There is a dedicated equipment receptacle next to the enclosure. The voice backbone and cross-connect is on the other side of the building in another shared space.

The existing telecommunications space is not standards compliant. However, due to the small size of the building, the lack of other more suitable spaces, and the limited telecommunications infrastructure, it is recommended to maintain the space as the telecommunications enclosure. The existing backbone and horizontal cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, cable management, and proper grounding are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal overhead ladder tray for cable support, leading to cables being draped or placed directly on equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Uncontrolled access to space with no identity verification.

Recommendations:

- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from the Maintenance Shops (Building 3).
- Add cable management as needed.
- Add dedicated cooling system.
- Control access to authorized individuals.

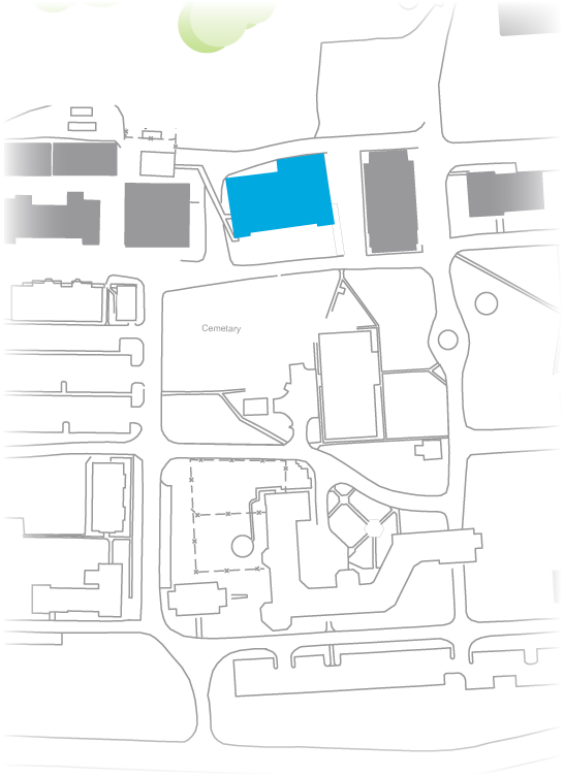
TELECOMMUNICATIONS ENCLOSURE – TE-POWERHOUSE

Existing Telecom Enclosure.

Existing Data Patching.

Existing Cabling.

Existing Backbone Fiber.



STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

LAUNDRY

TELECOMMUNICATIONS ENCLOSURE – TE-LAUNDRY

The telecommunications space in Laundry is a section of wall space in what appears to be a storage area. There is a wall mounted enclosure. The enclosure houses copper patch panels, cable management, network switches, a power distribution unit and a broken UPS. Connectivity is provided through a 6-strand OM1 multi-mode fiber optical backbone cable to the TE in the Maintenance Shops (Building 3). Voice backbone cabling is provided by a 100-pair twisted-pair copper backbone cable from the Powerhouse. Existing horizontal cabling is Category 5e for data and Category 3 for voice cabling. There is no telecommunications grounding busbar. There is a dedicated equipment receptacle next to the enclosure. The voice backbone and cross-connect is on the other side of the building in another shared space.

The existing telecommunications space is not standards compliant. It is recommended to provide a dedicated telecommunications room. The existing backbone and horizontal cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, cable management, and proper grounding are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

- Telecommunications Room does not meet standards.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal overhead ladder tray for cable support, leading to cables being draped or placed directly on equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Uncontrolled access to space with no identity verification.

Recommendations:

- Provide new dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from the Maintenance Shops (Building 3).
- Add cable management as needed.
- Add dedicated cooling system.
- Control access to authorized individuals.

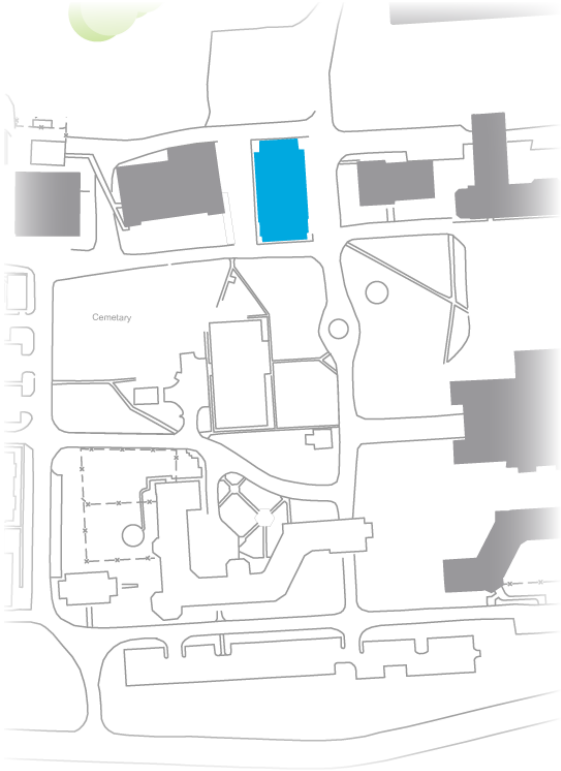
TELECOMMUNICATIONS ENCLOSURE – TE-LAUNDRY

Existing Broken UPS.

Existing Data Patching.

Existing Fiber Patching.

Existing Telecom Enclosure.



STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

AUDITORIUM

TELECOMMUNICATIONS ROOM – TR-44

Telecommunications Room TR-44 is on the first floor of the Auditorium in a shared storage space. The telecommunications enclosure is built into the storage shelving in the room and has a swing cover. The enclosure has copper patch panels, a wall mounted rack with network switches, a dedicated equipment receptacle, a telecommunications grounding bar, and a UPS. Connectivity is provided through a 12-strand single-mode optical fiber backbone cable to the MER in Administration (Building 18). Voice backbone cabling is provided by a 25-pair twisted-pair copper backbone cable from the MER. Existing horizontal cabling is Category 5e for data and Category 3 for voice cabling. There is no dedicated cooling in the telecommunications space.

The existing telecommunications space is not standards compliant. The existing backbone and horizontal cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to provide a new, dedicated telecommunications room with standards compliant backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, rack space, cable management, and proper grounding are required to meet current standards. The addition of card-based access control is recommended to control and track access to the space.

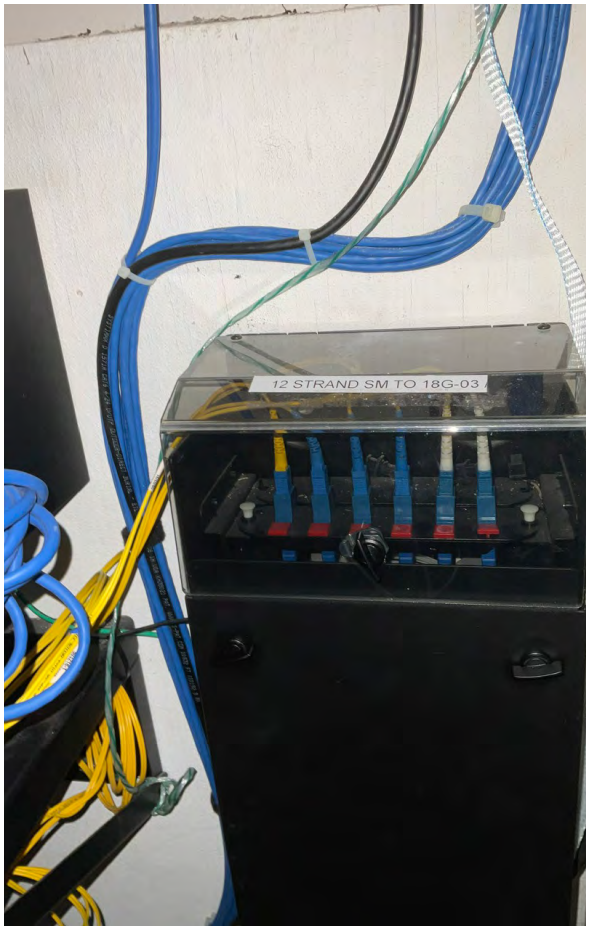
Deficiencies:

- Telecommunications Room does not meet standards.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Minimal overhead ladder tray for cable support, leading to cables being draped or placed directly on equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Uncontrolled access to space with no identity verification.

Recommendations:

- Provide new dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Provide labels for all new cabling and existing cables to remain.
- Add cable management as needed.
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-44

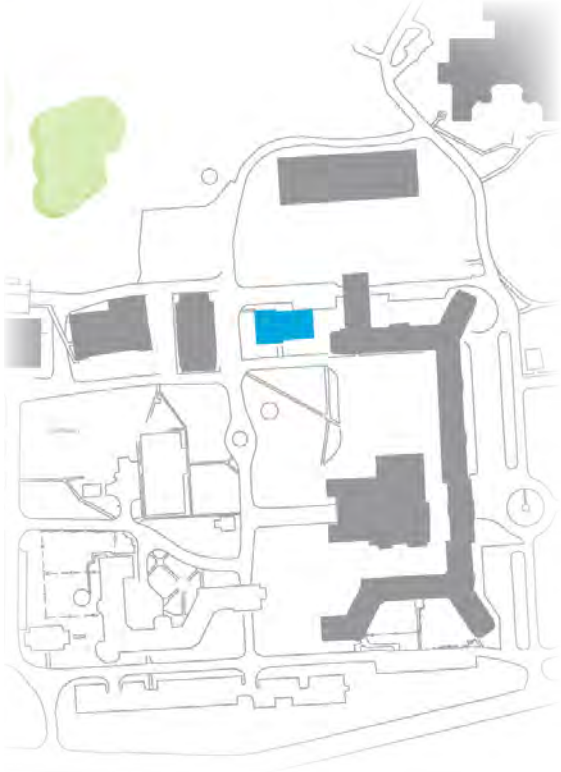


Existing Fiber Cabinet.

Existing Grounding.

Existing Horizontal Cabling.

Existing Voice and Data Patching.



STANDARDS COMPLIANCE

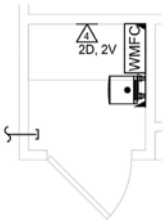
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

RESEARCH, SECURITY, AND LIBRARY

TELECOMMUNICATIONS ROOM – TR-113



Telecommunications Room TR-113 is a section of wall space in an abandoned shower room. There are wall mounted copper patch panels, a wall mount fiber cabinet, and vertical wall rack with network switches. There is a shelf that holds a UPS and a network switch. Connectivity is provided through 12-strand single-mode and 12-strand OM1 multi-mode fiber optical backbone cables to the MER in Administration (Building 18). Existing horizontal cabling is Category 5e for data and a mix of Category 3 for voice cabling. There is a telecommunications grounding busbar, but nothing is bonded to it. There is a dedicated equipment receptacle next to the shelf. There is no cooling system present. Voice cabling for the first floor is patched in Room 123.

The existing telecommunications space is not standards compliant. It is recommended to provide a dedicated telecommunications room. The existing horizontal cabling and the existing multi-mode optical fiber backbone do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing multi-mode optical fiber backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Telecommunications racks, dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

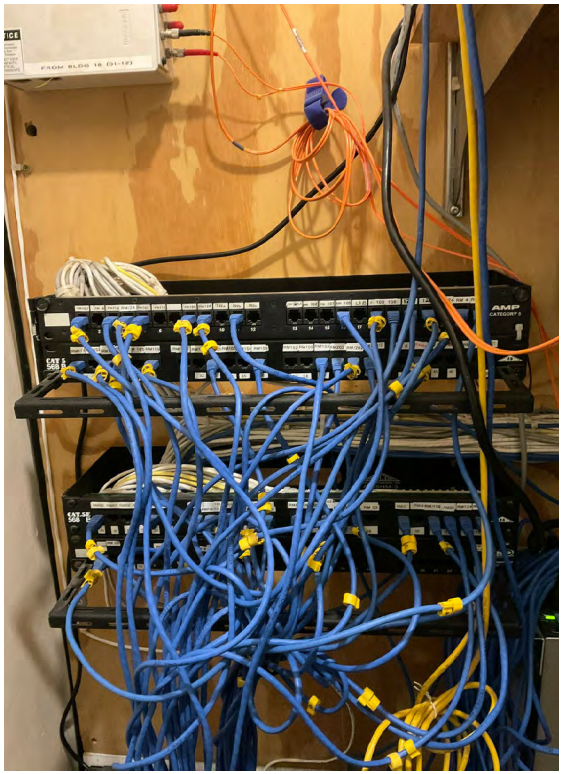
Deficiencies:

- Telecommunications Room does not meet standards.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Minimal overhead ladder tray for cable support, leading to cables being draped or placed directly on equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Uncontrolled access to space with no identity verification.

Recommendations:

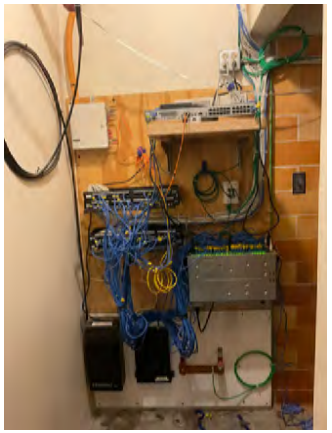
- Provide new dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Provide labels for all new cabling and existing cables to remain.
- Add cable management as needed.
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-113

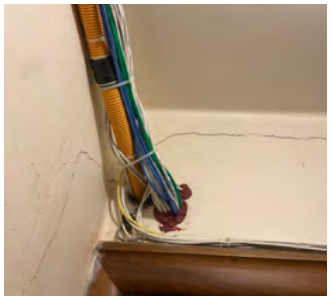


Existing Data Patching.

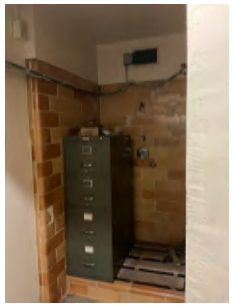
Existing Fiber Cabinet.



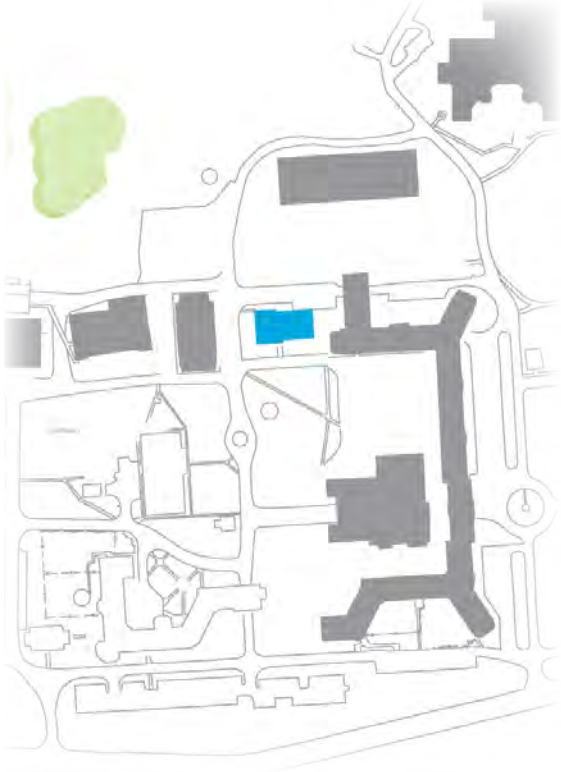
Existing Telecom Equipment.



Existing Horizontal Cabling.



Abandoned Shower.



STANDARDS COMPLIANCE

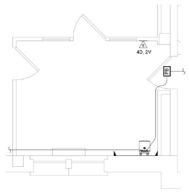
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

RESEARCH, SECURITY, AND LIBRARY

TELECOMMUNICATIONS ENCLOSURE – TE-208



Telecommunications Enclosure TE-208 is a wall mounted enclosure in an office. The enclosure houses copper patch panels, cable management, network switches, 110 blocks for voice patching, and a UPS. Connectivity is provided through two Category 5e cables connect to TR-113. Voice backbone cabling is provided by a 50-pair twisted-pair copper backbone cable from the first floor Room 123. Existing horizontal cabling is Category 5e for data and Category 3 for voice cabling. There is no telecommunications grounding busbar. There is a dedicated equipment receptacle in the enclosure powering the UPS. A telecommunications grounding busbar is present and bonded to the enclosure.

The existing telecommunications space is not standards compliant. It is recommended to provide a dedicated telecommunications room. The existing horizontal cabling and the existing multi-mode optical fiber backbone do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing multi-mode optical fiber backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Telecommunications racks, dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

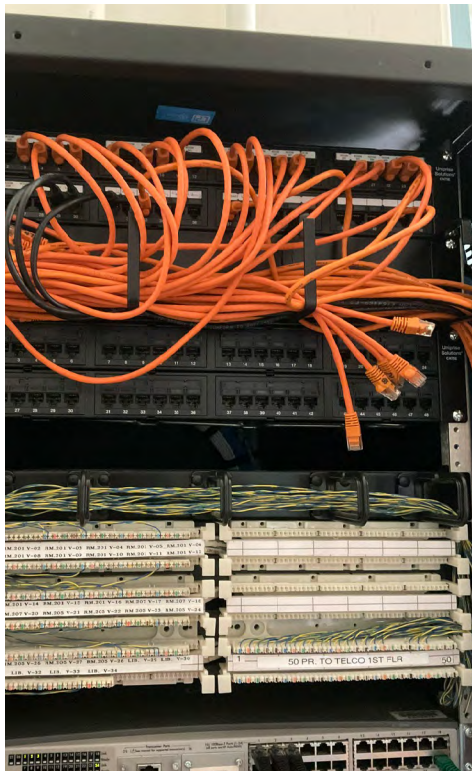
- Telecommunications Room does not meet standards.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Minimal overhead ladder tray for cable support, leading to cables being draped or placed directly on equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Uncontrolled access to space with no identity verification.

Recommendations:

- Provide new dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Provide labels for all new cabling and existing cables to remain.
- Add cable management as needed.
- Add dedicated cooling system.
- Control access to authorized individuals.

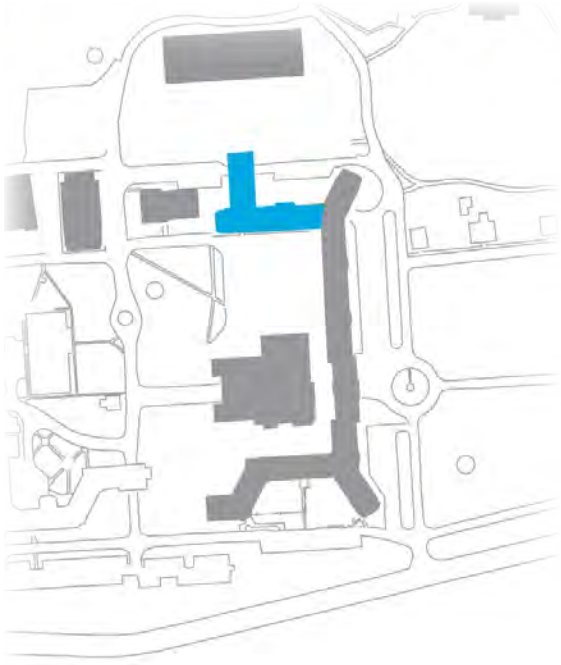
TELECOMMUNICATIONS ENCLOSURE – TE-208

Existing Telecom Enclosure.



Existing Voice and Data Patching.

Existing Grounding.



STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

OFFICE

TELECOMMUNICATIONS ROOM – TR-003

Telecommunications Room TR-003 is a dedicated telecommunications room for the building. It includes a wall mounted rack and ladder rack to support cabling. The rack contains a copper patch panels, cable management, and a network switch. Connectivity is provided by a Category 5e cable as backbone. There is a 400-pair twisted-pair copper backbone cable that is terminated on 110 blocks. 150-pair twisted-pair copper backbone cable patches and connects to the CSTC. Existing horizontal cabling is Category 5e for data and Category 3 for voice cabling. A telecommunications grounding busbar is present; the busbar is grounded, and the rack is bonded to it. A UPS is set on a shelf below the rack and is plugged into a dedicated equipment receptacle. The telecommunications room does not meet size guidelines as recommended in current standards, but working clearances are sufficient. There is no dedicated cooling.

The existing backbone and horizontal cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, and dedicated equipment and convenience receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Electrical infrastructure does not meet minimum requirements per standards.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

Recommendations:

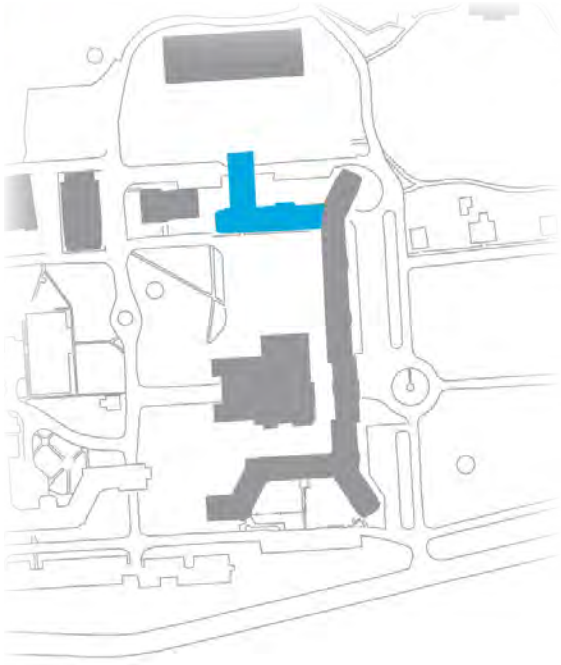
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add power circuits and receptacles as needed.
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-003

Existing Telecom Rack.

Existing Cabling.

Existing Voice Patching.



STANDARDS COMPLIANCE

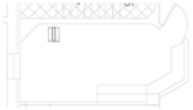
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

OFFICE

TELECOMMUNICATIONS ROOM – TR-015



Telecommunications Room TR-015 is a dedicated telecommunications room for the building. It includes a floor mounted rack and ladder rack to support cabling. At the time of the site survey, the rack only contained a rack mount fiber cabinet. Connectivity is provided through a 6-strand OM1 multi-mode optical fiber backbone cable to Building 33 and a 6-strand OM1 multi-mode optical fiber backbone cable to the MER in Administration (Building 18). Existing horizontal cabling is Category 5e for data and Category 3 for voice cabling. No UPS was observed. The rack and ladder rack appeared to be bonded, but no telecommunications grounding busbar was observed. There is no dedicated cooling. The room size and clearances are sufficient for the installed equipment.

The existing backbone and horizontal cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, a telecommunications grounding busbar, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Electrical infrastructure does not meet minimum requirements per standards.
- No grounding busbar for the telecommunications equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

Recommendations:

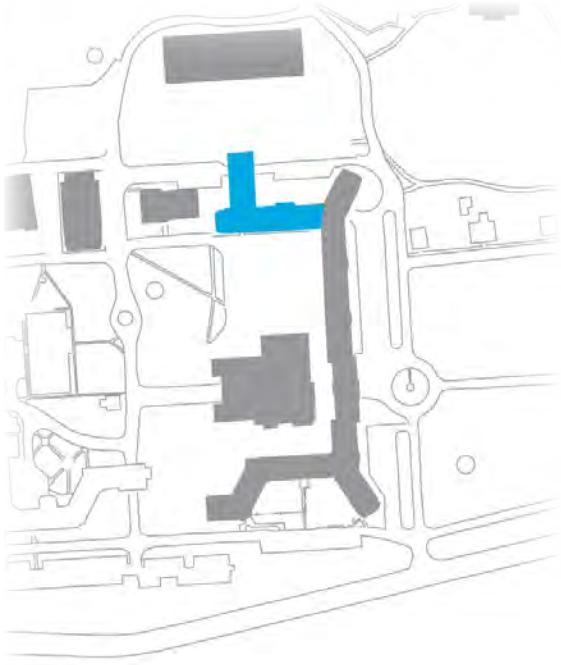
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add Telecommunications Grounding Busbar.
- Add power circuits and receptacles as needed.
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-015

Existing Ladder Tray.

Existing Telecom Rack.

Existing Conduit Sleeve.



STANDARDS COMPLIANCE

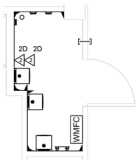
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

OFFICE

TELECOMMUNICATIONS ROOM – TR-107



Telecommunications Room TR-107 is a dedicated telecommunications room. Around the room are wall mounted copper patch panels. One wall has a wall mount fiber cabinet with 12-strands of OM1 multi-mode fiber optic backbone cable. The next wall has four wall mount copper patch panels with cable management, and a vertical rack with network switches connected via Category 5e backbone cable. Under that is a shelf with a network switch connected via OM1 optical fiber backbone cable and a UPS. The back wall has a vertical rack with a network switch connected via Category 5e backbone cable, two wall mount copper patch panels with cable management, and a wall mounted rack. The wall mounted rack has five stacked network switches with cable management connected via two Category 5e backbone cables and a UPS. The last wall has 110-blocks for terminating and patching the Category 3 backbone and horizontal cabling. Connectivity to the equipment in the room is provided through a mix of Category 5e cables and OM1 optical fiber to TR-113. Voice backbone cabling is provided by a 400-pair twisted-pair copper backbone cable from the MER. Existing horizontal cabling is Category 5e for data and Category 3 for voice cabling. There is a telecommunications grounding busbar bonded to the wall mounted rack. There are dedicated equipment receptacles powering both UPSs. The room is too small and crowded and does not meet size or clearance standards.

The existing telecommunications space is not standards compliant. It is recommended to provide a dedicated telecommunications room. The existing backbone and horizontal cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Telecommunications racks, dedicated cooling, ladder rack, cable management, telecommunications grounding busbar, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

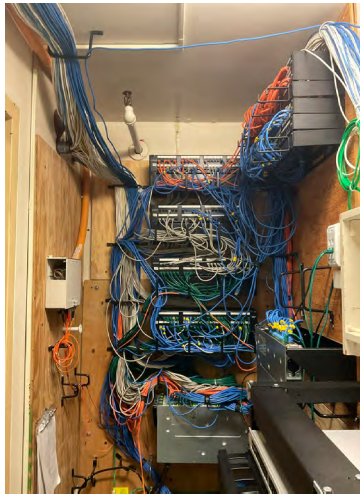
TELECOMMUNICATIONS ROOM – TR-107

Deficiencies:

- Telecommunications Room does not meet standards.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Minimal overhead ladder tray for cable support, leading to cables being draped or placed directly on equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Uncontrolled access to space with no identity verification.

Recommendations:

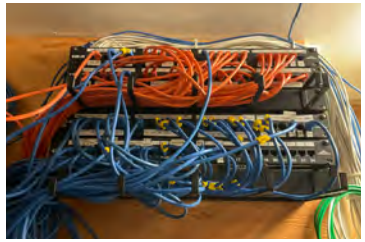
- Provide new dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Provide labels for all new cabling and existing cables to remain.
- Add cable management as needed.
- Add dedicated cooling system.
- Control access to authorized individuals.



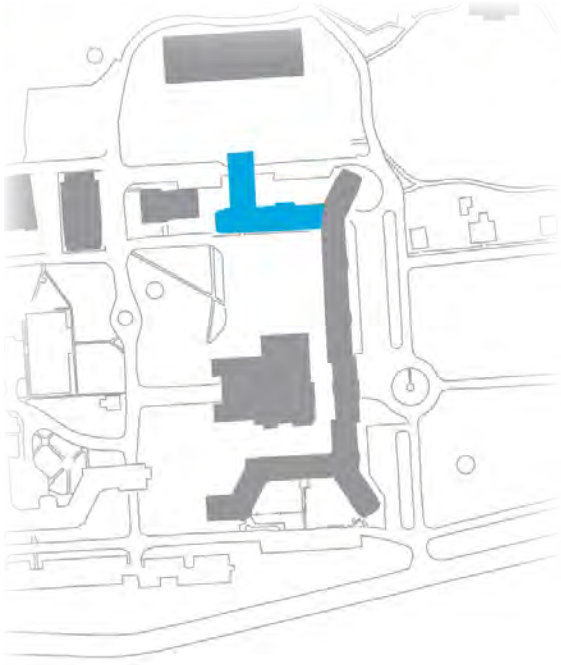
Existing Conduit Sleeve.

Existing Telecom Rack.

Existing Voice Patching.



Existing Data Patching.



STANDARDS COMPLIANCE

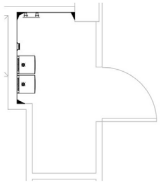
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

OFFICE

TELECOMMUNICATIONS ROOM – TR-229



Telecommunications Room TR-229 is a dedicated telecommunications room for the building. It includes a wall mounted rack and ladder rack to support cabling. The rack contains a copper patch panels, cable management, and a PDU. Next to the rack is a vertically mounted rack with two network switches connected via Category 5e backbone cable. Connectivity is provided by a Category 5e cable as backbone. There is a twisted-pair copper backbone cable that is terminated on 110 blocks. Existing horizontal cabling is Category 5e for data and Category 3 for voice cabling. A telecommunications grounding busbar is present; the busbar is grounded, and the rack is bonded to it, but the vertical rack is not. No UPS was observed although there were dedicated equipment receptacles. The telecommunications room does not meet size guidelines as recommended in current standards, but working clearances are sufficient. There is no dedicated cooling.

The existing backbone and horizontal cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, and dedicated equipment and convenience receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Electrical infrastructure does not meet minimum requirements per standards.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

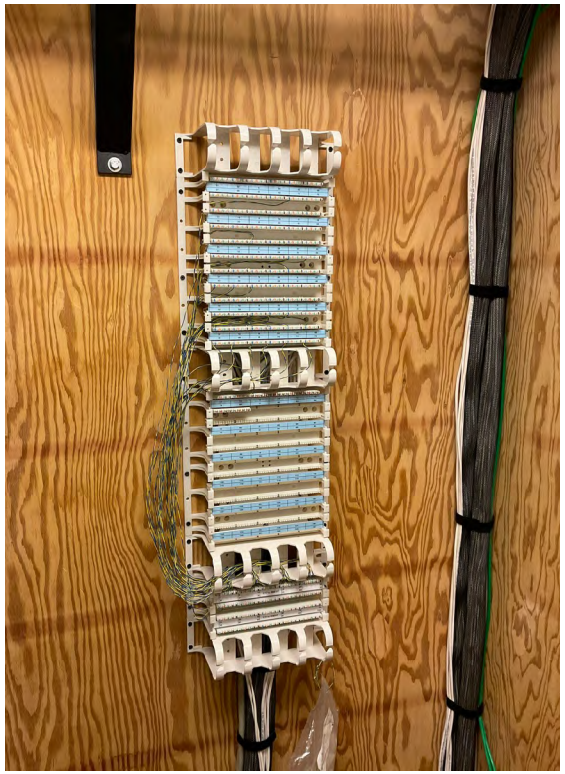
Recommendations:

- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add power circuits and receptacles as needed.
- Add a UPS to provide backup power.
- Add dedicated cooling system.
- Control access to authorized individuals.

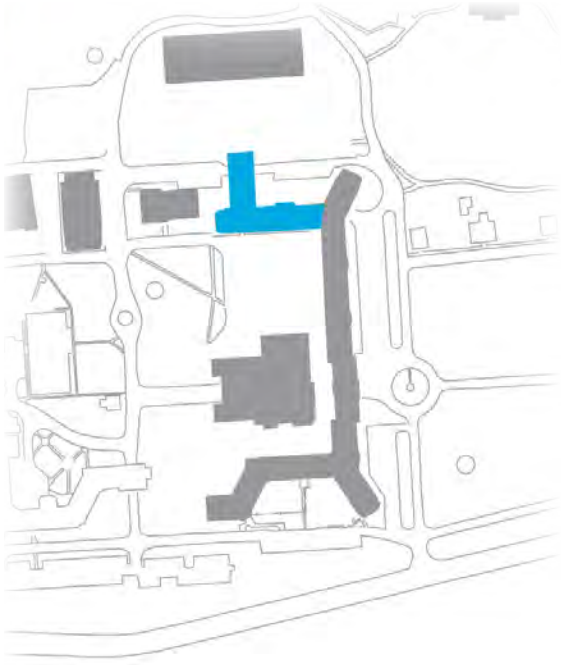
TELECOMMUNICATIONS ROOM – TR-229

Existing Telecom Rack.

Existing Grounding.



Existing Voice Patching.



STANDARDS COMPLIANCE

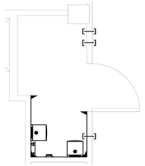
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

OFFICE

TELECOMMUNICATIONS ROOM – TR-435



Telecommunications Room TR-229 is a dedicated telecommunications room for the building. It includes a wall mounted rack and ladder rack to support cabling. The rack contains a copper patch panels, cable management, and a PDU. Next to the rack is a vertically mounted rack with two network switches connected via Category 5e backbone cable. Connectivity is provided by a Category 5e cable as backbone. There is a twisted-pair copper backbone cable that is terminated on 110 blocks. Existing horizontal cabling is Category 5e for data and Category 3 for voice cabling. A telecommunications grounding busbar is present; the busbar is grounded, and the rack is bonded to it, but the vertical rack is not. No UPS was observed although there were dedicated equipment receptacles. The telecommunications room does not meet size guidelines as recommended in current standards, but working clearances are sufficient. There is no dedicated cooling.

The existing backbone and horizontal cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, and dedicated equipment and convenience receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

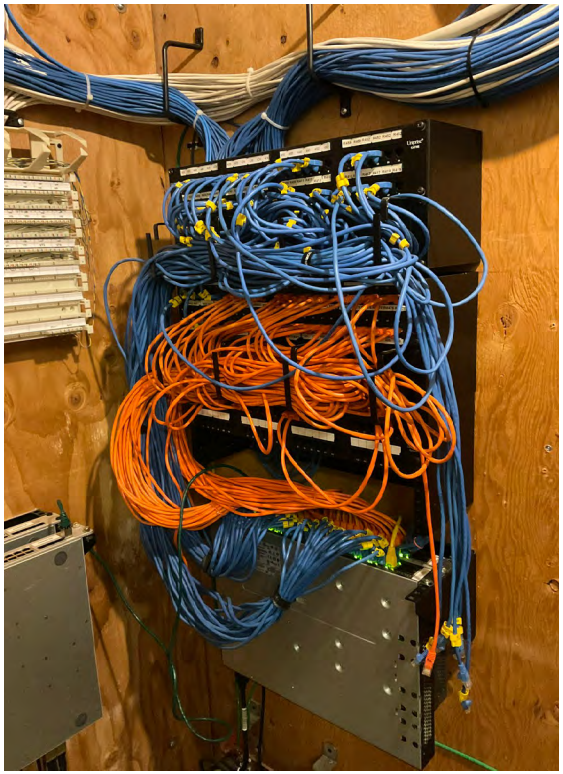
Deficiencies:

- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Electrical infrastructure does not meet minimum requirements per standards.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

Recommendations:

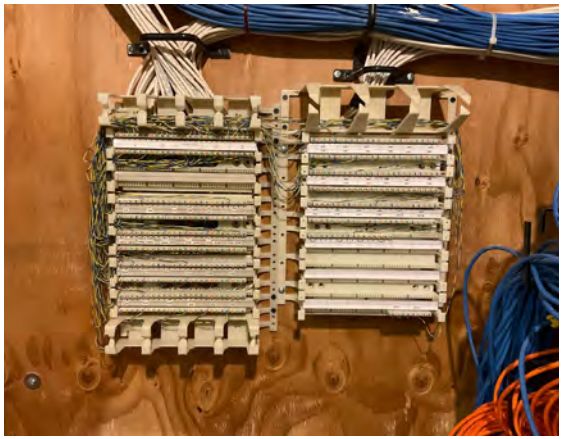
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add power circuits and receptacles as needed.
- Add a UPS to provide backup power.
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-229

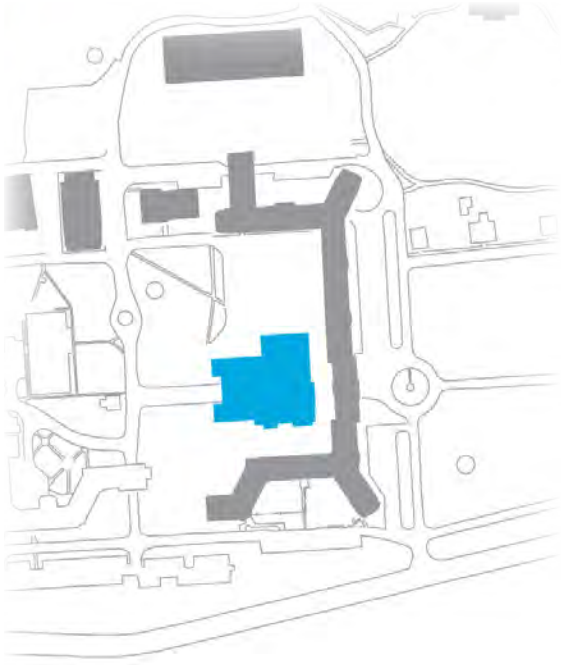


Existing Telecom Rack.

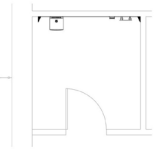
Existing Grounding.



Existing Voice Patching.



OFFICE AND STAFF DEVELOPMENT



TELECOMMUNICATIONS ROOM – TR-116

Telecommunications Room TR-116 is a dedicated telecommunications room for the building. It includes a wall mounted rack and ladder rack to support cabling. The rack contains a copper patch panels, cable management, network switches, and a UPS. Connectivity is provided by a Category 5e cable as backbone. There is a twisted-pair copper backbone cable that is terminated on 110 blocks. Existing horizontal cabling is Category 5e for data and Category 3 for voice cabling. A telecommunications grounding busbar is present; the busbar is grounded, and the rack is bonded. There are dedicated equipment receptacles. The telecommunications room does not meet size guidelines as recommended in current standards, but working clearances are sufficient. There is no dedicated cooling.

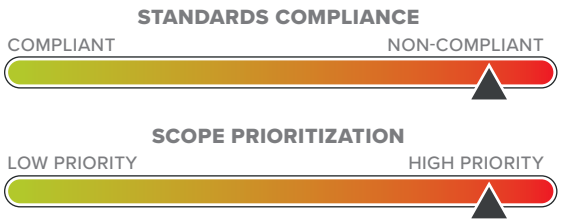
The existing backbone and horizontal cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, and dedicated equipment and convenience receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

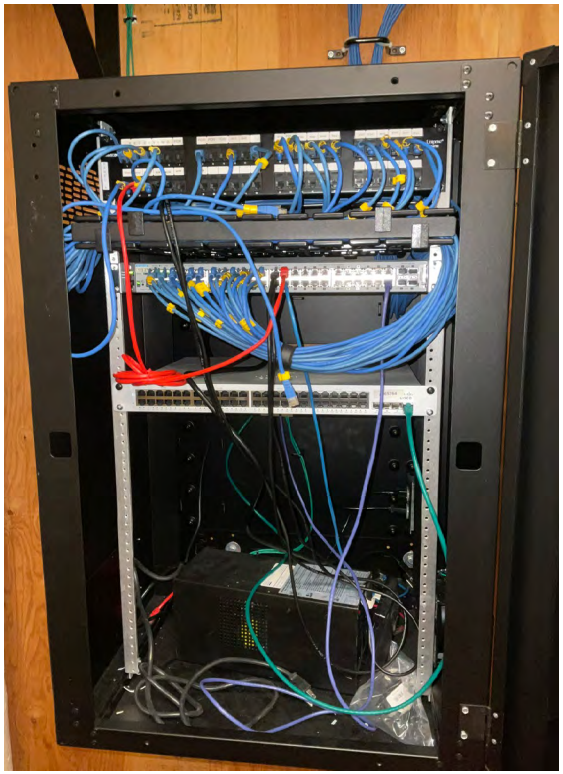
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Electrical infrastructure does not meet minimum requirements per standards.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

Recommendations:

- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add power circuits and receptacles as needed.
- Add dedicated cooling system.
- Control access to authorized individuals.

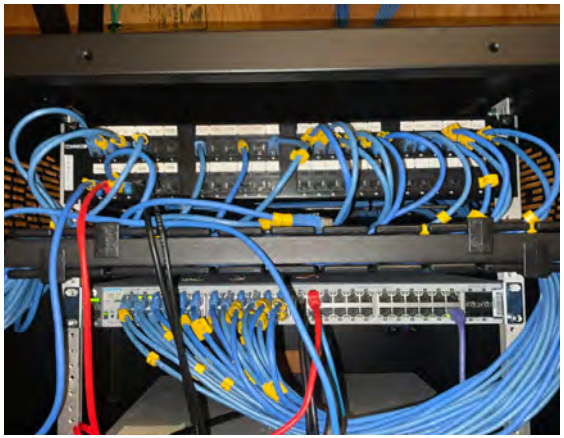


TELECOMMUNICATIONS ROOM – TR-116

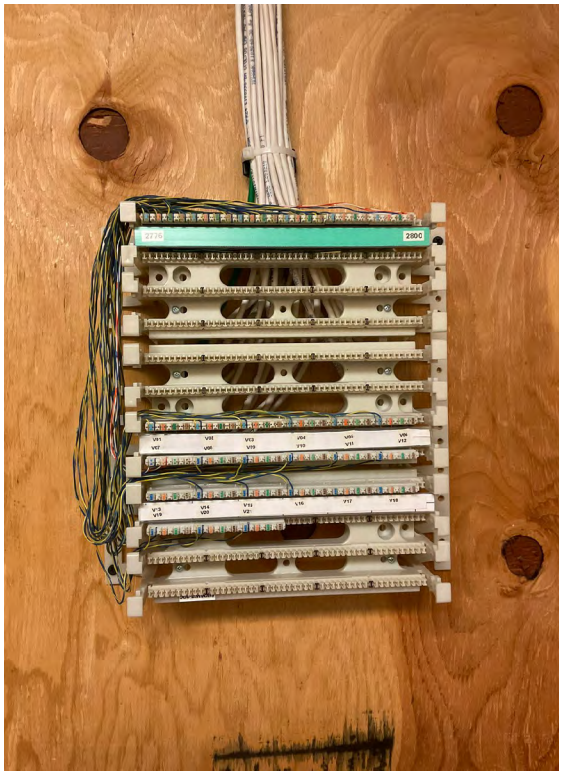


Existing Telecom Enclosure.

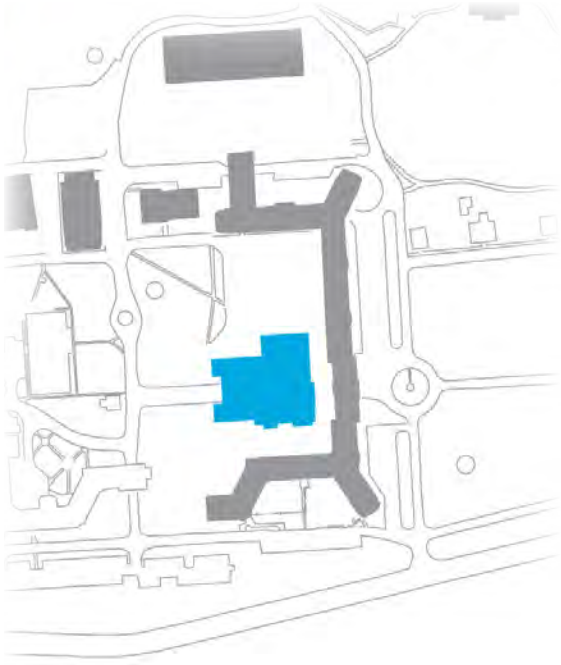
Existing Grounding.



Existing Data Patching.



Existing Voice Patching.



STANDARDS COMPLIANCE

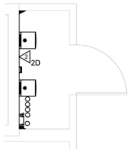
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

OFFICE AND STAFF DEVELOPMENT

TELECOMMUNICATIONS ROOM – TR-232



Telecommunications Room TR-232 is a dedicated telecommunications room for the building. It includes two wall mounted patch panels and a vertical rack with two network switches. The network switches are connected via Category 5e backbone cable. Connectivity is provided by a Category 5e cable to TR-320 as backbone. There is a twisted-pair copper backbone cable that is terminated on 66 blocks. Existing horizontal cabling is Category 5e for data and Category 3 for voice cabling. A telecommunications grounding busbar is present; the busbar is grounded, and the rack is bonded to it, but the vertical rack is not. A UPS on the floor was plugged into to dedicated equipment receptacles. The telecommunications room does not meet size guidelines as recommended in current standards, but working clearances are sufficient. There is no dedicated cooling.

The existing telecommunications space is not standards compliant. It is recommended to provide a dedicated telecommunications room. The existing backbone and horizontal cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, and dedicated equipment and convenience receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

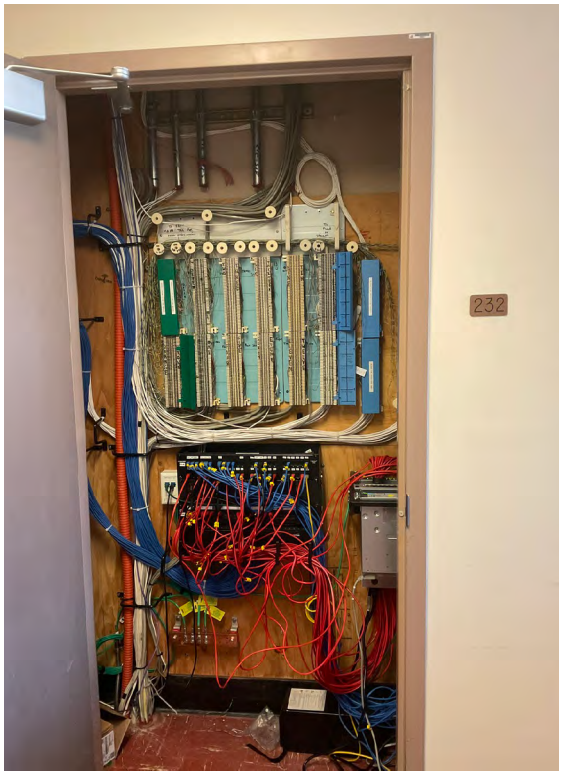
Deficiencies:

- Telecommunications Room is not sufficient for current needs and future expansion.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Electrical infrastructure does not meet minimum requirements per standards.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

Recommendations:

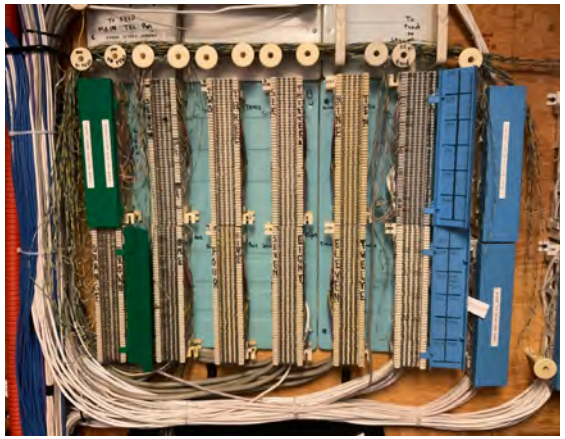
- Provide new dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add power circuits and receptacles as needed.
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-232

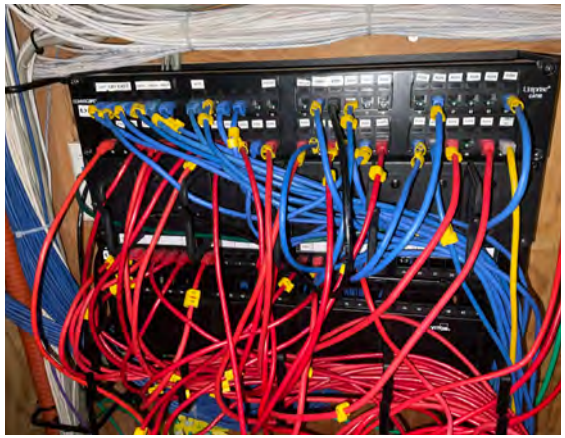


Existing Telecom Room.

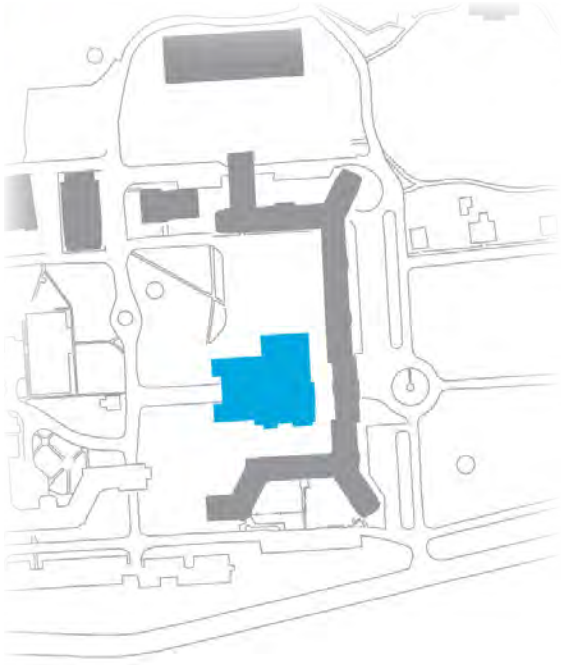
Existing Telecom Rack.



Existing Voice Patching.



Existing Data Patching.



STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

OFFICE AND STAFF DEVELOPMENT

TELECOMMUNICATIONS ROOM – TR-320

Telecommunications Room TR-320 is a dedicated telecommunications room. It contains four wall mounted patch panels, a vertical rack with three network switches, a shelf with a network switch, and a wall mount fiber cabinet. The network switches are connected via Category 5e backbone cable. Connectivity is provided by a Category 5e backbone cable. Twisted-pair copper backbone cable that is terminated on 66 blocks. Existing horizontal cabling is Category 5e for data and Category 3 for voice cabling. A telecommunications grounding busbar is present; the busbar is grounded, and the rack is bonded to it, but the vertical rack is not. A UPS on the floor was plugged into to dedicated equipment receptacles. The telecommunications room does not meet size guidelines as recommended in current standards, but working clearances are sufficient. There is no dedicated cooling.

The existing telecommunications space is not standards compliant. It is recommended to provide a dedicated telecommunications room. The existing backbone and horizontal cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, proper grounding, and dedicated equipment and convenience receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

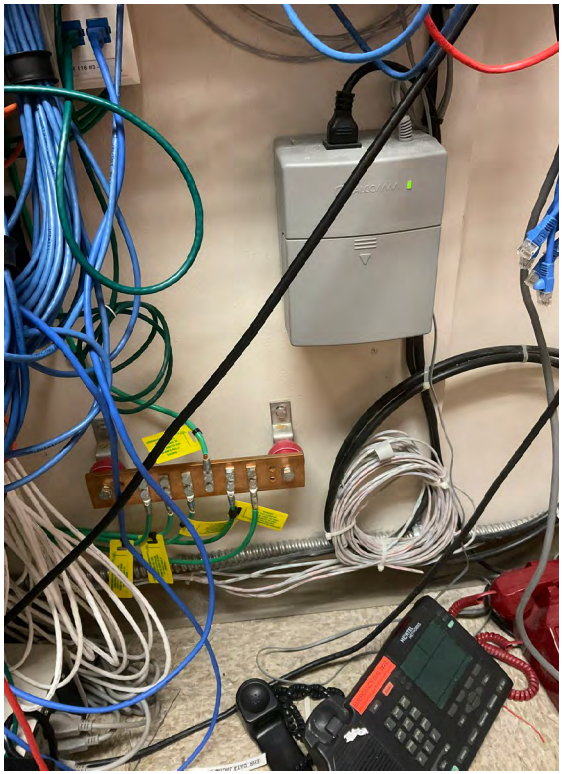
Deficiencies:

- Telecommunications Room is not sufficient for current needs and future expansion.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Electrical infrastructure does not meet minimum requirements per standards.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

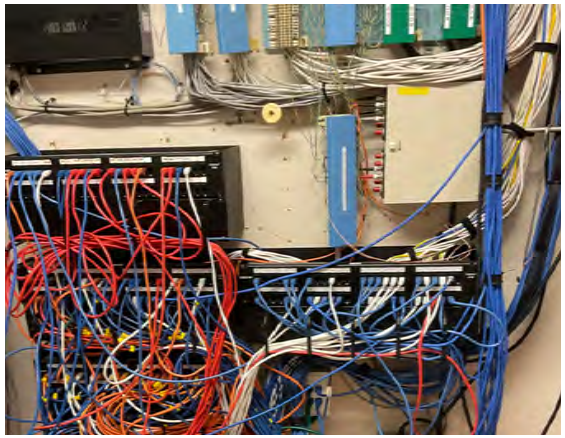
Recommendations:

- Provide new dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add power circuits and receptacles as needed.
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-320



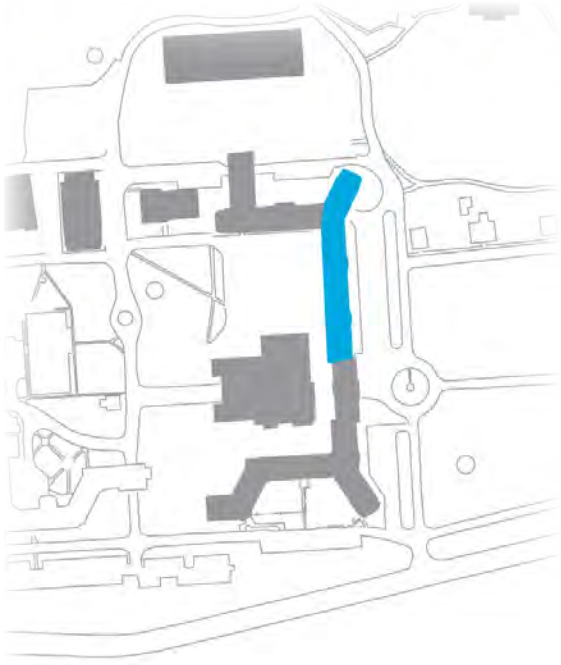
Existing Grounding.

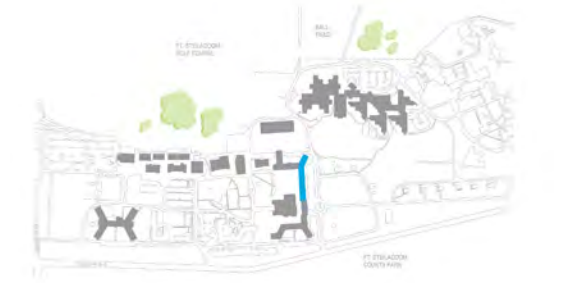


Existing Data Patching.

Existing Cabling.

Existing Voice Patching.





STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

CENTRAL CAMPUS (WARDS C7-C9)

TELECOMMUNICATIONS ROOM – TR-020

The telecommunications room is a small closet. The telecommunications space is too small to meet current standards. Connectivity is provided by a 12-strand OM1 multi-mode optical fiber backbone cable from the MER and twisted-pair copper backbone cable terminated on 110 blocks. The space is a fiber distribution hub, with 6-strand OM1 multi-mode optical fiber backbone cable connections to TR-128 and TR-328. The space consists of a wall mounted rack with a mix of patch panels, including AMP ACO, which is obsolete. The horizontal cabling is Category 5e with Category 6A for the WAPs and Category 3 for voice infrastructure. The wall mounted rack is bonded to a telecommunications grounding busbar. There is a tower UPS on the floor. Network switches are supported by a vertical wall mounted rack. There is no dedicated cooling.

The existing telecommunications space is not standards compliant. The existing backbone and horizontal cabling does not technically meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

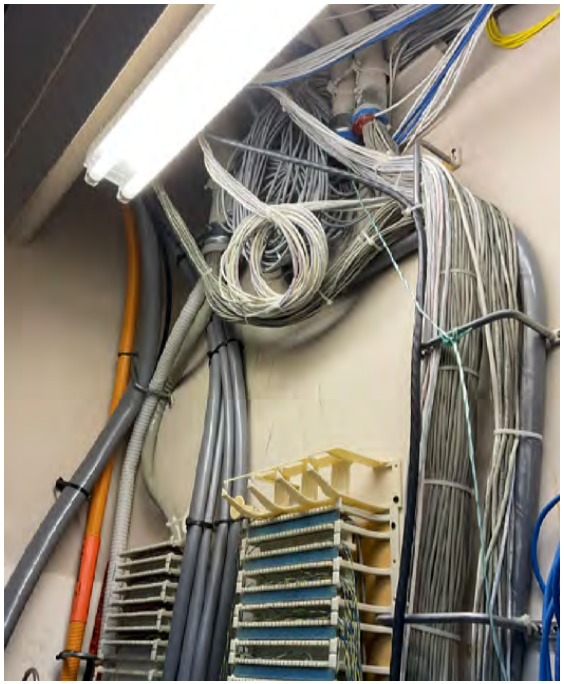
- Telecommunications Room is not sufficient for current needs and future expansion.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Electrical infrastructure does not meet minimum requirements per standards.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

Recommendations:

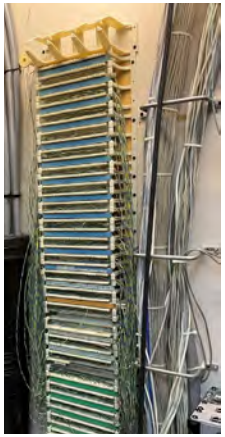
- Provide a new dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add Telecommunications Grounding Busbar.
- Add power circuits and receptacles as needed.
- Provide a properly sized UPS.
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-020

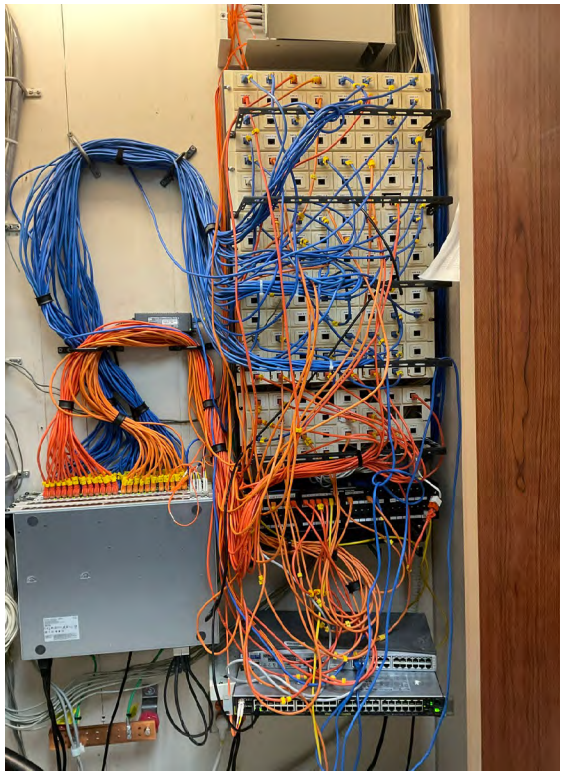
Existing Fiber Cabinet.



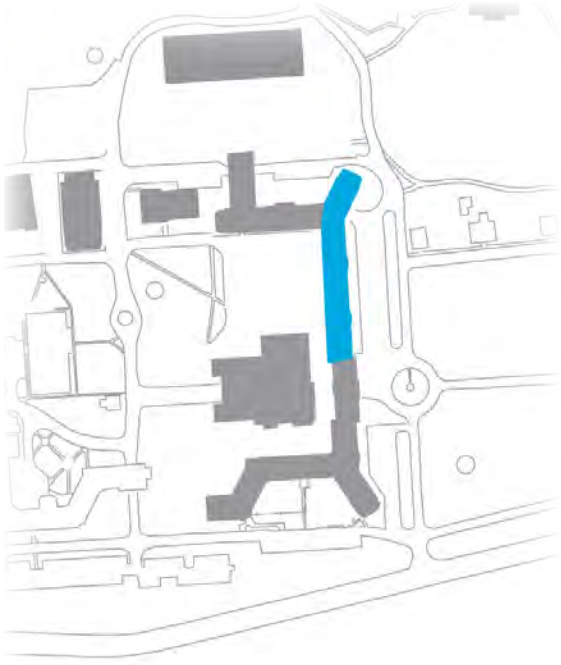
Existing Category 3 Cabling.

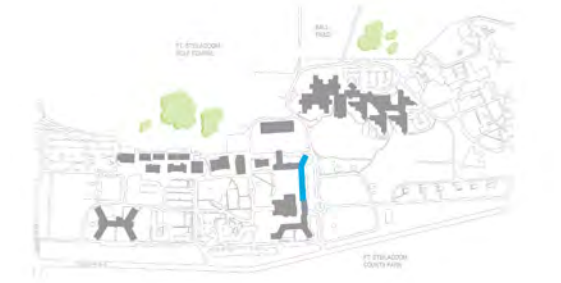


Voice Patching.



Existing Telecom Rack.





STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

CENTRAL CAMPUS (WARDS C7-C9)

TELECOMMUNICATIONS ROOM – TR-128

The telecommunications room is a small closet. The telecommunications space is too small to meet current standards. Connectivity is provided by Category 5e backbone cables and twisted-pair copper backbone cable terminated on 110 blocks. The space consists of a wall mounted rack with a mix of patch panels, including AMP ACO, which is obsolete. The horizontal cabling is Category 5e with Category 6A for the WAPs and Category 3 for voice infrastructure. The wall mounted rack is bonded to a telecommunications grounding busbar. There is a tower UPS on the floor. Network switches are supported by a vertical wall mounted rack. There is no dedicated cooling.

The existing telecommunications space is not standards compliant. The existing backbone and horizontal cabling does not technically meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

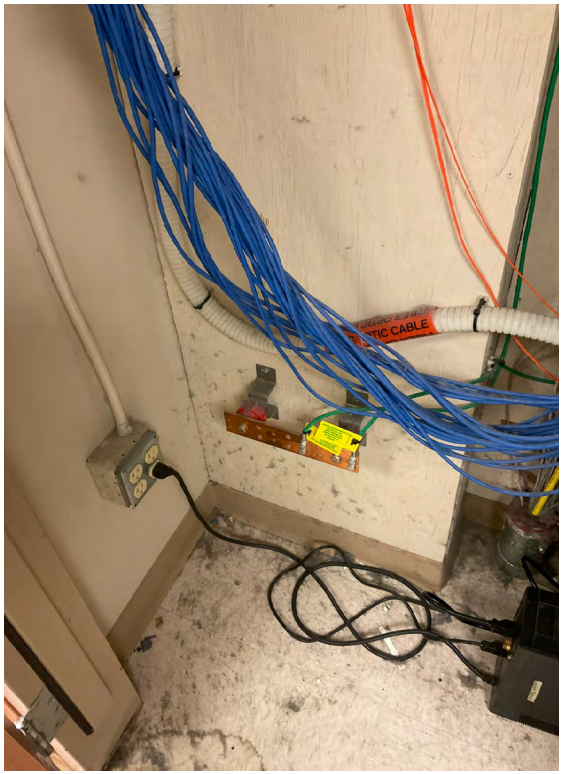
Deficiencies:

- Telecommunications Room is not sufficient for current needs and future expansion.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Electrical infrastructure does not meet minimum requirements per standards.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

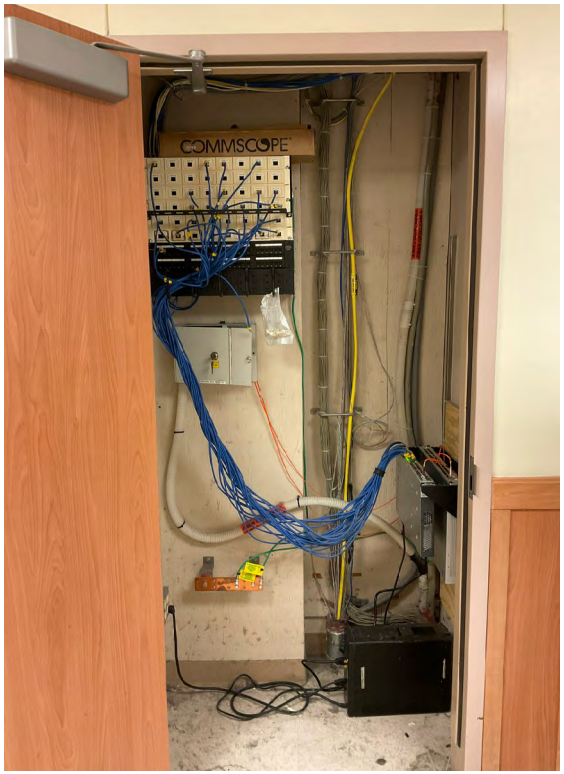
Recommendations:

- Provide a new dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add Telecommunications Grounding Busbar.
- Add power circuits and receptacles as needed.
- Provide a properly sized UPS.
- Add dedicated cooling system.
- Control access to authorized individuals.

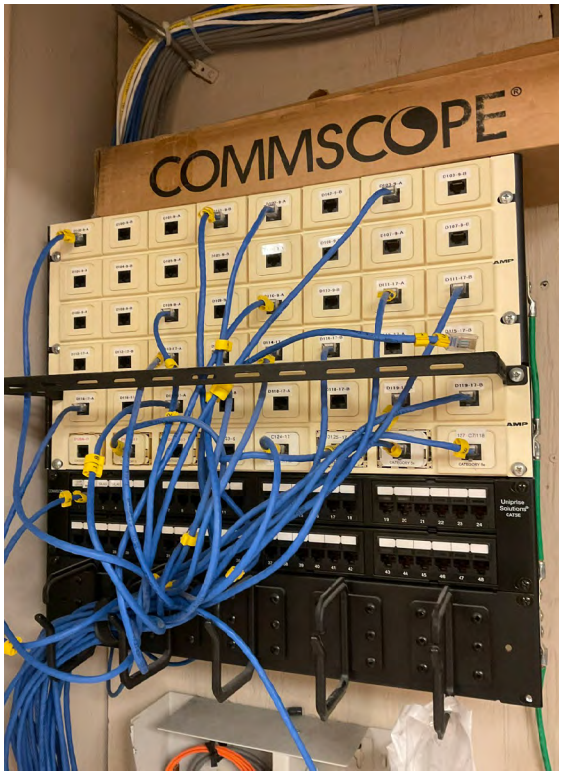
TELECOMMUNICATIONS ROOM – TR-128



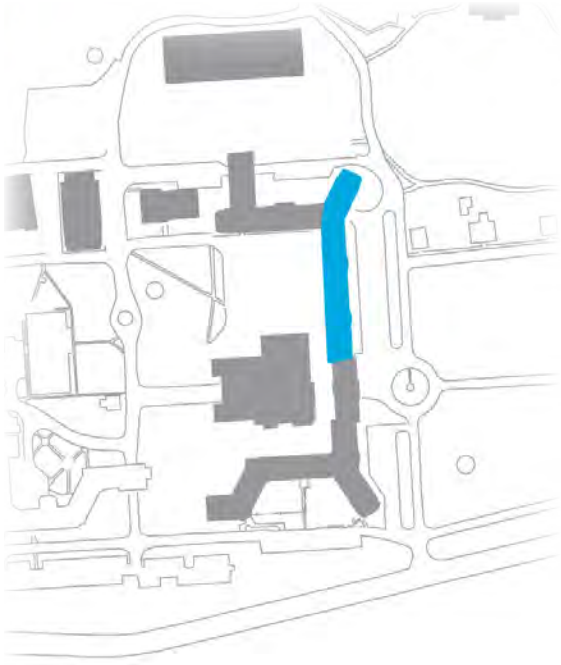
Existing Grounding.



Existing Telecom Room.



Existing Data Patching.



STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

CENTRAL CAMPUS (WARDS C7-C9)

TELECOMMUNICATIONS ROOM – TR-155

The telecommunications room is a wall mounted enclosure in the Kitchenette. Connectivity is provided by a 12-strand single-mode optical fiber backbone cable. The space consists of a wall mounted rack with a rack mount fiber cabinet, patch panel, network switch, and cable management. The horizontal cabling is Category 5e. Neither a telecommunications grounding busbar nor dedicated cooling were observed in the space. No UPS was observed.

While the existing telecommunications enclosure is sufficient to serve the space, it is recommended to converge the infrastructure served to a new telecommunications room. The existing horizontal cabling does not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing horizontal cabling.

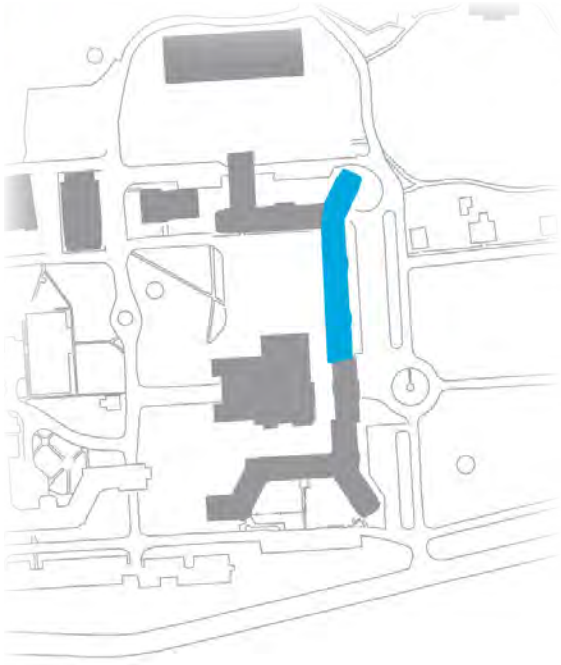
Deficiencies:

- Telecommunications Room is not sufficient for future expansion.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- No dedicated cooling system to maintain temperature of equipment.

Existing Telecom Enclosure.

Recommendations:

- Provide a new dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add Telecommunications Grounding Busbar.
- Add power circuits and receptacles as needed.
- Provide a properly sized UPS.
- Add dedicated cooling system.
- Control access to authorized individuals.



STANDARDS COMPLIANCE

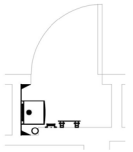
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

CENTRAL CAMPUS (WARDS C7-C9)

TELECOMMUNICATIONS ROOM – TR-228



The telecommunications room is a small closet. The telecommunications space is too small to meet current standards. Connectivity is provided by a 6-strand OM1 multi-mode optical fiber backbone cable from TR-020. The space consists of a wall mounted rack with a mix of patch panels. The horizontal cabling is Category 5e with Category 6A for the WAPs and Category 3 for voice infrastructure. The wall mounted rack is bonded to a telecommunications grounding busbar. There is a tower UPS on the floor. Network switches are supported by a vertical wall mounted rack. There is no dedicated cooling.

The existing telecommunications space is not standards compliant. The existing backbone and horizontal cabling does not technically meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

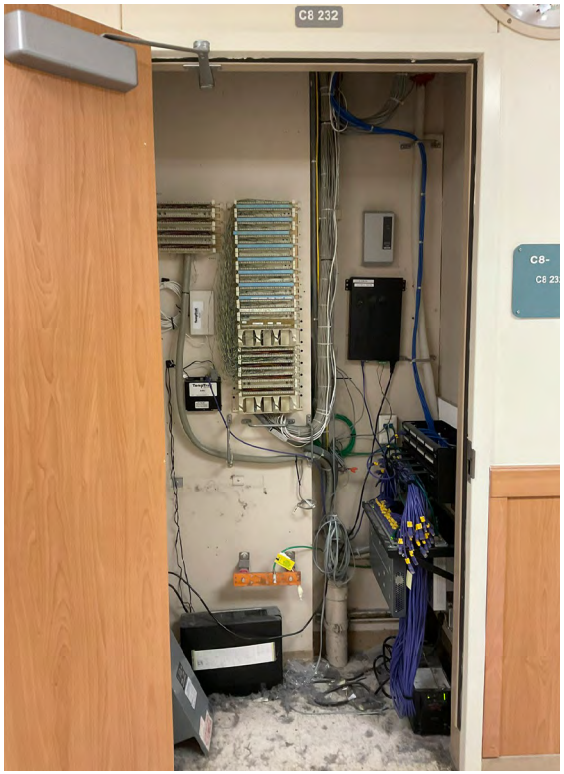
- Telecommunications Room is not sufficient for current needs and future expansion.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Electrical infrastructure does not meet minimum requirements per standards.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

Recommendations:

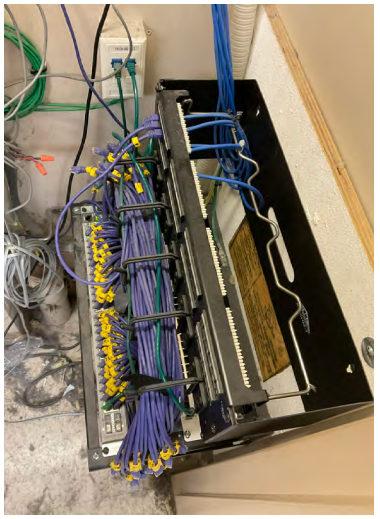
- Provide a new dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add Telecommunications Grounding Busbar.
- Add power circuits and receptacles as needed.
- Provide a properly sized UPS.
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-228

Existing Cabling.

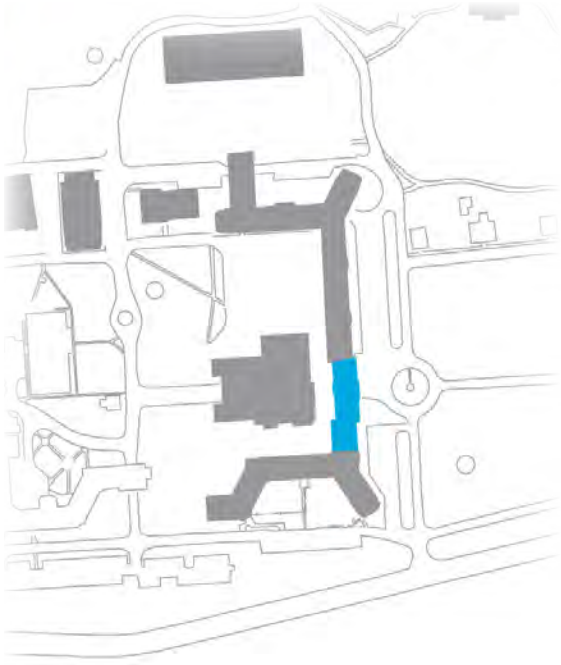


Existing Telecom Room.



Existing Data Patching.

Existing Voice Patching.



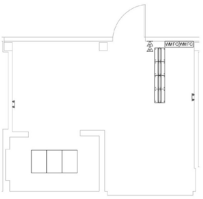
STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

ADMINISTRATION



MAIN EQUIPMENT ROOM – ER-003

The Main Equipment Room for the campus is in the basement of Building 18. The room is the demarcation point for existing voice and internet service from Lumem. Voice service is supported by 375 pairs of twisted-pair copper backbone cable that terminate on building entrance protectors in the MER and are distributed to their respective buildings on campus. Optical fiber backbone cable for internet service terminates in the MER and connects to the campus network infrastructure. The MER is the primary optical fiber hub for the campus with a mix of OM1 and OM3 multi-mode and single-mode optical fiber backbone cables connecting to buildings across campus. The MER has four floor mounted racks that contain rack mount fiber cabinets, core network switches, 110 blocks, and building entrance protectors. Wall mount fiber cabinets support additional fiber. The room is supported by ladder rack for cable management. There is an existing tower UPS for backup power supporting the electrical system in the room. There is a telecommunications grounding busbar supporting and dedicated cooling supporting the space.

The existing telecommunications space is not standards compliant. The existing backbone and horizontal cabling does not technically meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

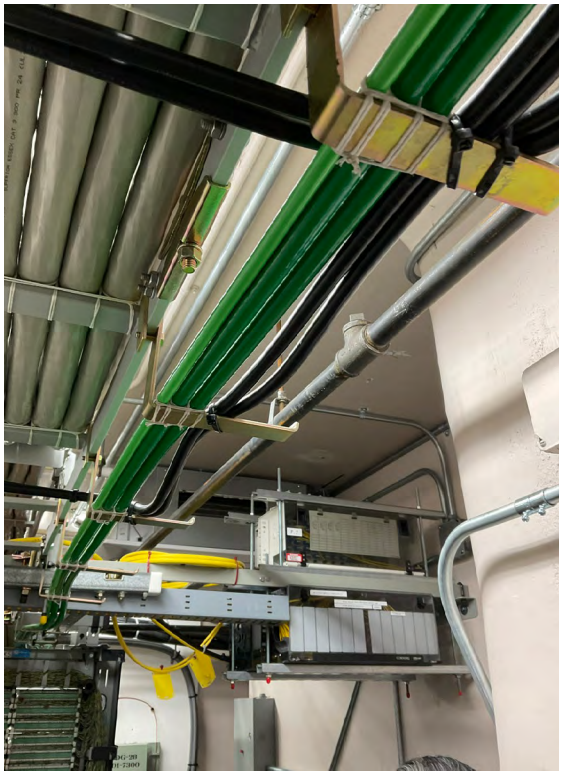
Deficiencies:

- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Uncontrolled access to space with no identity verification.

Recommendations:

- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18) to buildings as needed.
- Control access to authorized individuals.

MAIN EQUIPMENT ROOM – ER-003



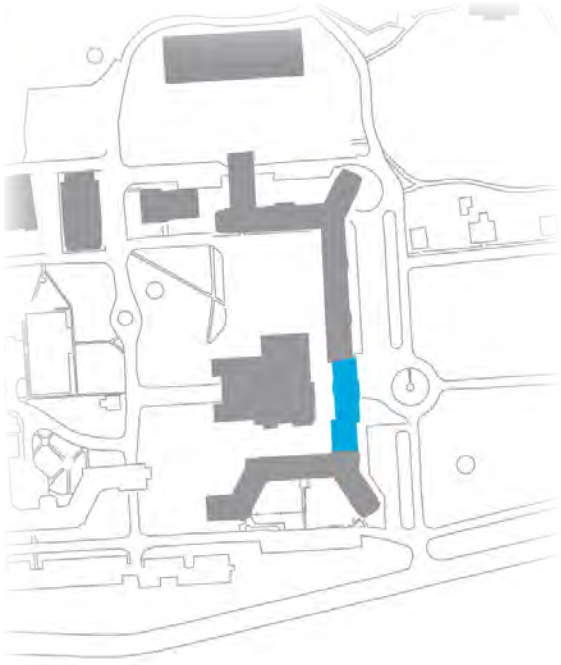
Existing Cable Supports.

Existing Telecom Racks.

Existing UPS.

Existing Entrance Protections.

Existing Voice Patching.



STANDARDS COMPLIANCE

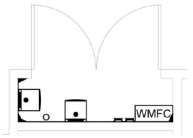
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

ADMINISTRATION

TELECOMMUNICATIONS ROOM – TR-013



The telecommunications room is a small closet. The telecommunications space is too small to meet current standards. Connectivity is provided by a 6-strand OM1 multi-mode optical fiber backbone cable from the MER and twisted-pair copper backbone cable terminated on 110 blocks. The space consists of a wall mounted rack with a mix of patch panels, including AMP ACO, which is obsolete. The horizontal cabling is Category 5e with Category 6A for the WAPs and Category 3 for voice infrastructure. There is a tower UPS on the floor. Network switches are supported by vertical wall mounted racks. Neither a telecommunications grounding busbar nor dedicated cooling was observed in the space.

The existing telecommunications space is not standards compliant. The existing backbone and horizontal cabling does not technically meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

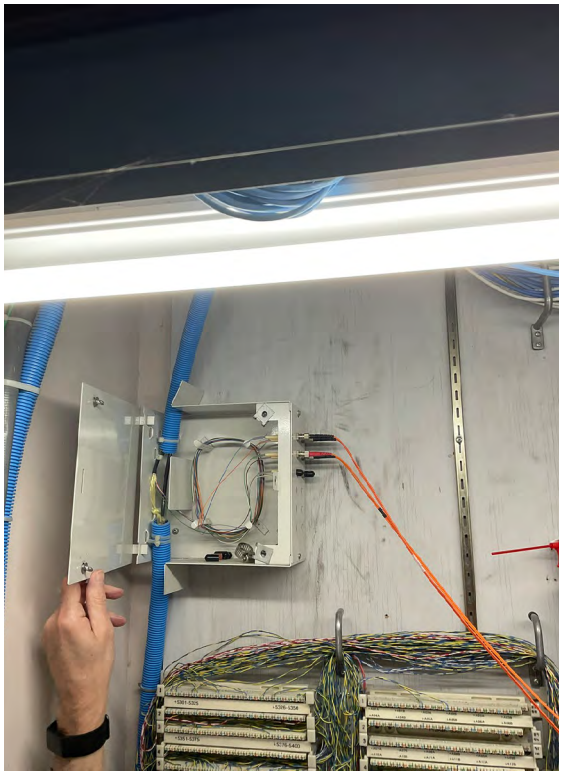
Deficiencies:

- Telecommunications Room is not sufficient for current needs and future expansion.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Electrical infrastructure does not meet minimum requirements per standards.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

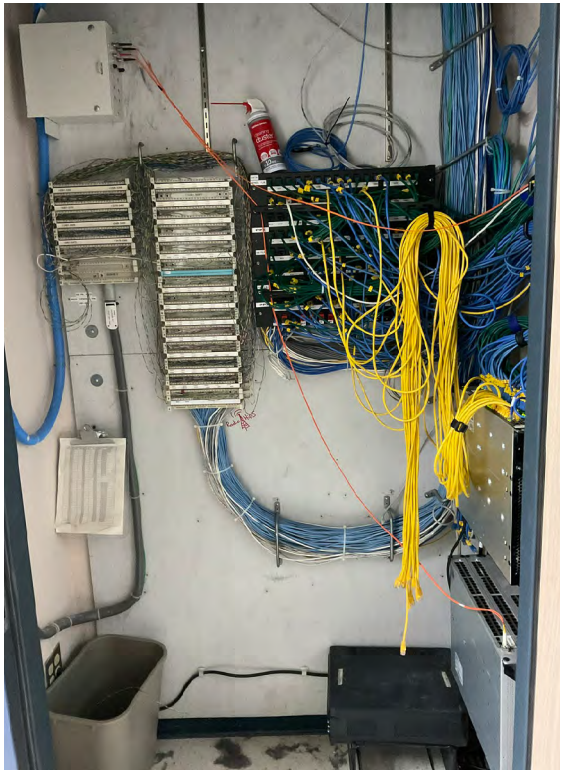
Recommendations:

- Provide a new dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add Telecommunications Grounding Busbar.
- Add power circuits and receptacles as needed.
- Provide a properly sized UPS.
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-013

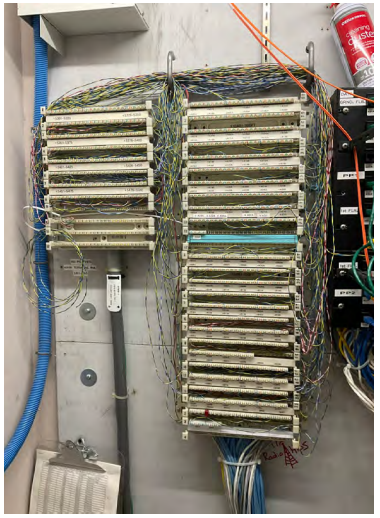


Existing Fiber Cabinet.

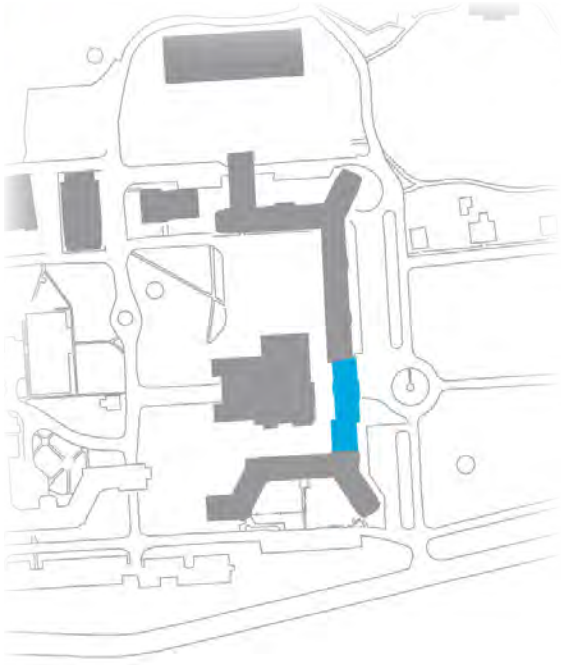


Existing Telecom Room.

Existing Cabling.



Existing Voice Patching.



STANDARDS COMPLIANCE

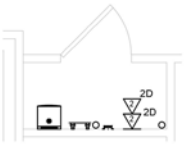
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

ADMINISTRATION

TELECOMMUNICATIONS ROOM – TR-105



The telecommunications room is a small closet. The telecommunications space is too small to meet current standards. Connectivity is provided by Category 5e backbone cables and twisted-pair copper backbone cable terminated on 110 blocks. The space consists of a wall mounted rack with a mix of patch panels. The horizontal cabling is Category 5e with Category 6A for the WAPs and Category 3 for voice infrastructure. The wall mounted rack is bonded to a telecommunications grounding busbar. There is a tower UPS on the floor. Network switches are supported by a vertical wall mounted rack. There is no dedicated cooling.

The existing telecommunications space is not standards compliant. The existing backbone and horizontal cabling does not technically meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

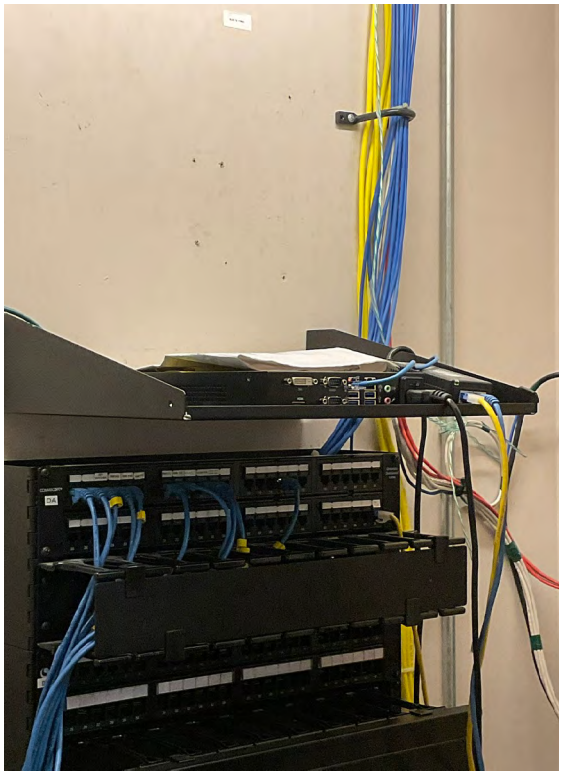
Deficiencies:

- Telecommunications Room is not sufficient for current needs and future expansion.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Electrical infrastructure does not meet minimum requirements per standards.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

Recommendations:

- Provide a new dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add Telecommunications Grounding Busbar.
- Add power circuits and receptacles as needed.
- Provide a properly sized UPS.
- Add dedicated cooling system.
- Control access to authorized individuals.

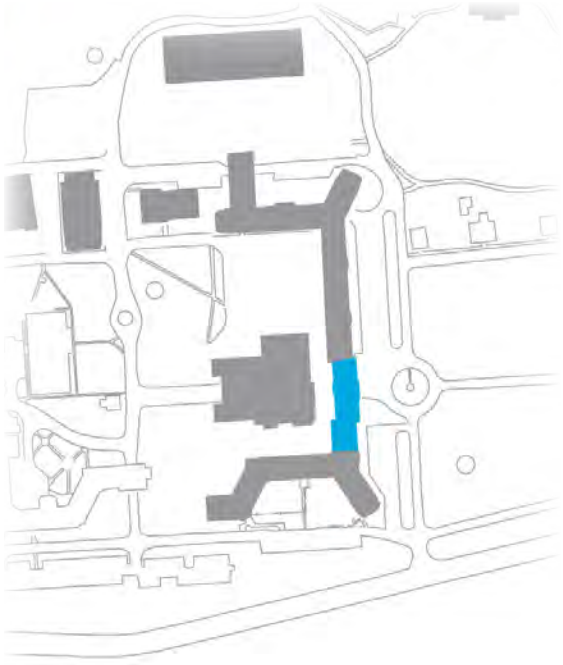
TELECOMMUNICATIONS ROOM – TR-105



Existing Data Patching.

Existing Telecom Rack.

Existing UPS.



STANDARDS COMPLIANCE

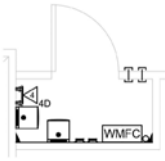
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

ADMINISTRATION

TELECOMMUNICATIONS ROOM – TR-213



The telecommunications room is a small closet. The telecommunications space is too small to meet current standards. Connectivity is provided by a 6-strand OM1 multi-mode backbone cable and twisted-pair copper backbone cable from the MER terminated on 110 blocks. The space consists of a wall mounted rack with a mix of patch panels. The horizontal cabling is Category 5e with Category 6A for the WAPs and Category 3 for voice infrastructure. There is a tower UPS on the floor. Network switches are supported by a vertical wall mounted rack. A telecommunications grounding busbar was observed. There is no dedicated cooling.

The existing telecommunications space is not standards compliant. The existing backbone and horizontal cabling does not technically meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

- Telecommunications Room is not sufficient for current needs and future expansion.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Electrical infrastructure does not meet minimum requirements per standards.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

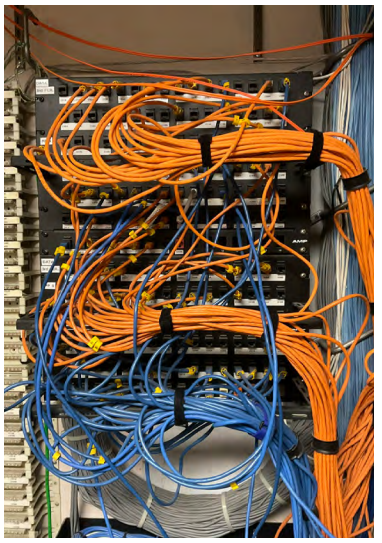
Recommendations:

- Provide a new dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add Telecommunications Grounding Busbar.
- Add power circuits and receptacles as needed.
- Provide a properly sized UPS.
- Add dedicated cooling system.
- Control access to authorized individuals.

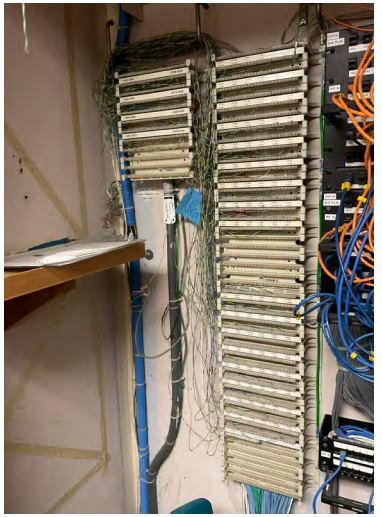
TELECOMMUNICATIONS ROOM – TR-013

Existing Fiber Patching.

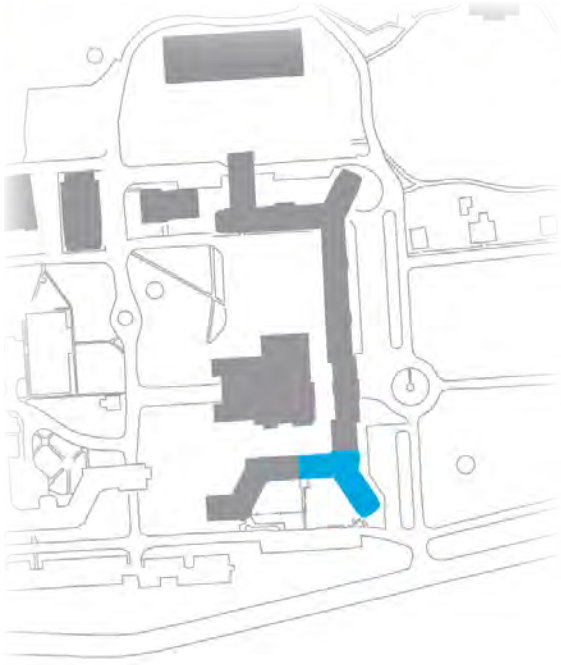
Existing Telecom Room.



Existing Data Patching.



Existing Voice Patching.



STANDARDS COMPLIANCE

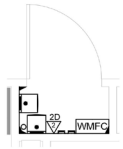
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

WARDS C1-C3

TELECOMMUNICATIONS ROOM – TR-023



The telecommunications room is a small closet. The telecommunications space is too small to meet current standards. Connectivity is provided by a 4-strand OM1 multi-mode optical fiber backbone cable and twisted-pair copper backbone cable from the MER terminated on 110 blocks. The space consists of a wall mounted rack with a mix of patch panels. The horizontal cabling is Category 5e with Category 6A for the WAPs and Category 3 for voice infrastructure. There is a tower UPS on the floor. Network switches are supported by vertical wall mounted racks. A telecommunications grounding busbar was observed. There was no dedicated cooling observed in the space.

The existing telecommunications space is not standards compliant. The existing backbone and horizontal cabling does not technically meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

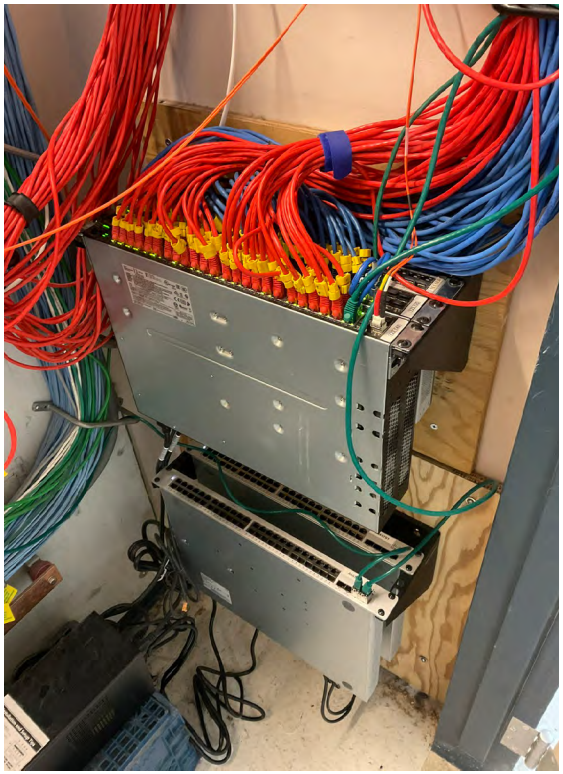
Deficiencies:

- Telecommunications Room is not sufficient for current needs and future expansion.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Electrical infrastructure does not meet minimum requirements per standards.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

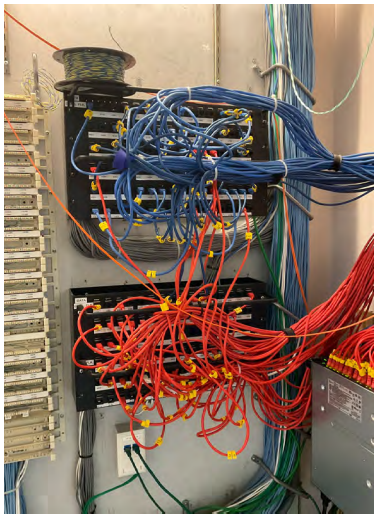
Recommendations:

- Provide a new dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add Telecommunications Grounding Busbar.
- Add power circuits and receptacles as needed.
- Provide a properly sized UPS.
- Add dedicated cooling system.
- Control access to authorized individuals.

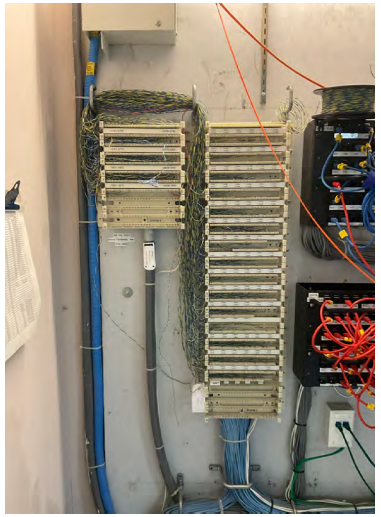
TELECOMMUNICATIONS ROOM – TR-023



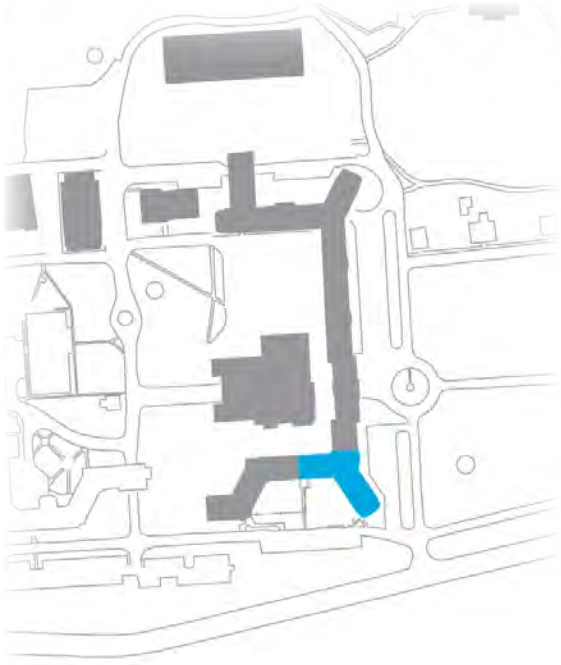
Existing Vertical Wall Brackets.



Existing Data Patching.



Existing Voice Patching.



STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

WARDS C1-C3

TELECOMMUNICATIONS ROOM – TR-107

The telecommunications room is a small closet. The telecommunications space is too small to meet current standards. Connectivity is provided by a Category 5e backbone cables and twisted-pair copper backbone cable from the MER terminated on 110 blocks. The space consists of a wall mounted rack with a mix of patch panels. The horizontal cabling is Category 5e with Category 6A for the WAPs and Category 3 for voice infrastructure. There is a tower UPS on the floor. Network switches are supported by vertical wall mounted racks. Neither a telecommunications grounding busbar nor dedicated cooling was observed in the space.

The existing telecommunications space is not standards compliant. The existing backbone and horizontal cabling does not technically meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, cable management, proper grounding, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

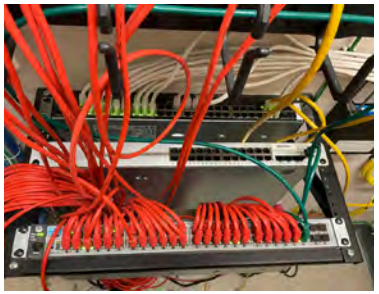
- Telecommunications Room is not sufficient for current needs and future expansion.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Electrical infrastructure does not meet minimum requirements per standards.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

Recommendations:

- Provide a new dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add Telecommunications Grounding Busbar.
- Add power circuits and receptacles as needed.
- Provide a properly sized UPS.
- Add dedicated cooling system.
- Control access to authorized individuals.

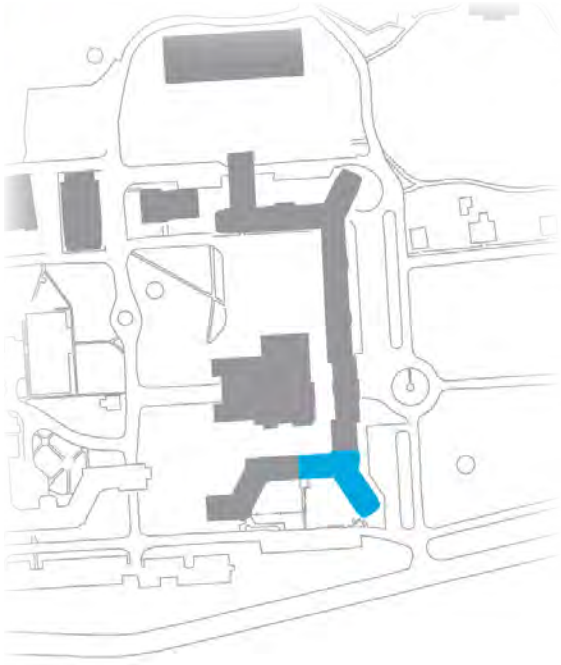
TELECOMMUNICATIONS ROOM – TR-107

Existing Fiber and Voice Patching.



Existing Telecom Rack.

Existing Data Patching.



STANDARDS COMPLIANCE

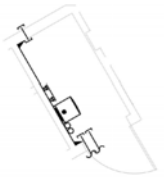
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

WARDS C1-C3

TELECOMMUNICATIONS ROOM – TR-309



The telecommunications room is a small closet. The telecommunications space is too small to meet current standards. Connectivity is provided by a Category 5e backbone cables and twisted-pair copper backbone cable from the MER terminated on 110 blocks. The space consists of a wall mounted rack with a mix of patch panels. The horizontal cabling is Category 5e with Category 6A for the WAPs and Category 3 for voice infrastructure. There is a tower UPS on the floor. Network switches are supported by vertical wall mounted racks. A telecommunications grounding busbar was observed. There was no dedicated cooling observed in the space.

The existing telecommunications space is not standards compliant. The existing backbone and horizontal cabling does not technically meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, cable management, proper grounding, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

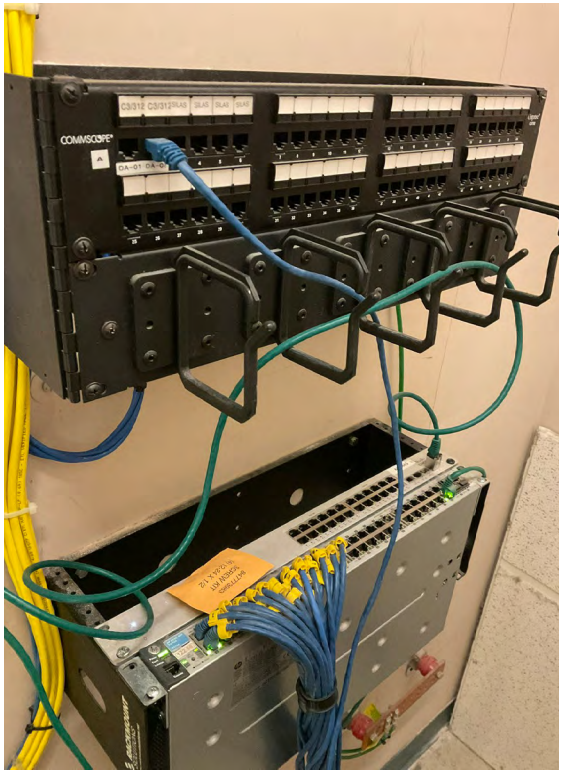
Deficiencies:

- Telecommunications Room is not sufficient for current needs and future expansion.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Electrical infrastructure does not meet minimum requirements per standards.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

Recommendations:

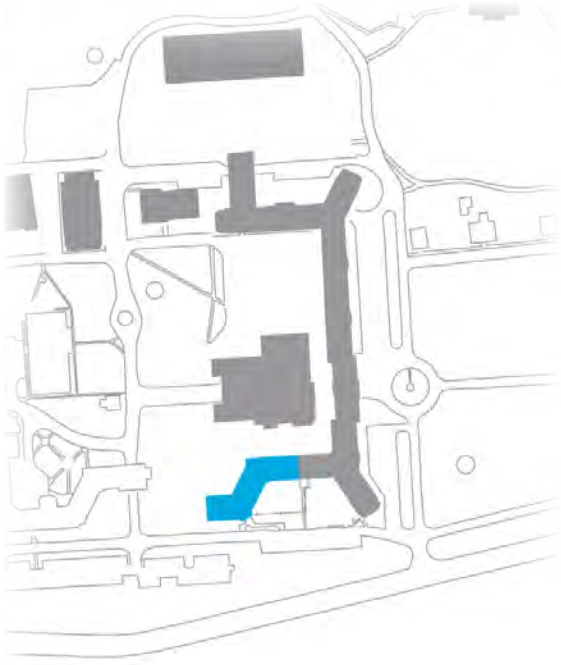
- Provide a new dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add Telecommunications Grounding Busbar.
- Add power circuits and receptacles as needed.
- Provide a properly sized UPS.
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-309



Existing Telecom Rack.

Existing Horizontal Cabling.



WARDS C4-C6

TELECOMMUNICATIONS ROOM – TR-013

The telecommunications room is a small closet. The telecommunications space is too small to meet current standards. Connectivity is provided by a 6-strand OM1 multi-mode optical fiber backbone cable and twisted-pair copper backbone cable from the MER terminated on 110 blocks. The space consists of a wall mounted rack with a mix of patch panels. The horizontal cabling is Category 5e with Category 6A for the WAPs and Category 3 for voice infrastructure. There is a tower UPS on the floor. Network switches are supported by vertical wall mounted racks. A telecommunications grounding busbar was observed. There was no dedicated cooling observed in the space.

The existing telecommunications space is not standards compliant. The existing backbone and horizontal cabling does not technically meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

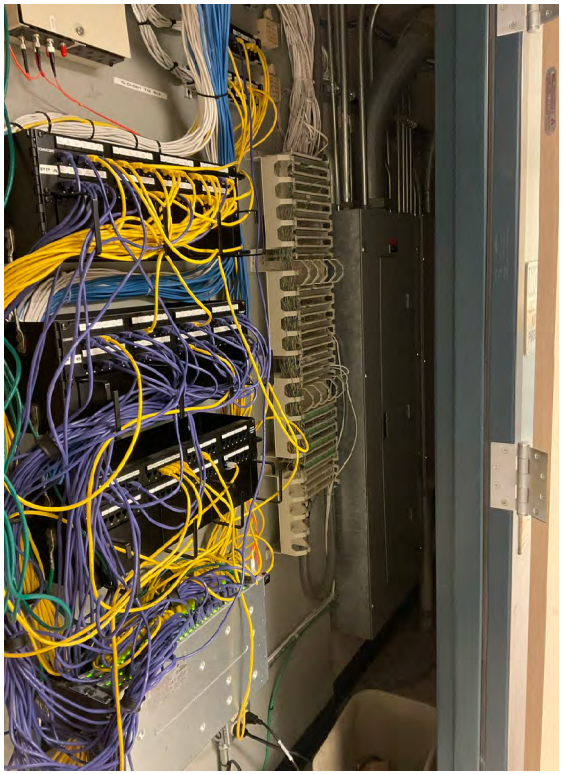
Deficiencies:

- Telecommunications Room is not sufficient for current needs and future expansion.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Electrical infrastructure does not meet minimum requirements per standards.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

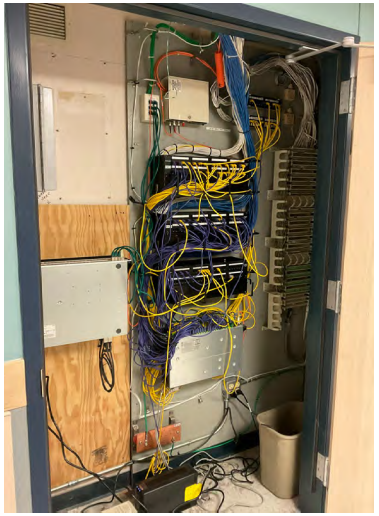
Recommendations:

- Provide a new dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add Telecommunications Grounding Busbar.
- Add power circuits and receptacles as needed.
- Provide a properly sized UPS.
- Add dedicated cooling system.
- Control access to authorized individuals.

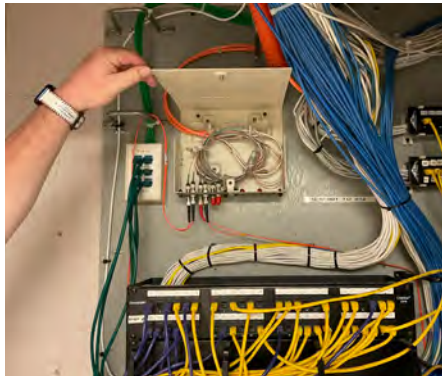
TELECOMMUNICATIONS ROOM – TR-013



Existing Voice and Data Patching.

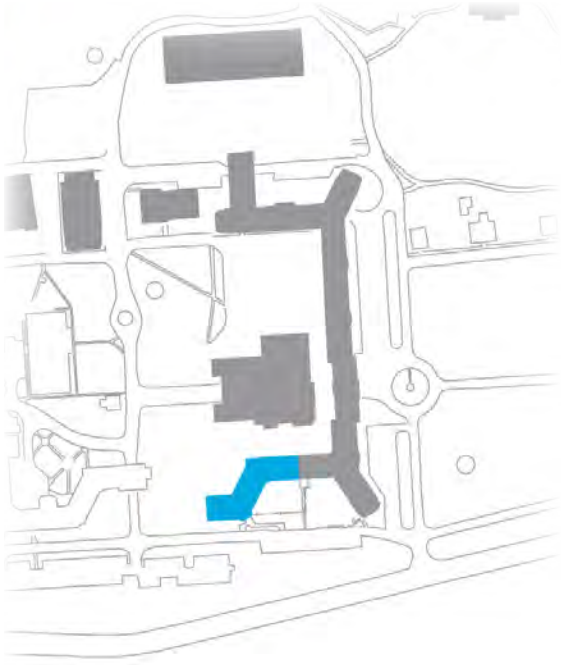


Existing Telecom Room.



Existing Fiber Cabinet.

Existing Grounding and UPS.



WARDS C4-C6

TELECOMMUNICATIONS ROOM – TR-211

The telecommunications room is a small closet. The telecommunications space is too small to meet current standards. Connectivity is provided by a 6-strand OM1 multi-mode optical fiber backbone cable from the MER. The space consists of a wall mounted rack with a mix of patch panels. The horizontal cabling is Category 5e with Category 6A for the WAPs and Category 3 for voice infrastructure. There is a tower UPS on the floor. Network switches are supported by vertical wall mounted racks. A telecommunications grounding busbar was observed. There was no dedicated cooling observed in the space.

The existing telecommunications space is not standards compliant. The existing backbone and horizontal cabling does not technically meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

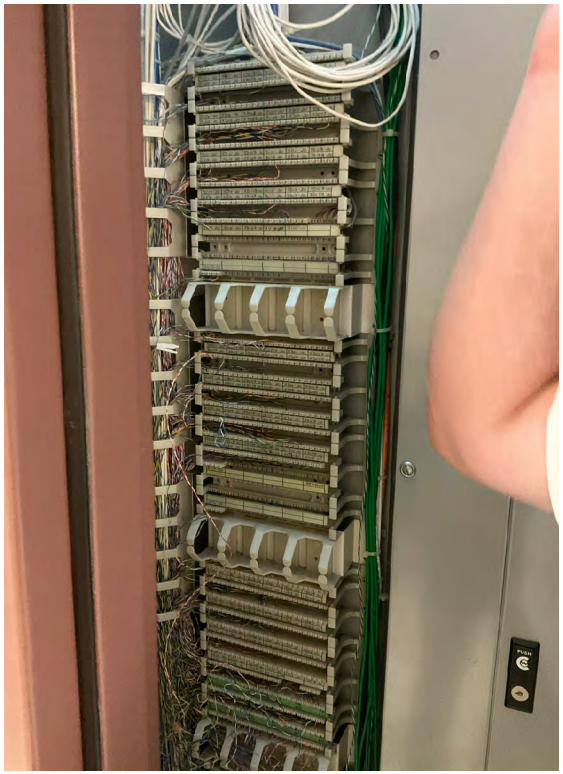
Deficiencies:

- Telecommunications Room is not sufficient for current needs and future expansion.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Electrical infrastructure does not meet minimum requirements per standards.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

Recommendations:

- Provide a new dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add Telecommunications Grounding Busbar.
- Add power circuits and receptacles as needed.
- Provide a properly sized UPS.
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-211

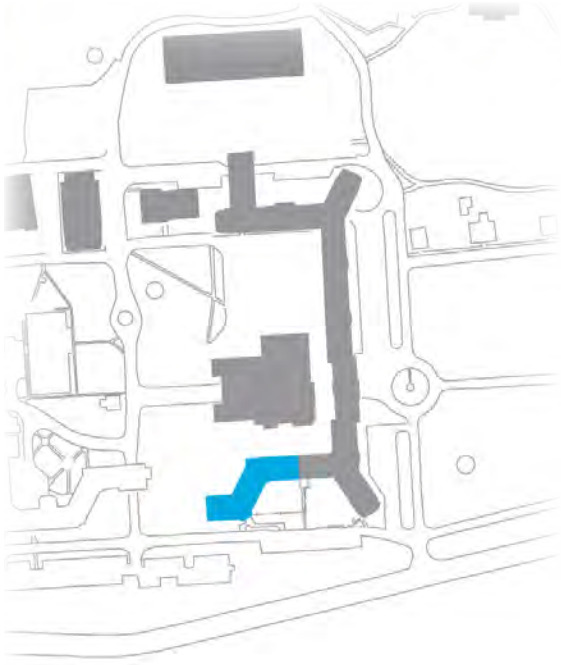


Existing Voice Patching.

Existing Telecom Room.

Existing Grounding.

Existing Unused Fiber.



STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

WARDS C4-C6

TELECOMMUNICATIONS ROOM – TR-311

The telecommunications room is a small closet. The telecommunications space is too small to meet current standards. Connectivity is provided by a Category 5e backbone cables and twisted-pair copper backbone cable from the MER terminated on 110 blocks. The space consists of a wall mounted rack with a mix of patch panels. The horizontal cabling is Category 5e with Category 6A for the WAPs and Category 3 for voice infrastructure. There is a tower UPS on the floor. Network switches are supported by vertical wall mounted racks. Neither a telecommunications grounding busbar nor dedicated cooling was observed in the space.

The existing telecommunications space is not standards compliant. The existing backbone and horizontal cabling does not technically meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

- Telecommunications Room is not sufficient for current needs and future expansion.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Electrical infrastructure does not meet minimum requirements per standards.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

Recommendations:

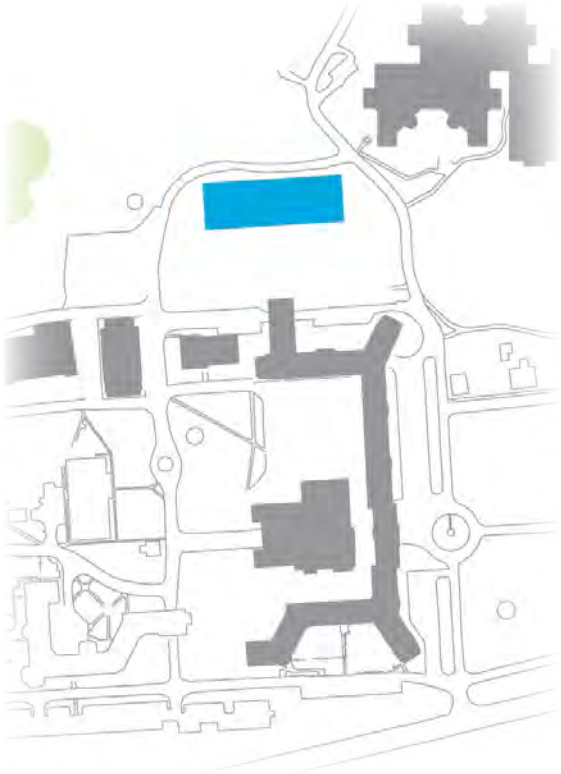
- Provide a new dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add Telecommunications Grounding Busbar.
- Add power circuits and receptacles as needed.
- Provide a properly sized UPS.
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-311

Existing Voice Patching.

Existing Data Patching.

Existing Wall Mounted Bracket.



STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

KITCHEN, PHARMACY, AND COMMISSARY

TELECOMMUNICATIONS ROOM – TR-B08

The Telecommunications Room TR-B08 is in the basement level. The telecommunications space contains multiple two-post equipment racks along with one server enclosure. There is space available in the existing racks for expansion. Connectivity is provided by a 400-pair Category 3 twisted-pair copper backbone cable and a 48-strand single-mode optical fiber cable from the MER in Building 18. The twisted-pair copper backbone terminates on 110-blocks while the single-mode optical fiber cable terminates in a rack mount fiber cabinet. The horizontal cabling is entirely Category 6A, but they terminate in Category 5e patch panels. There is a rack mounted UPS. Dedicated cooling was observed in the space, and all telecommunications equipment was grounded to a grounding busbar.

The existing backbone cabling does not technically meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone. Additional Category 6A data ports should be provided as required to meet standards. The existing patching equipment should also be upgraded to meet standards. The addition of card-based access control is recommended to control and track access to the space.

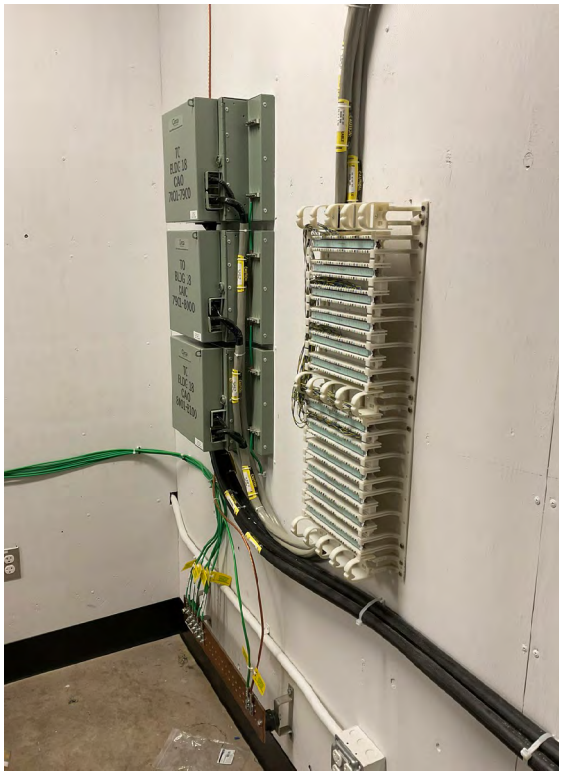
Deficiencies:

- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Uncontrolled access to space with no identity verification.
- Copper patching equipment used does not meet minimum standards per TIA-1179.

Recommendations:

- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Control access to authorized individuals.
- Upgrade existing patch panels to meet standards.

TELECOMMUNICATIONS ROOM – TR-B08



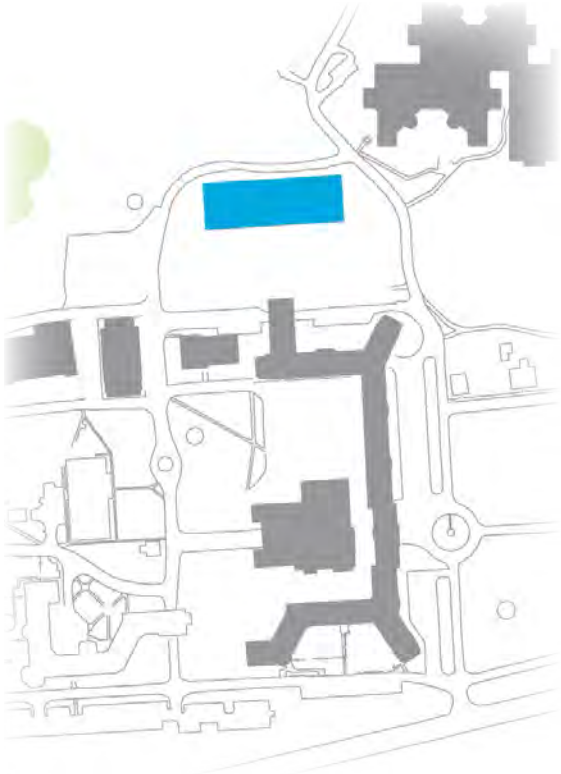
Existing Voice Cross-Connect.

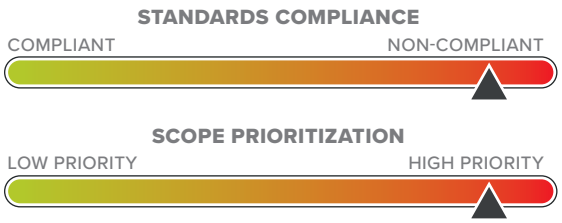
Existing Telecom Racks.

Existing Category 6A Cabling.

Existing Voice and Data Patching.

Existing Nonfunctioning UPS.

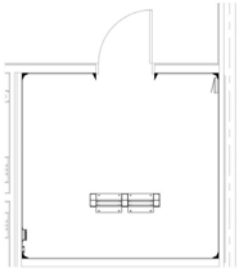




KITCHEN, PHARMACY, AND COMMISSARY

TELECOMMUNICATIONS ROOM – TR-105

The Telecommunications Room TR-105 is on the basement level. The telecommunications space contains two two-post equipment racks. There is space available in the existing racks for expansion. Connectivity is provided by a 100-pair Category 3 twisted-pair copper backbone cable and a 24-strand single-mode optical fiber cable from the MER in Building 18. The twisted-pair copper backbone terminates on 110-blocks while the single-mode optical fiber cable terminates in a rack mount fiber cabinet. The horizontal cabling is entirely Category 6A, but they terminate in Category 5e patch panels. There is a rack mounted UPS. Dedicated cooling was observed in the space, and all telecommunications equipment was grounded to a grounding busbar.



The existing backbone cabling does not technically meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone. Additional Category 6A data ports should be provided as required to meet standards. The existing patching equipment should also be upgraded to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

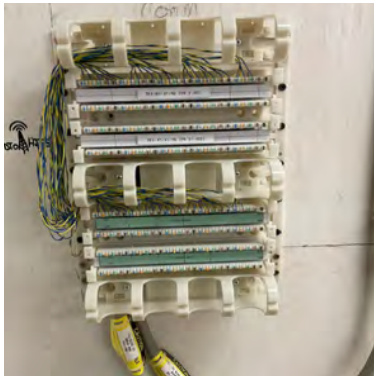
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Uncontrolled access to space with no identity verification.
- Copper patching equipment used does not meet minimum standards per TIA-1179.

Recommendations:

- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from telecommunications room TR-B08.
- Control access to authorized individuals.
- Upgrade existing patch panels to meet standards.

TELECOMMUNICATIONS ROOM – TR-105

Existing Telecom Racks.

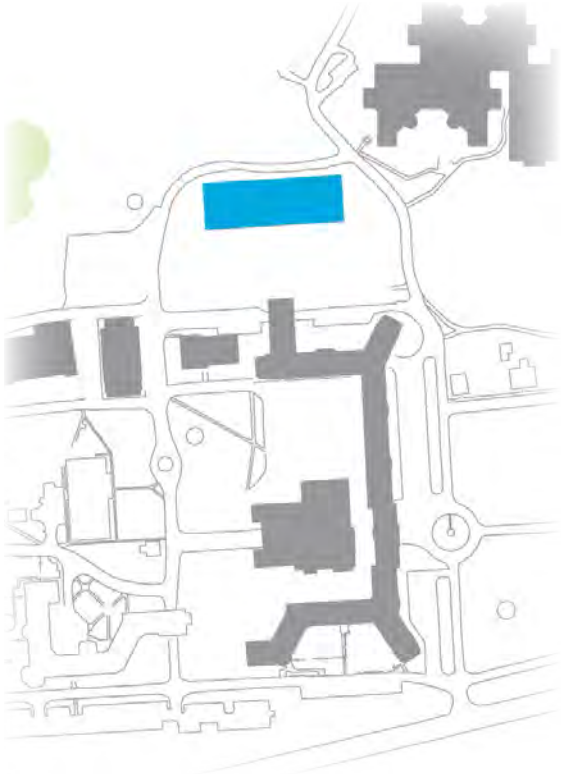


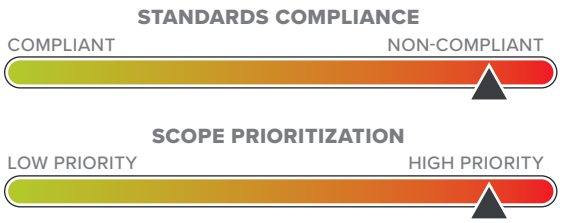
Existing Voice Patching.

Existing Category 5e Patch Panels.

Existing Category 6A Cabling.

Existing Backbone SM OFC.

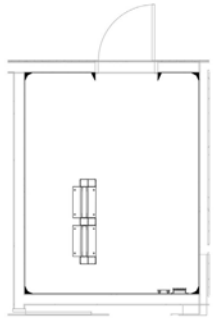




KITCHEN, PHARMACY, AND COMMISSARY

TELECOMMUNICATIONS ROOM – TR-209

The Telecommunications Room TR-209 is on the second floor. The telecommunications space contains two two-post equipment racks. There is space available in the existing racks for expansion. Connectivity is provided by a 100-pair Category 3 twisted-pair copper backbone cable and a 24-strand single-mode optical fiber cable from the MER in Building 18. The twisted-pair copper backbone terminates on 110-blocks while the single-mode optical fiber cable terminates in a rack mount fiber cabinet. The horizontal cabling is entirely Category 6A, but they terminate in Category 5e patch panels. There is a rack mounted UPS. Dedicated cooling was observed in the space, and all telecommunications equipment was grounded to a grounding busbar.



The existing backbone cabling does not technically meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone. Additional Category 6A data ports should be provided as required to meet standards. The existing patching equipment should also be upgraded to meet standards. The addition of card-based access control is recommended to control and track access to the space.

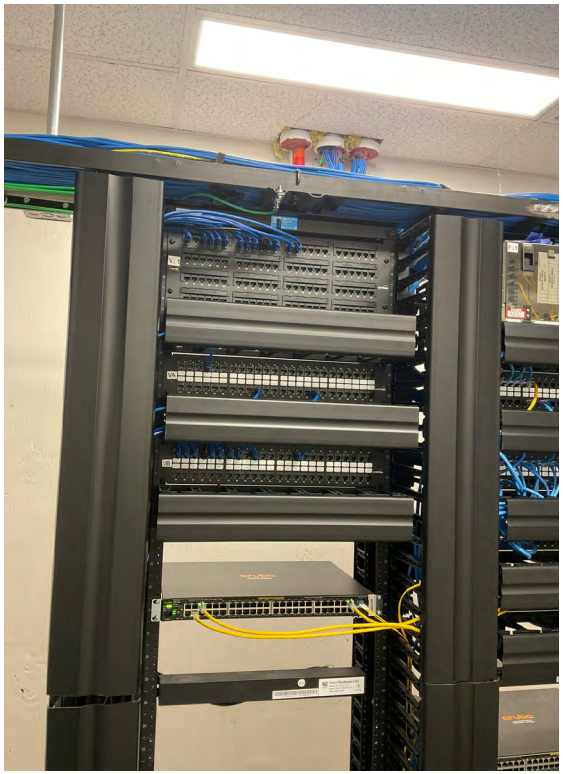
Deficiencies:

- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Uncontrolled access to space with no identity verification.
- Copper patching equipment used does not meet minimum standards per TIA-1179.

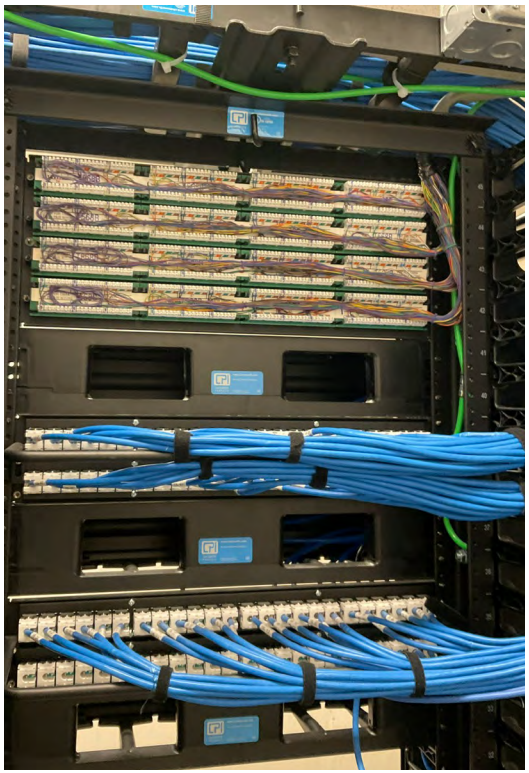
Recommendations:

- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from telecommunications room TR-B08.
- Control access to authorized individuals.
- Upgrade existing patch panels to meet standards.

TELECOMMUNICATIONS ROOM – TR-209



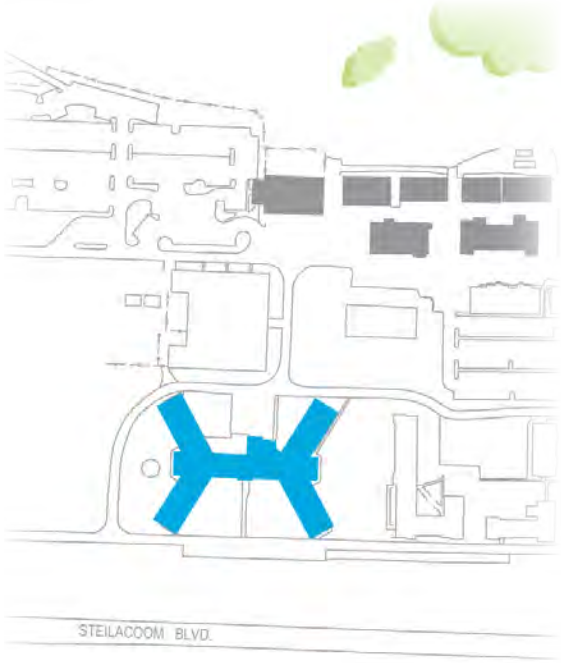
Existing Telecom Rack.



Existing Voice Patching.

Existing Backbone SM OFC.

Existing Telecom Room.



STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

HMH & FSCRP

TELECOMMUNICATIONS ROOM – TR-105

Telecommunications Room TR-105 is in the east wing of the building. The telecommunications space contains a wall mounted rack with multiple patch panels. There is no space available in the existing rack for expansion. Connectivity is provided by a 12-strand single-mode optical fiber cable from the MER in Building 18 that terminates in a wall mount fiber cabinet. The horizontal cabling is Category 5e and Category 3 for voice infrastructure. There is a tower UPS in the rack. A telecommunications grounding busbar was observed. There was no dedicated cooling observed in the space.

The existing backbone and horizontal cabling does not technically meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

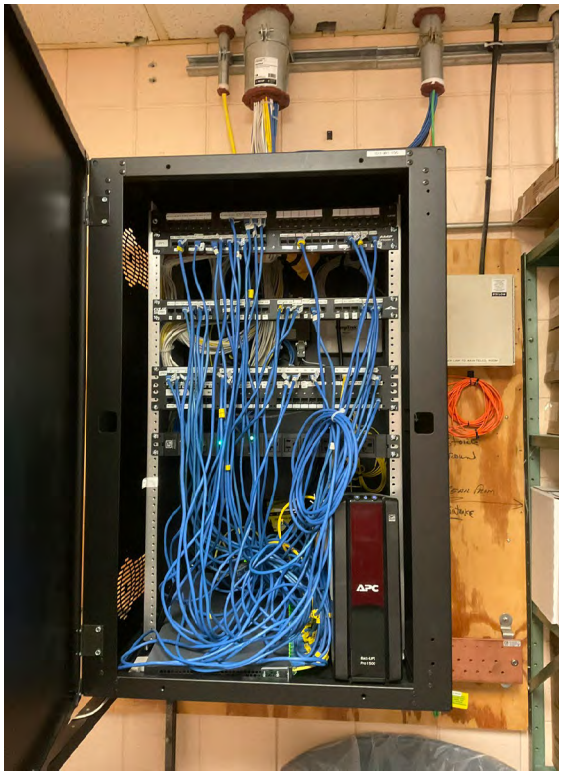
Deficiencies:

- Telecommunications Room is not sufficient for current needs and future expansion.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not technically meet minimum standards per TIA-1179.
- Electrical infrastructure does not meet minimum requirements per standards.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

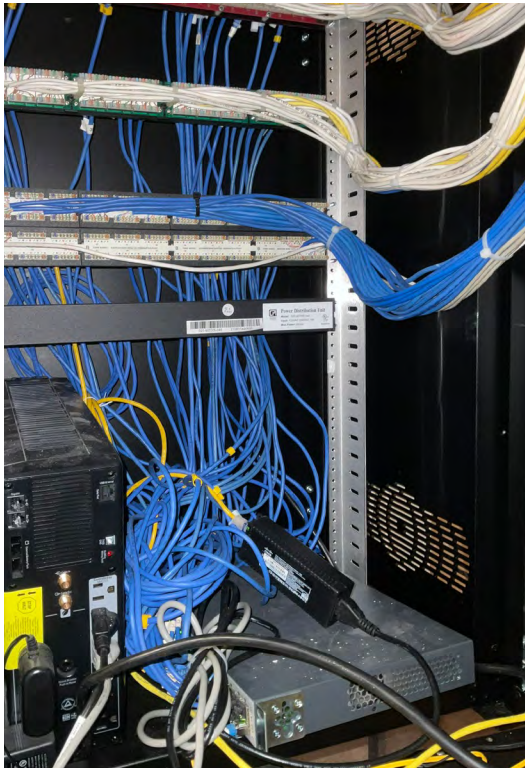
Recommendations:

- Provide a new dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add power circuits and receptacles as needed.
- Add dedicated cooling system.
- Control access to authorized individuals.

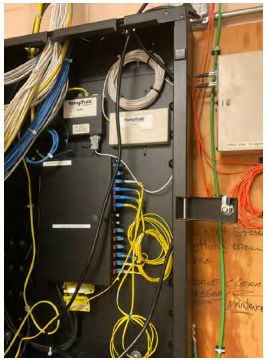
TELECOMMUNICATIONS ROOM – TR-105



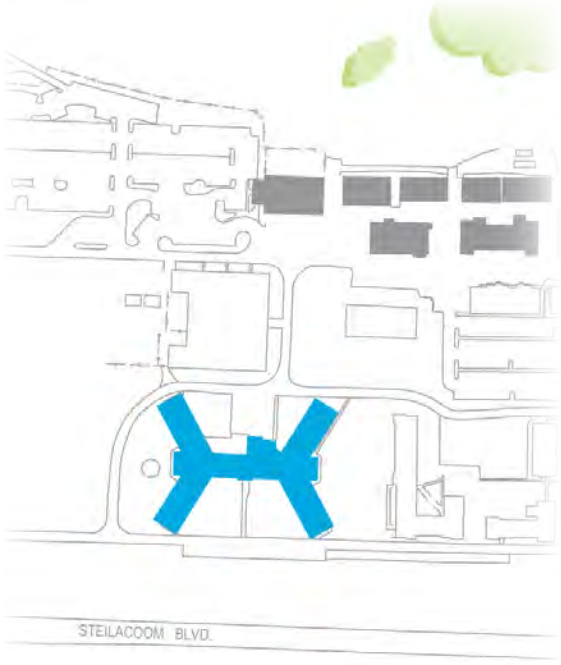
Existing Telecom Enclosure.



Existing Voice and Data Patching.



Existing Fiber Cabinet.



STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

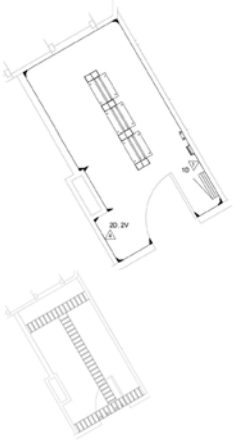
SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

HMH & FSCRP

TELECOMMUNICATIONS ROOM – TR-164

Telecommunications Room TR-164 is in the west wing of the building. The telecommunications space contains three two-post equipment racks with multiple patch panels. There is space available in the existing racks for expansion. Network connectivity is provided by a 12-strand single-mode optical fiber cable from telecommunications room TR-105 that terminates in a rack mount fiber cabinet. Voice connectivity is provided by a 100-pair Category 3 twisted-pair cable. The horizontal cabling is Category 5e and Category 3 for voice infrastructure. There is a UPS mounted in the rack. A telecommunications grounding busbar was observed. There was no dedicated cooling observed in the space.



The existing backbone and horizontal cabling do not technically meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

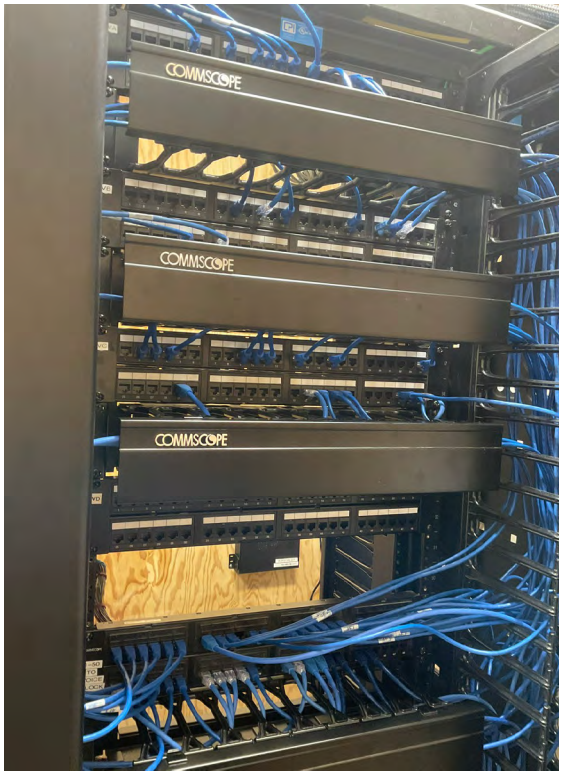
Deficiencies:

- Telecommunications Room is not sufficient for current needs and future expansion.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not technically meet minimum standards per TIA-1179.
- Electrical infrastructure does not meet minimum requirements per standards.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

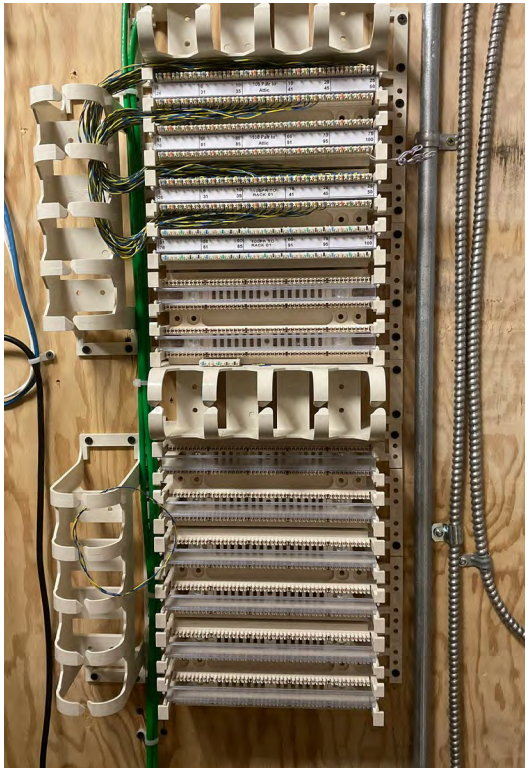
Recommendations:

- Provide a new dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from TR-105.
- Add power circuits and receptacles as needed.
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-164

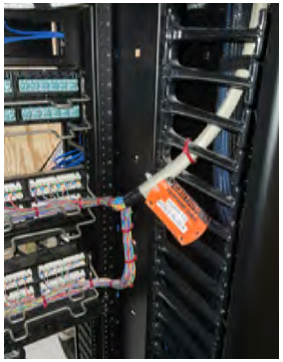


Existing Telecom Rack.

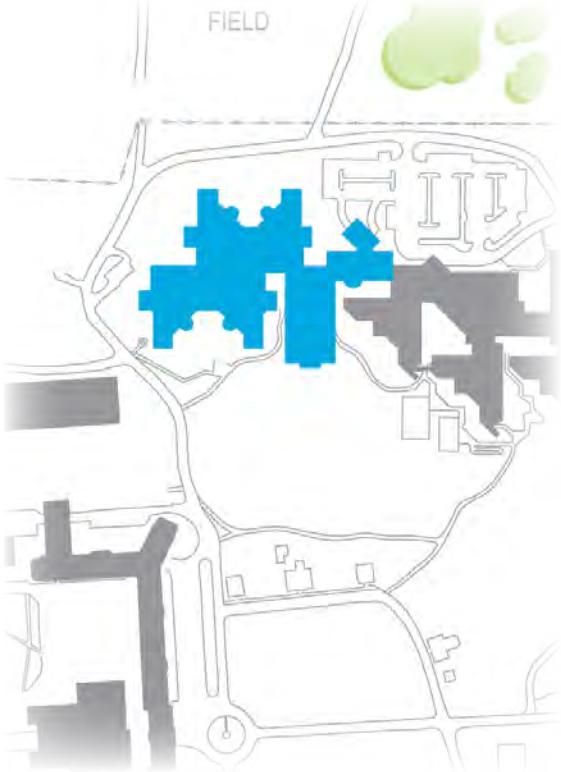


Existing Voice Patching.

Existing Category 5e Cabling.



Existing Voice Patching (2).



STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

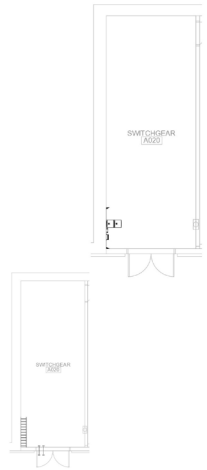
SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

FORENSIC SERVICE

TELECOMMUNICATIONS ROOM – TR-A020

Telecommunications Room TR-A020 is a dedicated telecommunications room in the basement. It includes a wall mounted rack and ladder rack to support cabling. The rack contains network switches. The space also contains multiple patch panels mounted on the walls. Connectivity is provided by Category 5e cable as backbone. There is a 100-pair twisted-pair copper backbone cable that is terminated on 110 blocks. Existing horizontal cabling is Category 5e for data and Category 3 for voice cabling. A telecommunications grounding busbar is present; the busbar is grounded, and the rack is bonded. There are dedicated equipment receptacles. There is no dedicated cooling.



The existing backbone and horizontal cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling is required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

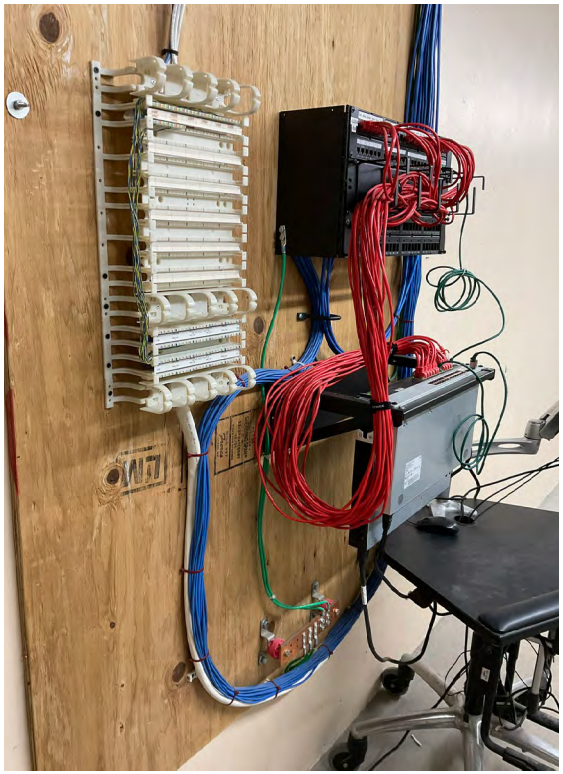
Deficiencies:

- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

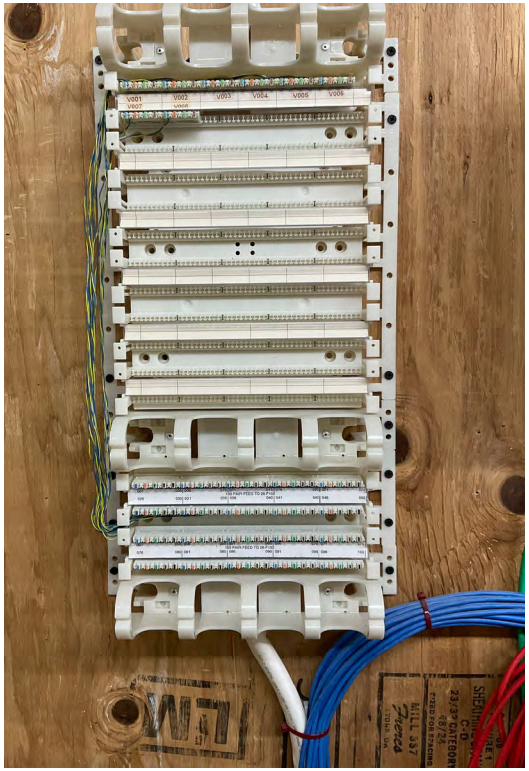
Recommendations:

- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add dedicated cooling system.
- Control access to authorized individuals.

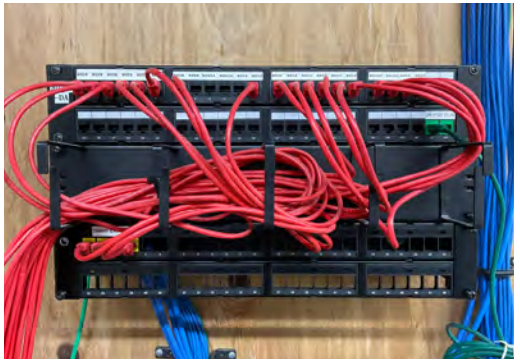
TELECOMMUNICATIONS ROOM – TR-A020



Existing Telecom Equipment.

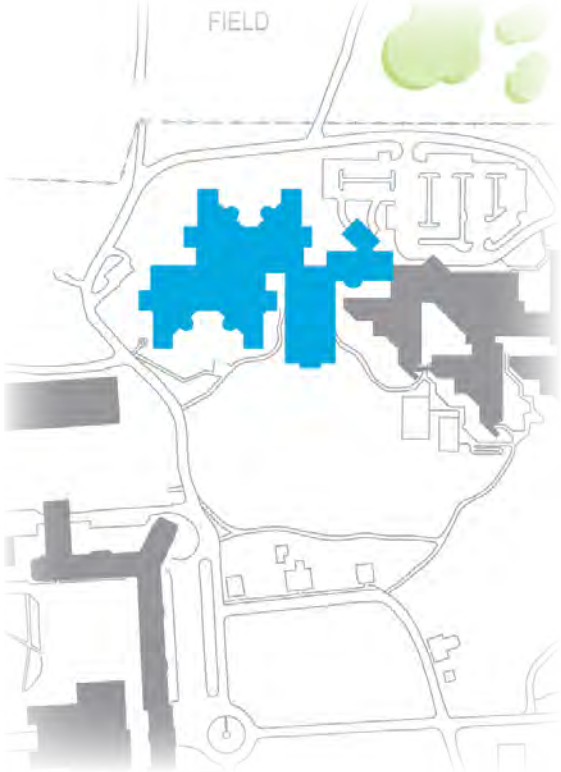


Existing Voice Patching.



Existing Data Patching.

Existing Grounding.



STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

FORENSIC SERVICE

TELECOMMUNICATIONS ROOM – TR-D070

Telecommunications Room TR-D070 is a dedicated telecommunications room in the basement. It includes two wall mounted racks. One rack contains network switches while the other is dedicated to security equipment. The space also contains multiple patch panels mounted on the walls, and there is a UPS tower on the floor. Connectivity is provided by a 12-strand single-mode optical fiber backbone cable from the MER in Building 18 that terminates in a wall mount fiber cabinet. Voice connectivity is provided by a 100-pair twisted-pair copper backbone cable that is terminated on 110 blocks. Existing horizontal cabling is Category 5e for data and Category 3 for voice cabling. A telecommunications grounding busbar is present; the busbar is grounded, and the rack is bonded. There are dedicated equipment receptacles. There is no dedicated cooling.

The existing backbone and horizontal cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling is required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

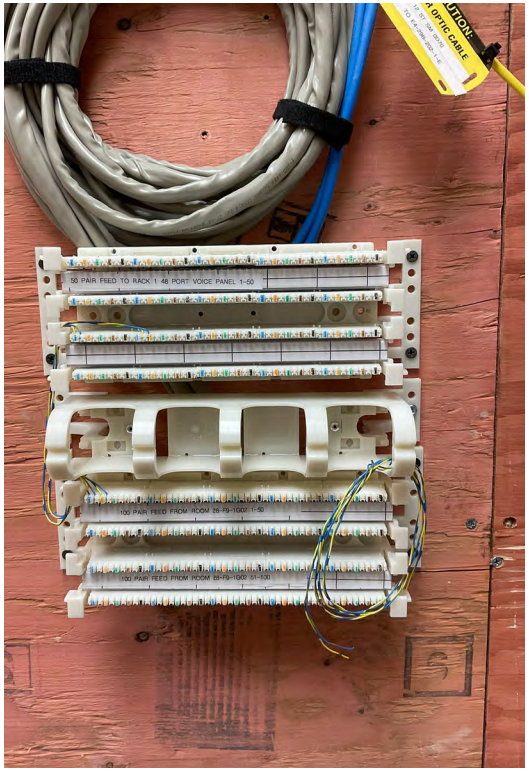
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

Recommendations:

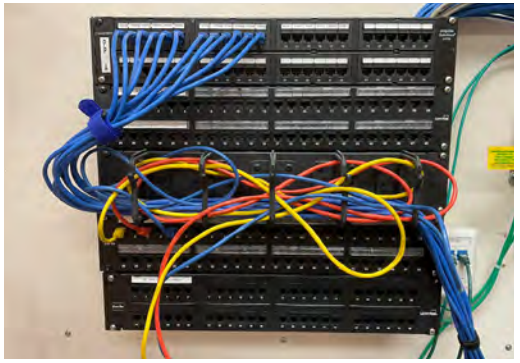
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-D070

Existing Telecom Equipment.

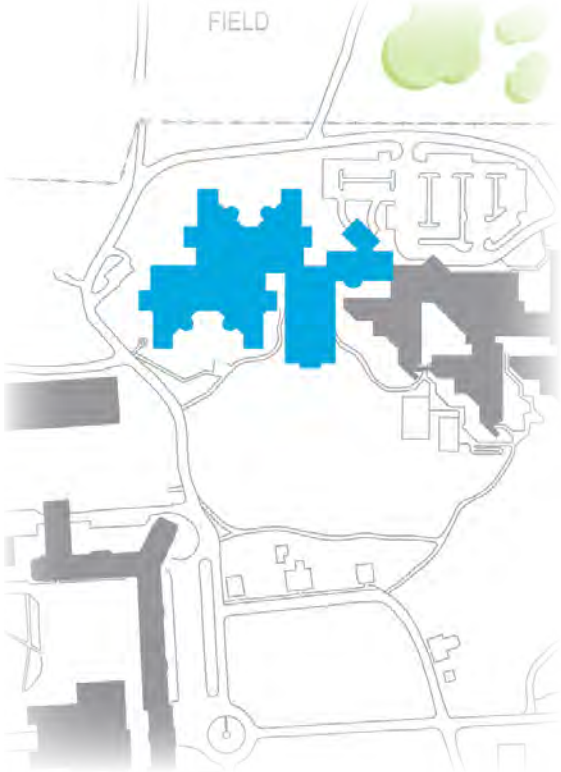


Existing Voice Patching.



Existing Data Patching.

Existing Failing UPS.



STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

FORENSIC SERVICE

TELECOMMUNICATIONS ROOM – TR-E101

Telecommunications Room TR-E101 is a dedicated telecommunications room on the first floor. It includes a two-post equipment rack. The rack contains multiple patch panels, network switches, and a UPS. There is space for expansion in the existing rack. Connectivity is provided by a 12-strand OM1 multi-mode optical fiber backbone cable from the MER in Building 18 that terminates in a rack mount fiber cabinet. Voice connectivity is provided by a 300-pair twisted-pair copper backbone cable that is terminated on 110 blocks. Existing horizontal cabling is Category 5e for data with Category 6A for the WAPs and Category 3 for voice cabling. A telecommunications grounding busbar is present; the busbar is grounded, and the rack is bonded. There are dedicated equipment receptacles. There is no dedicated cooling.

The existing backbone and horizontal cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling is required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

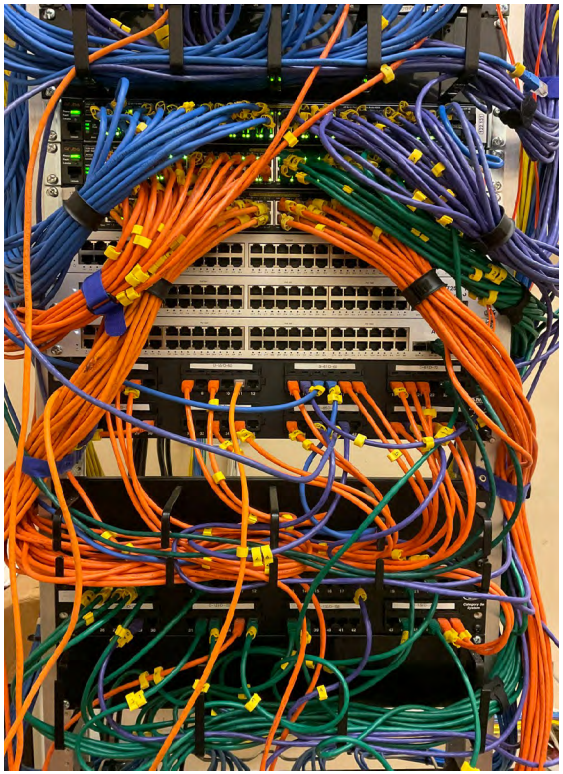
Deficiencies:

- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

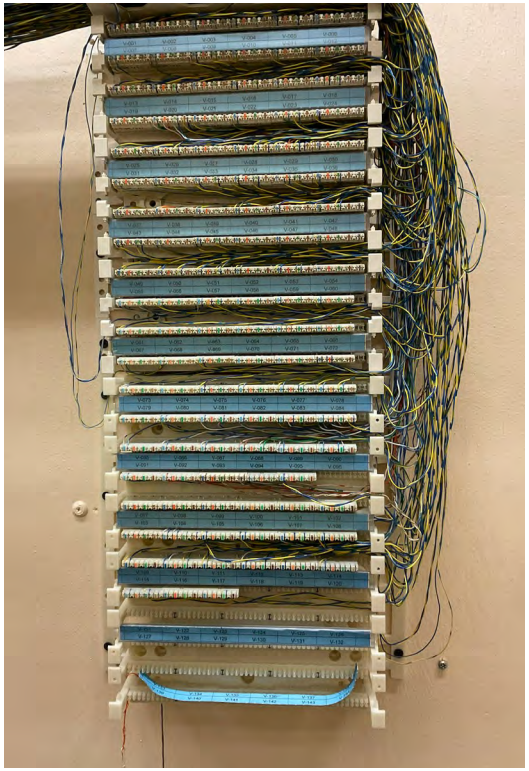
Recommendations:

- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-E101

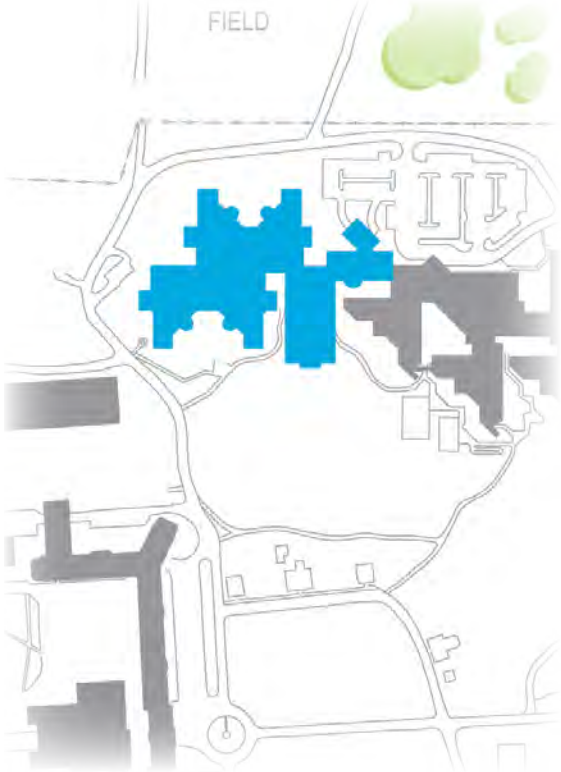


Existing Telecom Rack.



Existing Voice Patching.

Existing Category 5e Cable Patching.



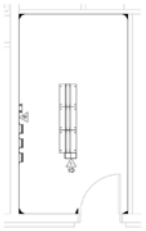
STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

FORENSIC SERVICE



TELECOMMUNICATIONS ROOM – TR-F101

Telecommunications Room TR-F101 is a dedicated telecommunications room on the first floor. It includes three two-post equipment racks. The racks contain multiple patch panels, network switches, and a UPS. There is space for expansion in the existing rack. Connectivity is provided by a 6-strand single-mode optical fiber cable from the MER that terminates in a rack mount fiber cabinet. Voice connectivity is provided by a 600-pair twisted-pair copper backbone cable that is terminated on 110 blocks. Existing horizontal cabling is Category 5e for data with Category 6A for WAPs and Category 3 for voice cabling. A telecommunications grounding busbar is present; the busbar is grounded, and the rack is bonded. There are dedicated equipment receptacles. There is no dedicated cooling.

The existing backbone and horizontal cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling is required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

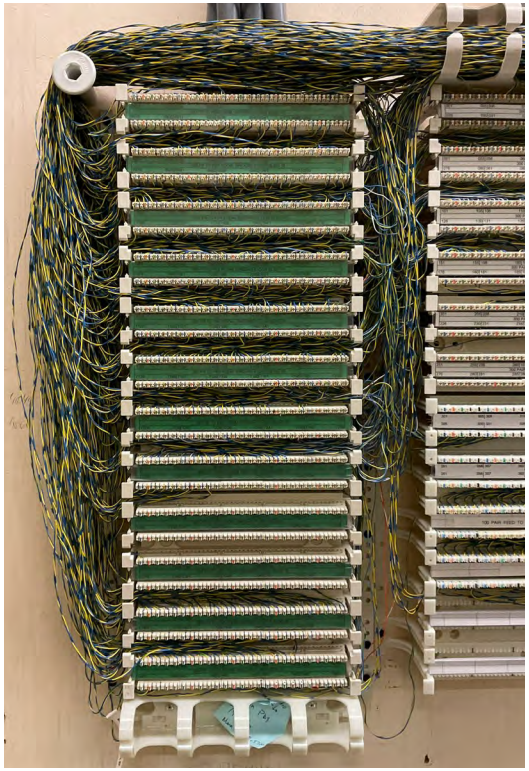
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

Recommendations:

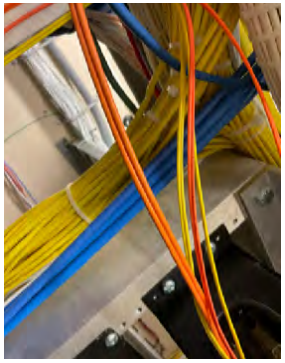
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-F101

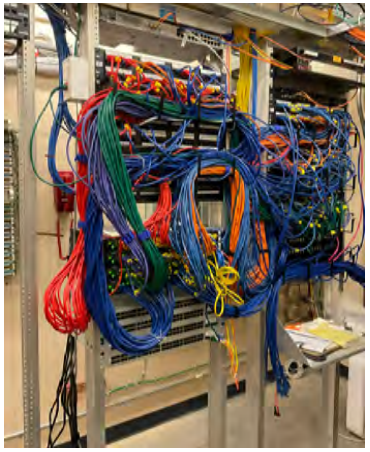
Existing Telecom Rack.



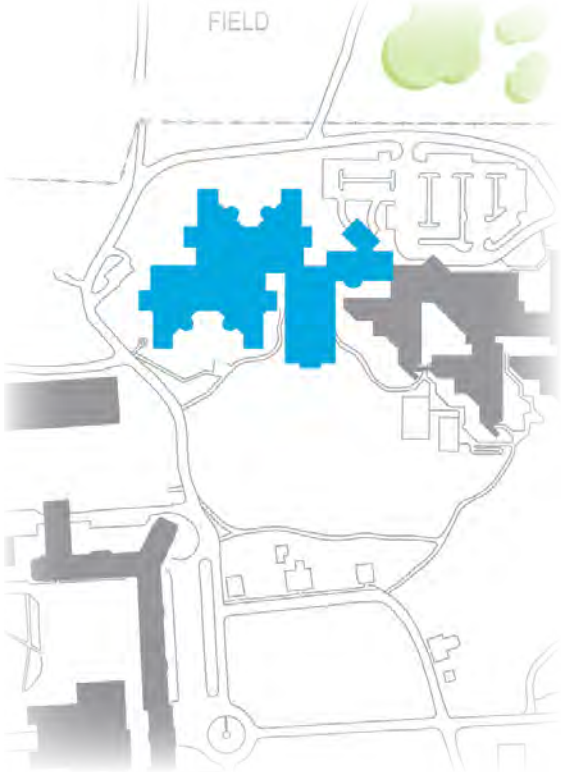
Existing Voice Patching.



Existing OFC.



Existing Voice and Data Patching.



STANDARDS COMPLIANCE

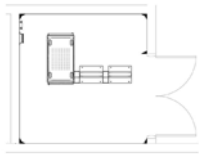
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

FORENSIC SERVICE

TELECOMMUNICATIONS ROOM – TR-G102



Telecommunications Room TR-G102 is a dedicated telecommunications room on the first floor. It includes two two-post equipment racks and one server enclosure. The racks contain multiple patch panels while the server enclosure contains security equipment and a UPS. There is space for expansion in the existing racks. Connectivity is provided by a 12-strand single-mode optical fiber backbone cable from TR-B202 in Building 29 that terminates in a rack mount fiber cabinet. Voice connectivity is provided by a 100-pair twisted-pair copper backbone cable that is terminated on 110 blocks. Existing horizontal cabling is Category 6A for data and voice cabling. A telecommunications grounding busbar is present; the busbar is grounded, and the rack is bonded. There are dedicated equipment receptacles. There is no dedicated cooling.

The existing backbone cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling is required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

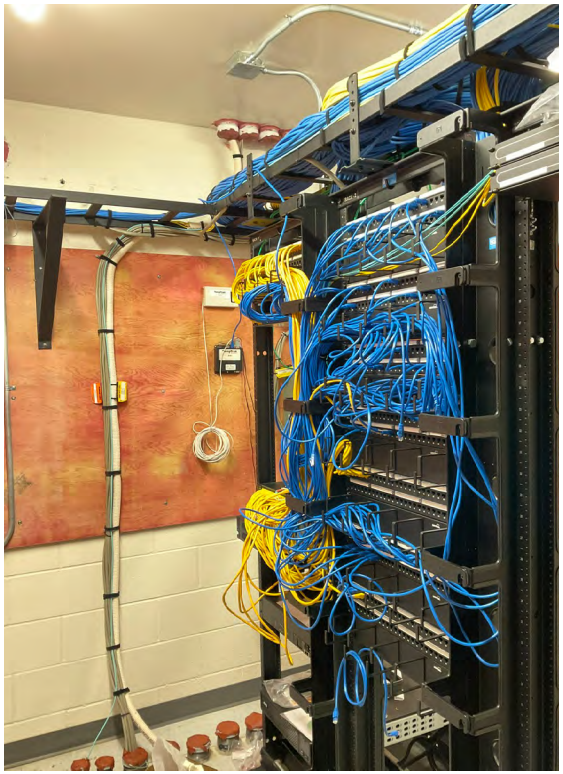
Deficiencies:

- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

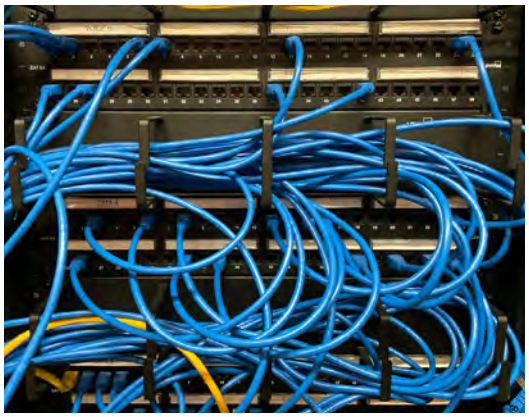
Recommendations:

- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-G102



Existing Telecom Rack.

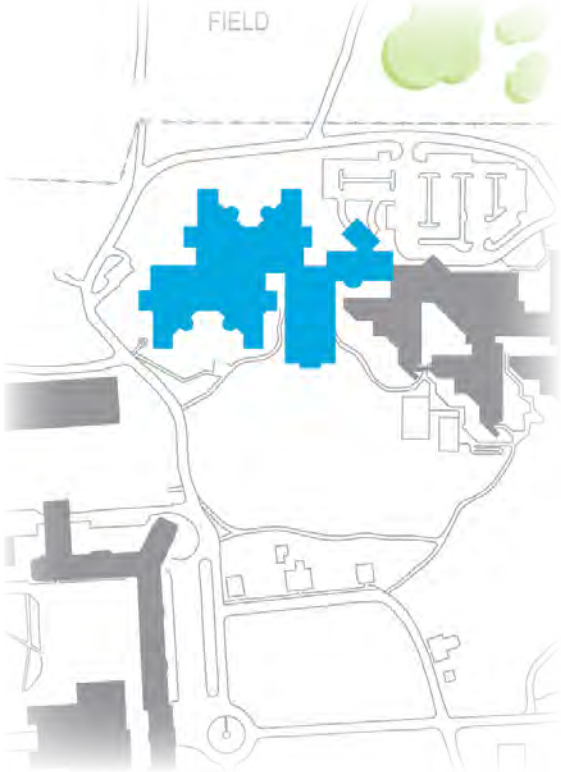


Existing Data Patching.

Existing SM OFC.

Existing Voice Patching.

Existing Category 6A Cabling.



STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

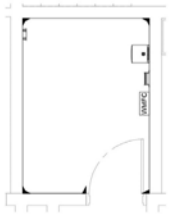
SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

FORENSIC SERVICE

TELECOMMUNICATIONS ROOM – TR-G111

Telecommunications Room TR-G111 is a dedicated telecommunications room on the first floor. It includes a wall mounted rack with a patch panel. There is no space for expansion in the existing rack. Connectivity is provided by a 12-strand single-mode optical fiber backbone cable from TR-G102 that terminates in a wall mount fiber cabinet. There is a 50-pair twisted-pair copper backbone cable that is terminated on 110-blocks. Existing horizontal cabling is Category 5e for data with Category 6A for the WAPs and Category 3 for voice cabling. A telecommunications grounding busbar is present; the busbar is grounded, and the rack is bonded. There are dedicated equipment receptacles. There is no dedicated cooling.



The existing backbone and horizontal cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling is required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

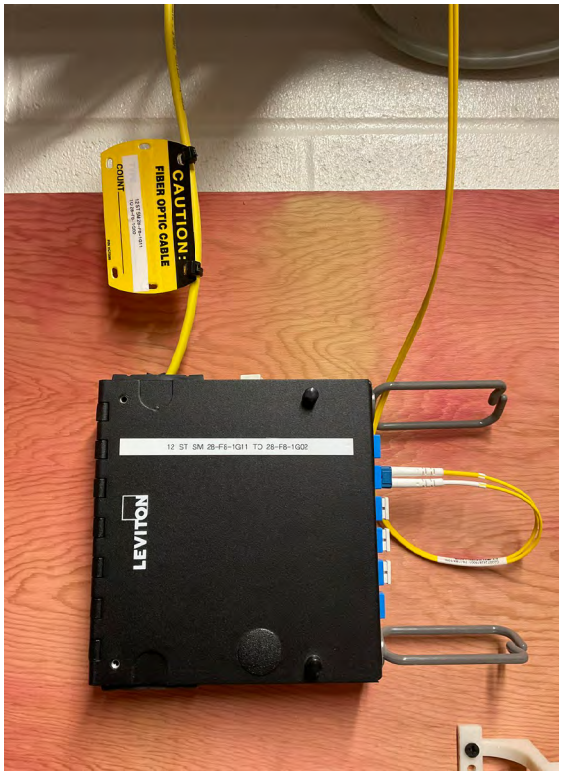
Deficiencies:

- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

Recommendations:

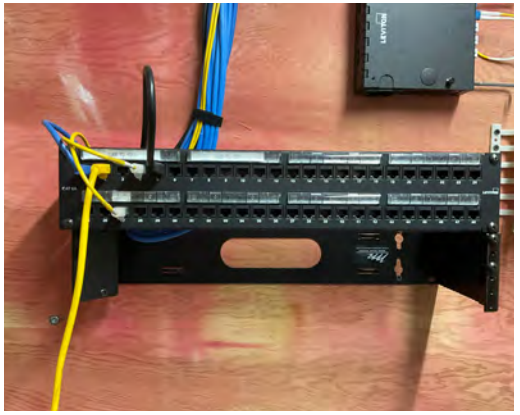
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-G111

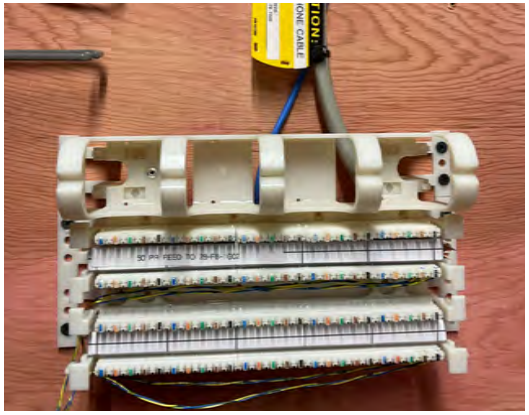


Existing Fiber Cabinet.

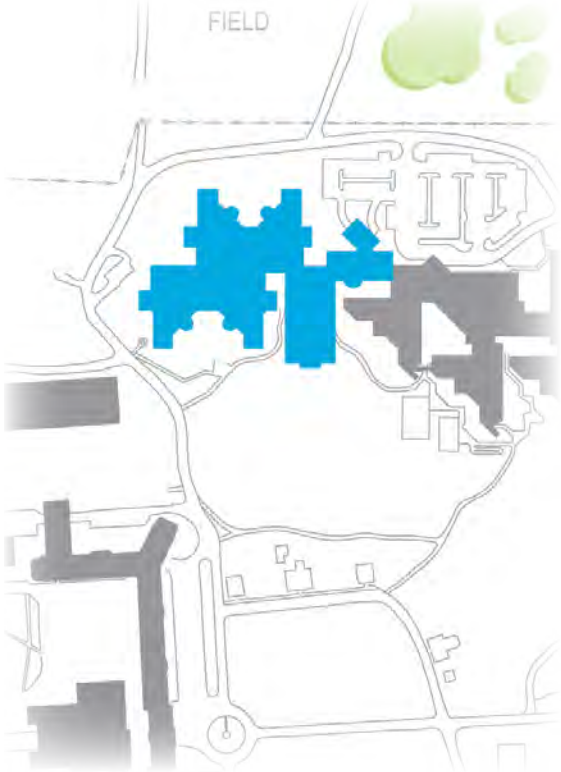
Existing Telecom Room.



Existing Data Patching.



Existing Voice Patching.



STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

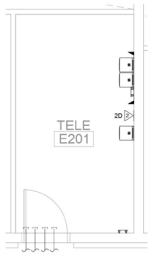
SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

FORENSIC SERVICE

TELECOMMUNICATIONS ROOM – TR-E201

Telecommunications Room TR-E201 is a dedicated telecommunications room on the second floor. It includes two wall mounted racks. One rack contains network switches while the other is dedicated for security equipment. The space also contains patch panels mounted on the wall. There is no space for expansion in the existing rack. Connectivity is provided by a Category 5e cable as backbone. Existing horizontal cabling is Category 5e for data and Category 3 for voice cabling. A telecommunications grounding busbar is present; the busbar is grounded, and the rack is bonded. There are dedicated equipment receptacles. There is no dedicated cooling.



The existing backbone and horizontal cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling is required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

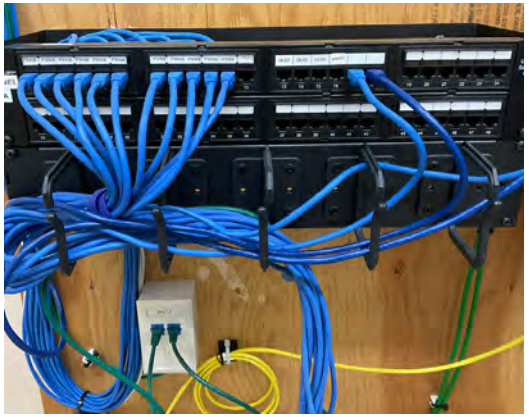
Recommendations:

- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add dedicated cooling system.
- Control access to authorized individuals.

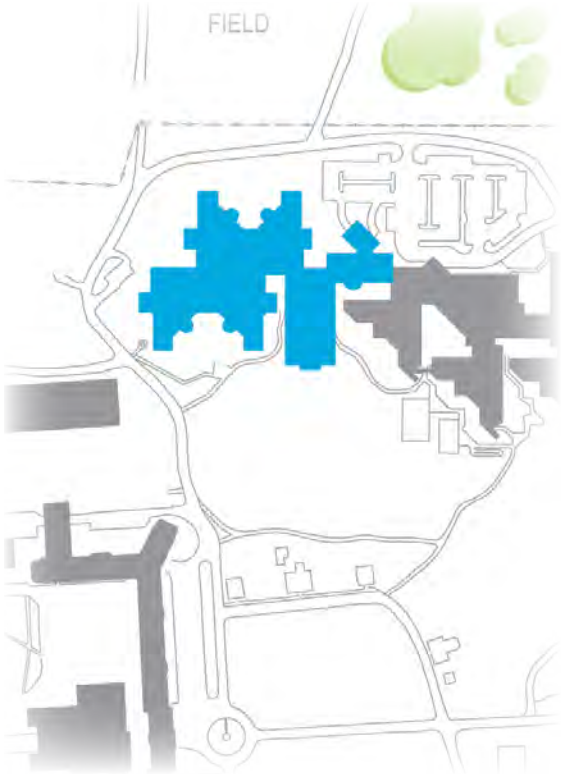
TELECOMMUNICATIONS ROOM – TR-E201

Existing Wall-Mounted Equipment.

Existing Failing UPS.



Existing Data Patching.



STANDARDS COMPLIANCE

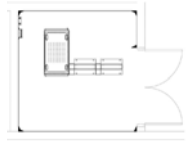
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

FORENSIC SERVICE

TELECOMMUNICATIONS ROOM – TR-G202



Telecommunications Room TR-G202 is a dedicated telecommunications room on the second floor. It includes two two-post equipment racks and one server enclosure. The racks contain multiple patch panels while the server enclosure contains security equipment and a UPS. There is space for expansion in the existing racks. Connectivity is provided by a 12-strand single-mode optical fiber backbone cable from TR-B202 of Building 29. Existing horizontal cabling is Category 6A for data voice cabling. A telecommunications grounding busbar is present; the busbar is grounded, and the rack is bonded. There are dedicated equipment receptacles. There was no dedicated cooling observed.

The existing backbone do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling is required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

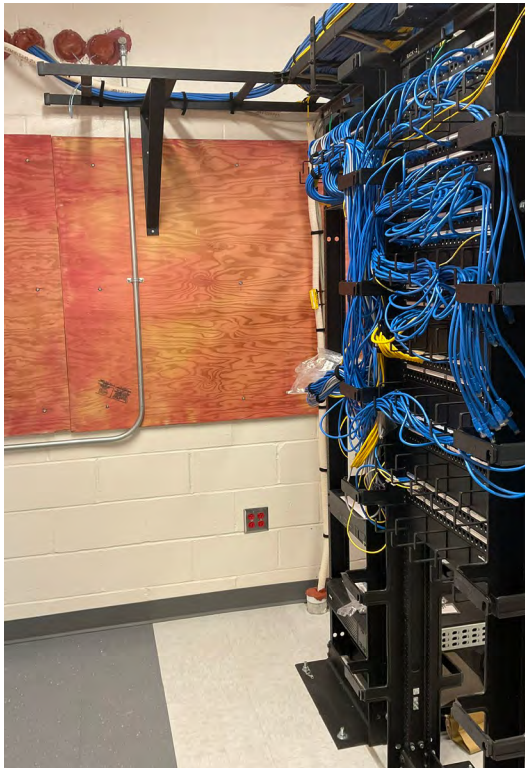
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

Recommendations:

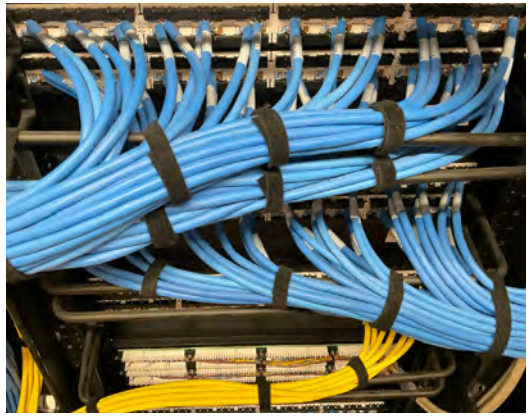
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-G202

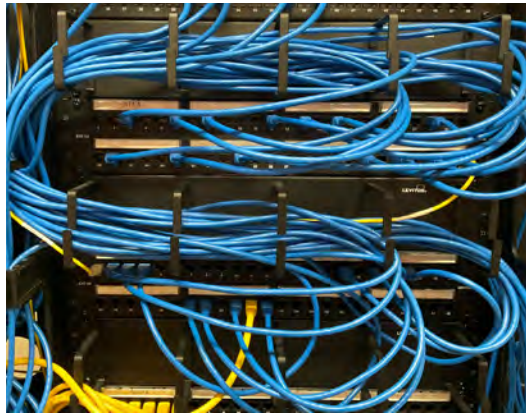
Existing Voice Patching.



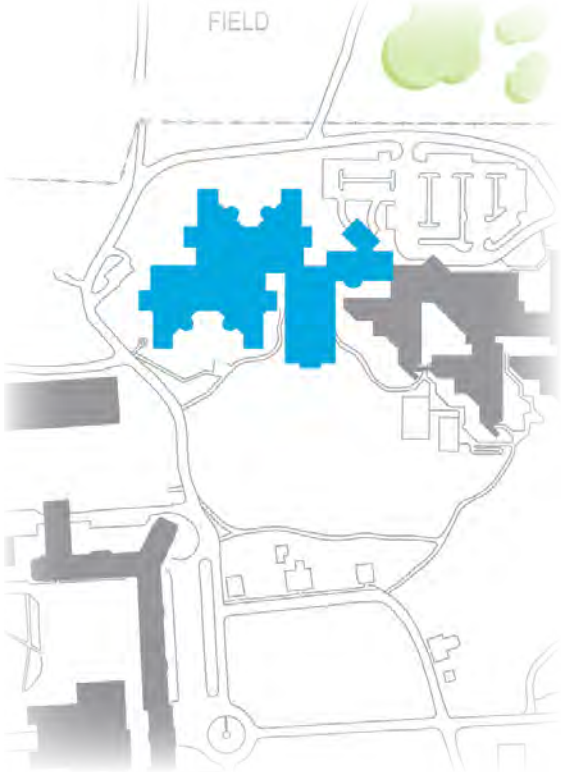
Existing Telecom Racks.



Existing Data Patching.



Existing Category 6A Patch Panels.



STANDARDS COMPLIANCE

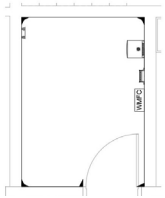
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

FORENSIC SERVICE

TELECOMMUNICATIONS ROOM – TR-G211



Telecommunications Room TR-G211 is a dedicated telecommunications room on the second floor. It includes a wall mounted rack with a patch panel. There is space for expansion in room. Connectivity is provided by a 12-strand single-mode optical fiber backbone cable from TR-G202. Existing horizontal cabling is Category 5e for data with Category 6A for the WAPs and Category 3 for voice cabling. A telecommunications grounding busbar is present; the busbar is grounded, and the rack is bonded. There are dedicated equipment receptacles. There was no dedicated cooling or UPS observed in the space.

The existing backbone and horizontal cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, and a UPS are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

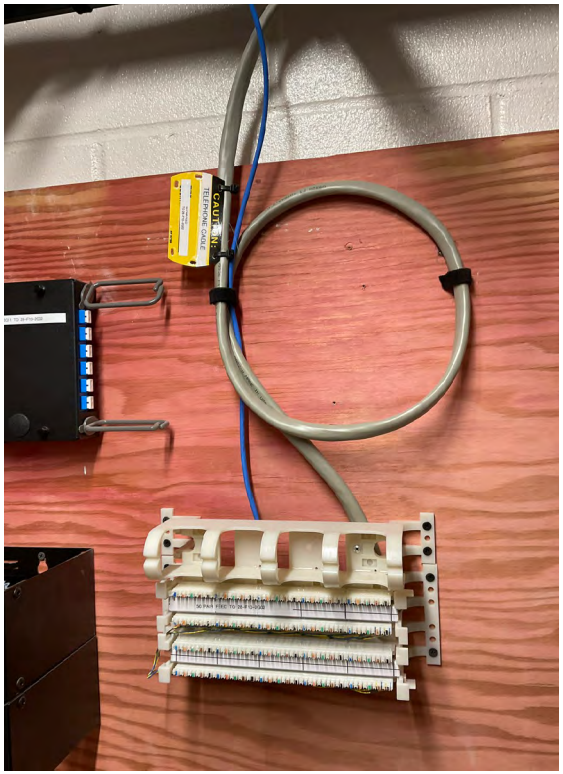
Deficiencies:

- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- No UPS.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

Recommendations:

- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add dedicated cooling system.
- Control access to authorized individuals.
- Provide a properly sized UPS.

TELECOMMUNICATIONS ROOM – TR-G211

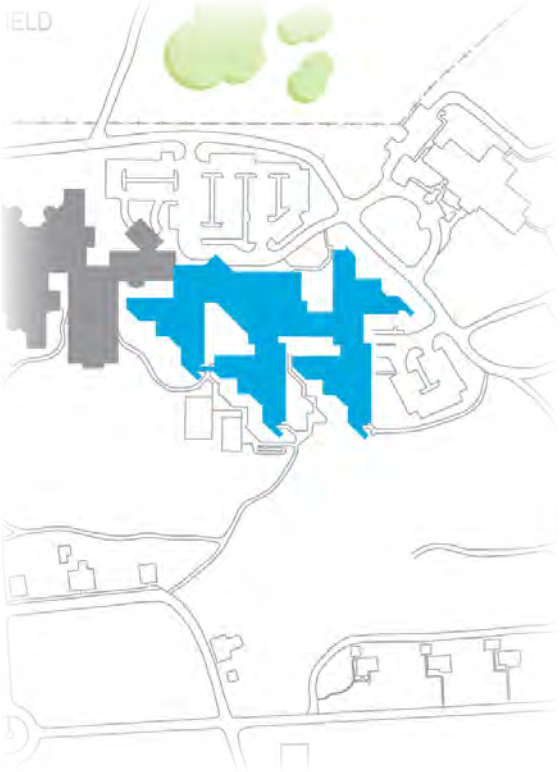


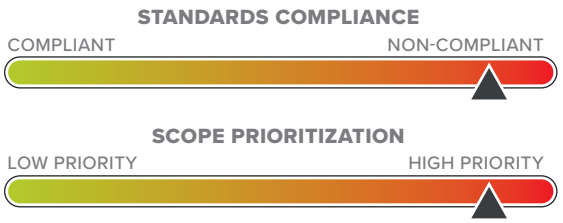
Existing Voice Patching.

Existing Unused Fiber Cabinet.

Existing Telecom Room.

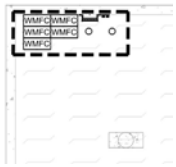
Existing Data Patching.





EAST CAMPUS

TELECOMMUNICATIONS ROOM – TR-003



Telecommunications Room TR-003 is an electrical room located in the basement floor. It includes multiple wall mount fiber cabinets and 66-blocks. There is space for expansion in room. Connectivity is provided by a 6-strand single-mode optical fiber backbone cable and a 400-pair twisted pair cable from the MER in Building 18. There is no horizontal cabling to this room since it is primarily used to cross-connect fiber and voice backbone cabling to other telecommunications rooms in the building. A telecommunications grounding busbar is not present. There are no dedicated equipment receptacles. There was no dedicated cooling or UPS observed in the space.

The telecommunications space does not meet current TIA standards. The telecommunications equipment should be relocated to a dedicated telecom space. Existing backbone cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone. Dedicated cooling, and dedicated equipment and convenience receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Electrical infrastructure does not meet minimum requirements per standards.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.
- No dedicated telecommunications space.

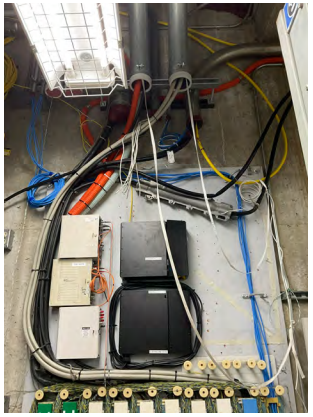
Recommendations:

- Relocate telecommunications equipment to a dedicated telecommunications room.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add power circuits and receptacles as needed.
- Add dedicated cooling system.
- Control access to authorized individuals.
- Provide a properly sized UPS.
- Provide a telecommunications grounding busbar.

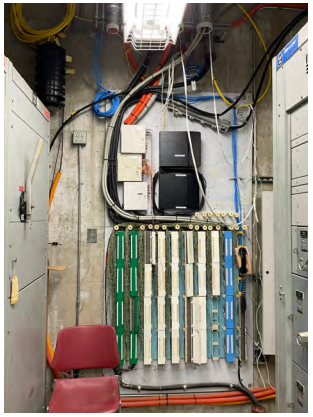
TELECOMMUNICATIONS ROOM – TR-003

Existing Voice Cross-Connect.

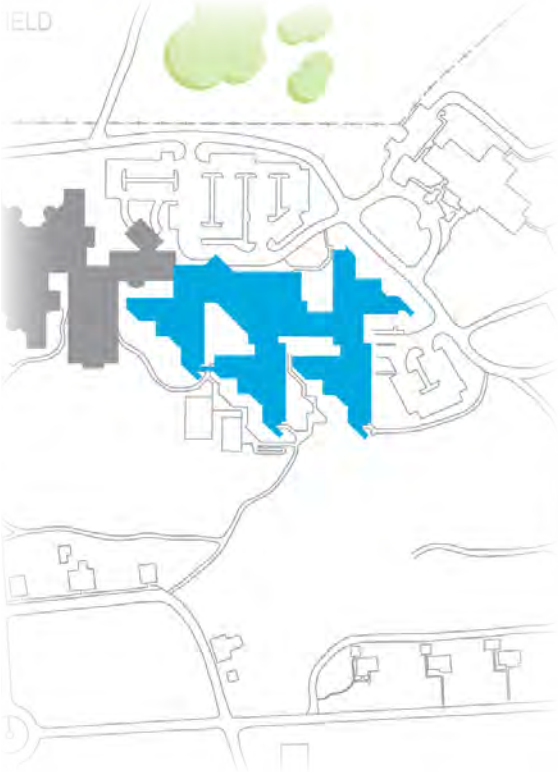
Existing Fiber Cabling.



Existing Fiber Cabinets.



Existing Telecom Room.



STANDARDS COMPLIANCE

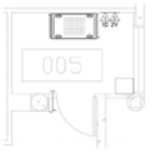
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

EAST CAMPUS

TELECOMMUNICATIONS ROOM – TR-005



Telecommunications Room TR-005 is a dedicated telecommunications room in the basement. It includes a two-post equipment rack with switches and server equipment. Connectivity is provided by a 24-strand single-mode optical fiber backbone cable to TR-003 and a 6-strand single-mode optical fiber cable to the MER in Building 18. Existing horizontal cabling is Category 5e for data and Category 3 for voice cabling. A telecommunications grounding busbar is not available. There are dedicated equipment receptacles. There was no dedicated cooling observed in the space.

The existing backbone and horizontal cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling is required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

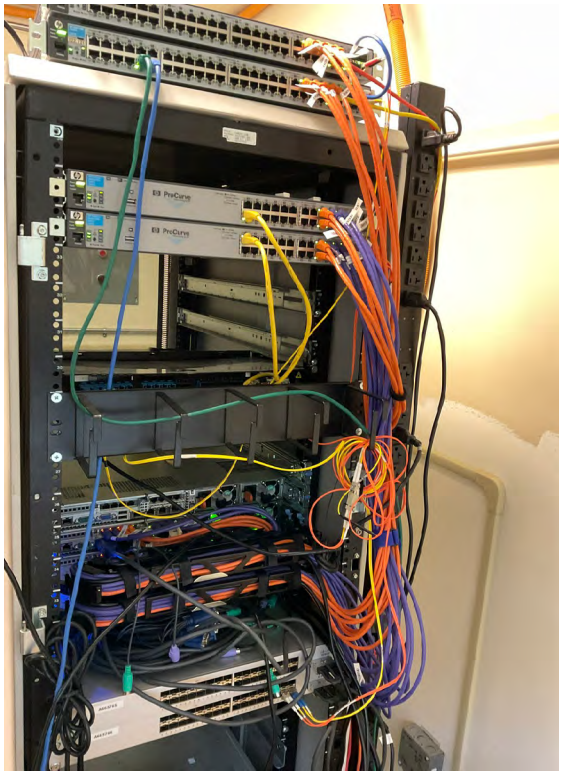
Deficiencies:

- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

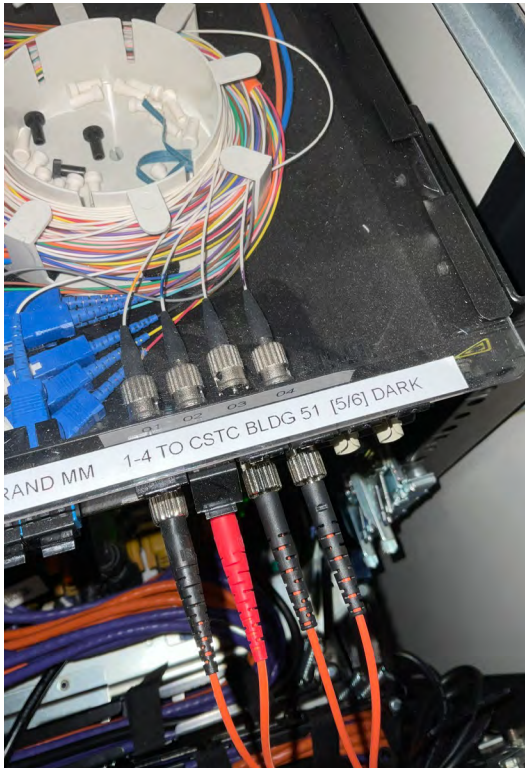
Recommendations:

- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add dedicated cooling system.
- Control access to authorized individuals.

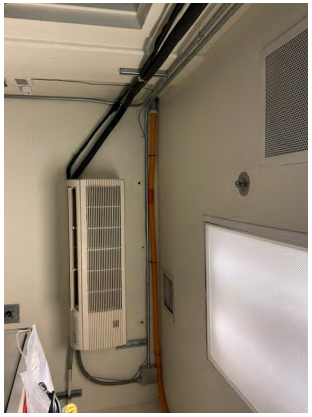
TELECOMMUNICATIONS ROOM – TR-005



Existing Telecom Rack.

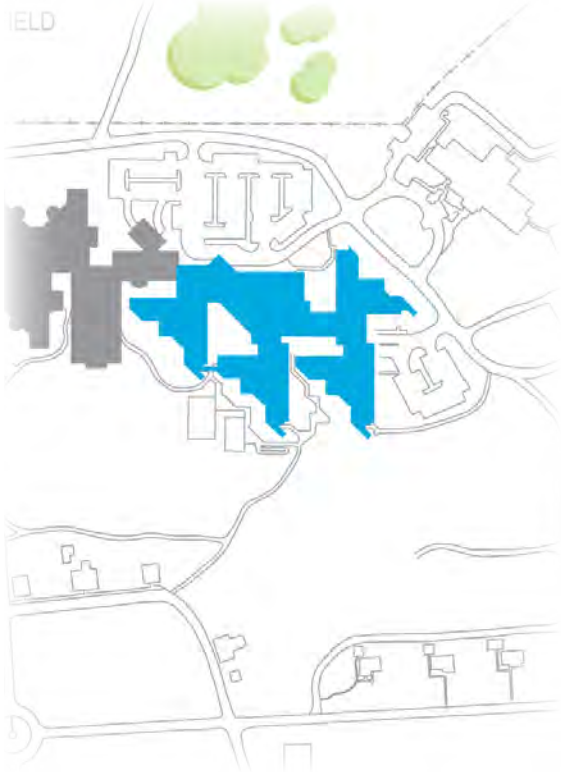


Existing Fiber Cabinet.



Existing Cooling Unit.

Existing Server Equipment.



STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

EAST CAMPUS

TELECOMMUNICATIONS ROOM – TR-A112

Telecommunications Room TR-005 is a dedicated telecommunications room on the first floor. It includes multiple wall mounted racks with patch panels and ethernet switches. Connectivity is provided by Category 5e cabling for network backbone and a 100-pair twisted-pair cable for voice backbone. Existing horizontal cabling is Category 5e for data and Category 3 for voice cabling. There is a tower UPS in the rack. A telecommunications grounding busbar was observed. There was no dedicated cooling observed in the space.

The existing backbone and horizontal cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling is required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

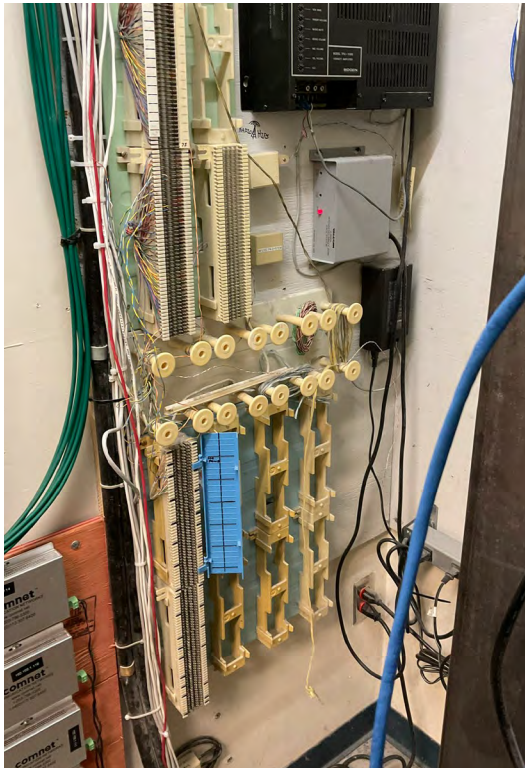
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

Recommendations:

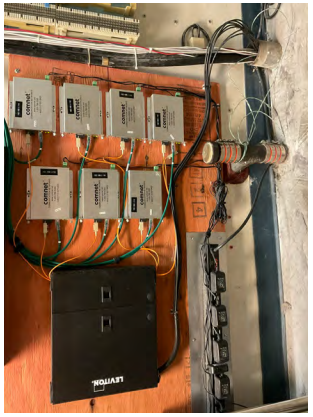
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-A112

Existing Telecom Room.

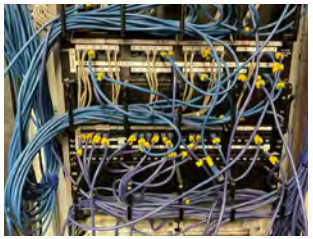


Existing Intercom Patching.

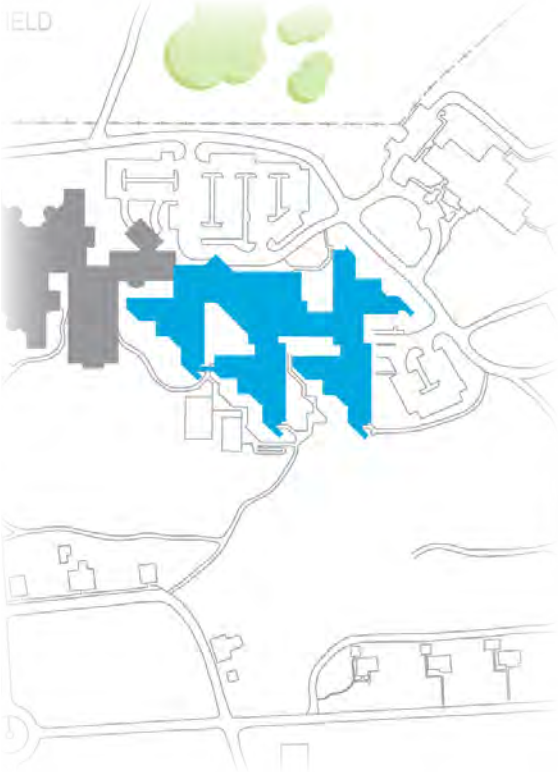


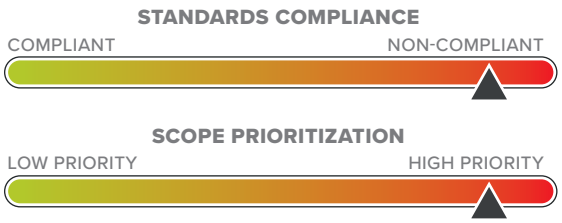
Existing Media Converters.

Existing Voice Patching.



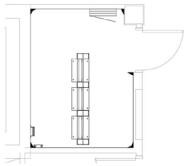
Existing Data Patching.





EAST CAMPUS

TELECOMMUNICATIONS ROOM – TR-B102



Telecommunications Room TR-B102 is a dedicated telecommunications room on the first floor. It includes three two-post equipment racks with patch panels, ethernet switches, and a UPS. Connectivity is provided by a 36-strand single-mode optical fiber backbone cable and a 100-pair twisted-pair Category 3 cable from TR-003. Existing horizontal cabling is Category 6A for data and voice cabling. There is a rack mounted UPS. A telecommunications grounding busbar was observed. There was no dedicated cooling observed in the space.

The existing backbone and horizontal cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling is required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

Recommendations:

- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add dedicated cooling system.
- Control access to authorized individuals.

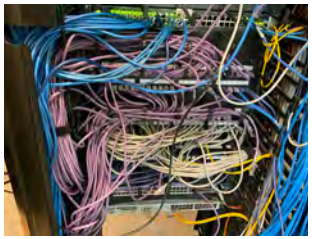
TELECOMMUNICATIONS ROOM – TR-B102

Existing Telecom Racks.

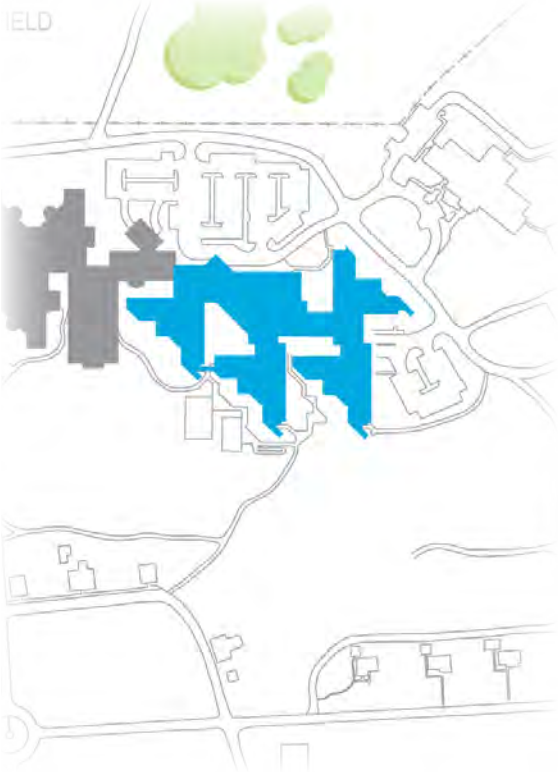
Existing Voice Patching.

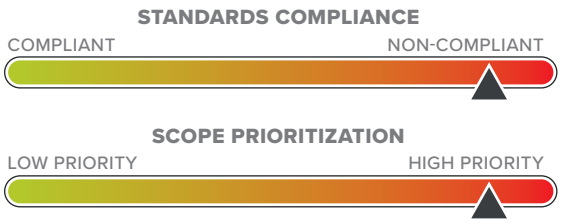
Existing SM OFC.

Existing Category 6A Cabling.



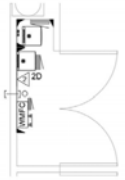
Existing Data Patching.





EAST CAMPUS

TELECOMMUNICATIONS ROOM – TR-C106



Telecommunications Room TR-C106 is a small electrical closet on the first floor. The telecommunications space is too small to meet current standards. It contains multiple patch panels, 66-blocks, and switches mounted on the wall. Connectivity is provided by a 6-strand single-mode optical fiber backbone cable and a 100-pair twisted-pair Category 3 cable from TR-003. Existing horizontal cabling is Category 5e for data and Category 3 for voice cabling. There is a tower UPS on the floor. A telecommunications grounding busbar was observed. There was no dedicated cooling observed in the space.

The existing telecommunications space is not standards compliant. The existing backbone and horizontal cabling does not technically meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

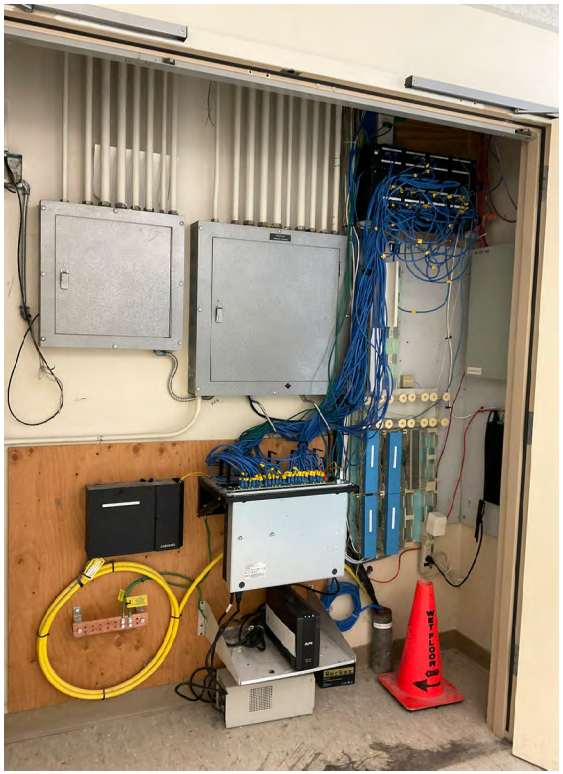
Deficiencies:

- Telecommunications Room is not sufficient for current needs and future expansion.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Electrical infrastructure does not meet minimum requirements per standards.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

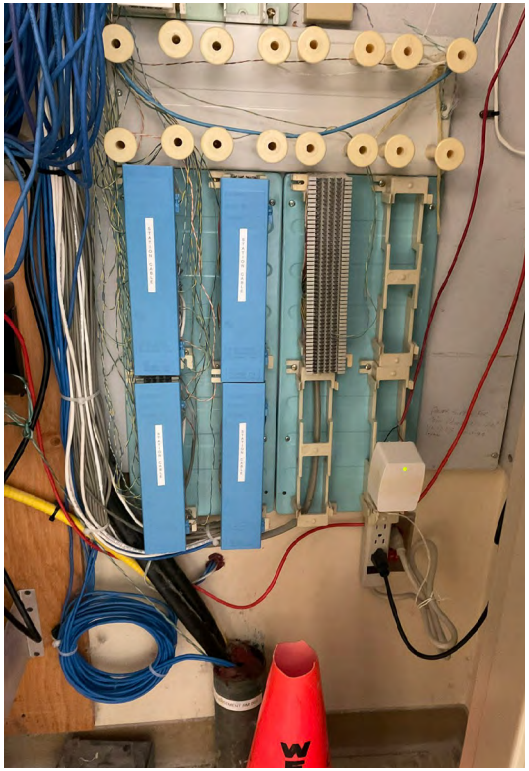
Recommendations:

- Provide a new dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add power circuits and receptacles as needed.
- Provide a properly sized UPS.
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-C106

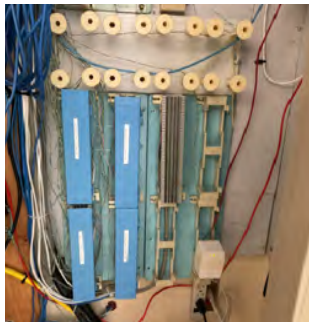


Existing Telecom Room.

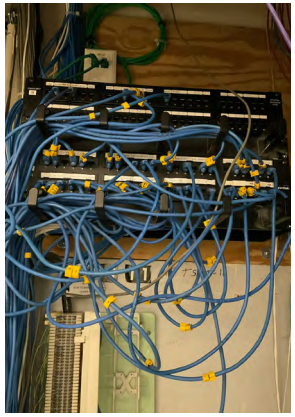


Existing Voice Patching.

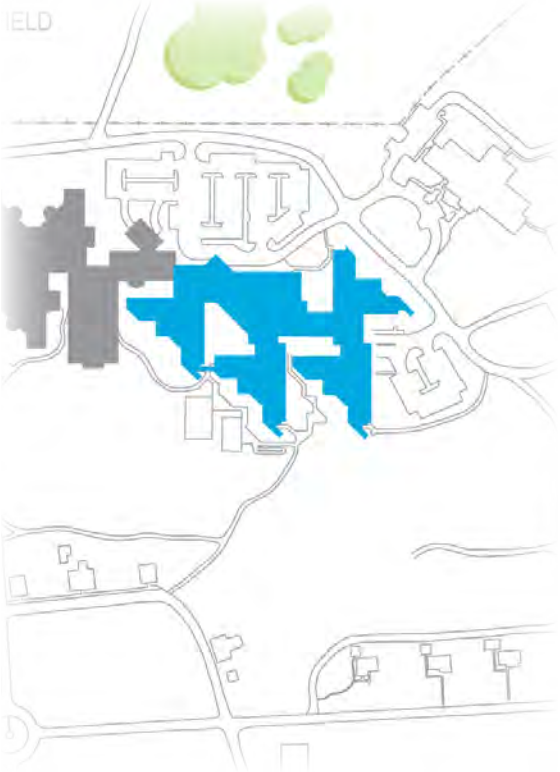
Existing Grounding and OFC.



Existing Category 6A Cabling.



Existing Data Patching.



STANDARDS COMPLIANCE

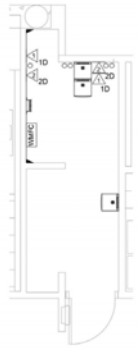
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

EAST CAMPUS

TELECOMMUNICATIONS ROOM – TR-A211



Telecommunications Room TR-A211 is a dedicated telecommunications room on the second floor. It includes multiple wall mounted racks with patch panels and ethernet switches. Connectivity is provided by Category 5e cabling for network backbone and a 100-pair twisted-pair cable for voice backbone. Existing horizontal cabling is Category 5e for data and Category 3 for voice cabling. There is a tower UPS in the rack. A telecommunications grounding busbar was observed. There was no dedicated cooling observed in the space.

The existing backbone and horizontal cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling is required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

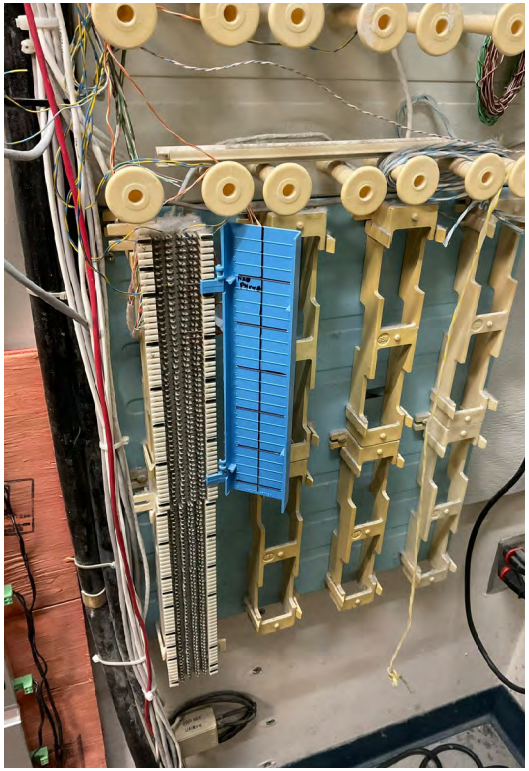
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

Recommendations:

- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-A211

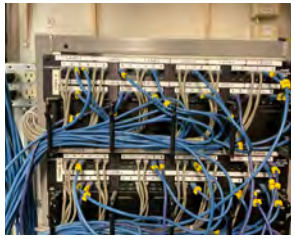
Existing Telecom Room.



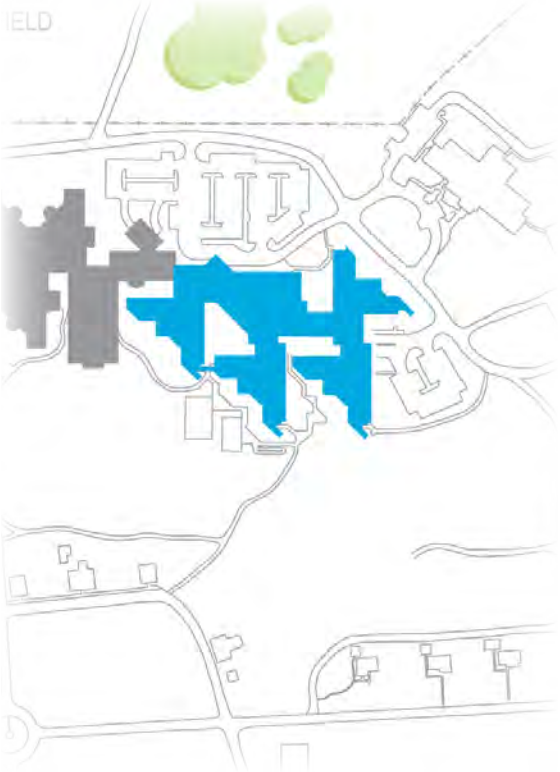
Existing Intercom Patching.

Existing Media Converters.

Existing Voice Patching.

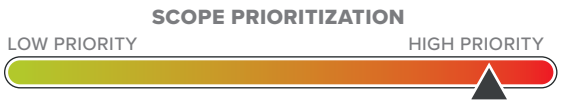


Existing Data Patching.



STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

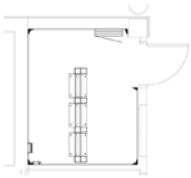


SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

EAST CAMPUS

TELECOMMUNICATIONS ROOM – TR-B202



Telecommunications Room TR-B202 is a dedicated telecommunications room on the second floor. It includes three two-post equipment racks with patch panels, ethernet switches, and a UPS. Connectivity is provided by a 12-strand OM3 multi-mode optical fiber backbone cable and a 100-pair twisted-pair copper cable from TR-003. There is also a 24-strand single-mode optical fiber backbone cable from TR-B102. Existing horizontal cabling is Category 6A for data and voice cabling. There is a rack mounted UPS. A telecommunications grounding busbar was observed. There was no dedicated cooling observed in the space.

The existing backbone and horizontal cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling is required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

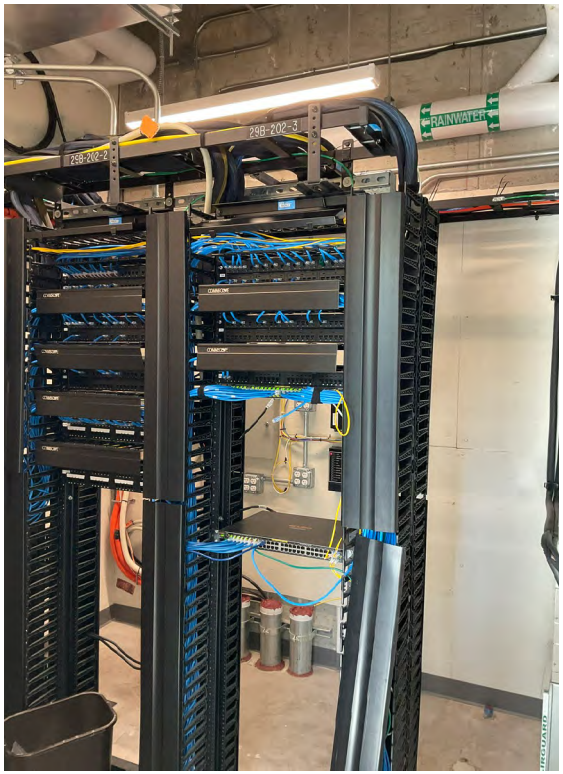
Deficiencies:

- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

Recommendations:

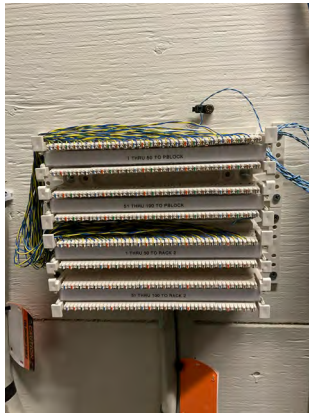
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-B202



Existing Telecom Racks.

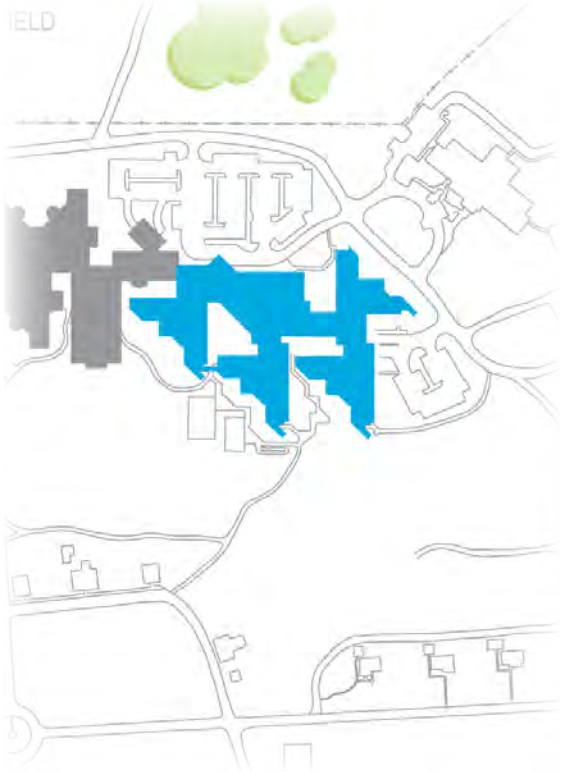
Existing Wall-Mounted Equipment.

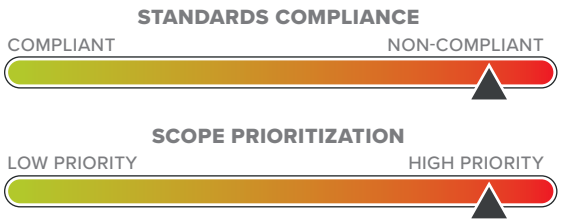


Existing Voice Cross-Connect.

Existing Category 6A Patching.

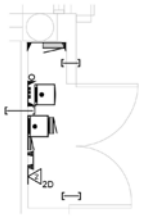
Existing SM OFC.





EAST CAMPUS

TELECOMMUNICATIONS ROOM – TR-C206



Telecommunications Room TR-C206 is a small electrical closet on the second floor. The telecommunications space is too small to meet current standards. It contains multiple patch panels, 66-blocks, and switches mounted on the wall. Connectivity is provided by Category 5e cables for network backbone and a 100-pair twisted-pair Category 3 cable for voice backbone. Existing horizontal cabling is Category 5e for data and Category 3 for voice cabling. There is a tower UPS on the floor. A telecommunications grounding busbar was observed. There was no dedicated cooling observed in the space.

The existing telecommunications space is not standards compliant. The existing backbone and horizontal cabling does not technically meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

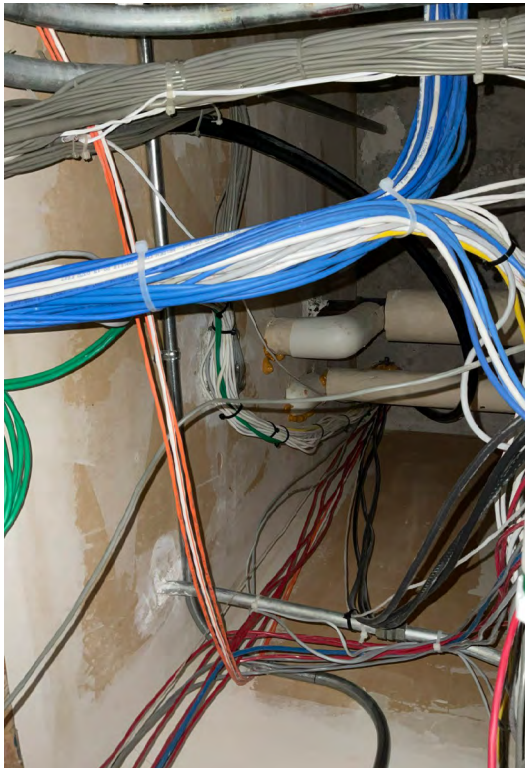
- Telecommunications Room is not sufficient for current needs and future expansion.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Electrical infrastructure does not meet minimum requirements per standards.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

Recommendations:

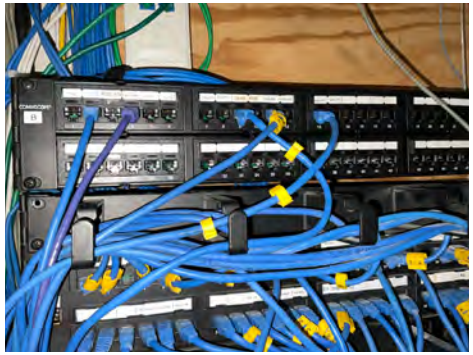
- Provide a new dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Administration (Building 18).
- Add power circuits and receptacles as needed.
- Provide a properly sized UPS.
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-C206

Existing Voice Patching.



Existing Cabling.



Existing Data Patching.

STANDARDS COMPLIANCE

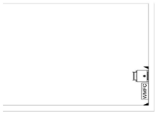
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

INVENTORY CONTROL

TELECOMMUNICATIONS ROOM – TR-INVENTORY CONTROL



The telecommunications room is a storage space on the ground floor. It contains a patch panel and 110-block mounted on the wall. Connectivity is provided by a 4-strand OM1 multi-mode optical fiber backbone cable and a 25-pair twisted-pair copper cable from the Maintenance Office (Building 1). Existing horizontal cabling is Category 5e for data and Category 3 for voice cabling. There is no UPS power available. Neither a telecommunications grounding busbar no dedicated cooling was observed in the space.

The existing telecommunications space is not standards compliant. It is recommended to create a new, dedicated telecommunications room. The existing backbone and horizontal cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to provide a new, dedicated telecommunications room with standards compliant backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, rack space, and cable management should be provided. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

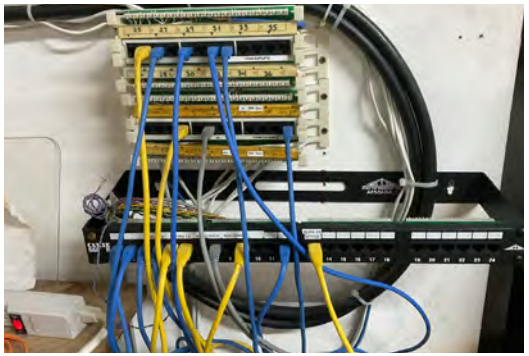
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Electrical infrastructure does not meet minimum requirements per standards.
- Minimal overhead ladder tray for cable support, leading to cables being draped or placed directly on equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

Recommendations:

- Provide a new dedicated telecommunications room.
- Add ladder tray and cable management as needed.
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from Maintenance Shops (Building 1).
- Add power circuits and receptacles as needed.
- Provide a properly sized UPS.
- Add Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-INVENTORY CONTROL

Existing Cable Routing.



Existing Voice and Data Patching.

Existing Fiber Cabinet.

Existing Telecom Equipment.

STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

MAINTENANCE WAREHOUSE

TELECOMMUNICATIONS ROOM – TR-MAINTENANCE WAREHOUSE

The telecommunications room is a dedicated space on the ground floor. It contains a wall mounted rack with multiple patch panels and network switches. Connectivity is provided by a 6-strand OM1 multi-mode optical fiber backbone cable from the Inventory Control Building (Building 32) and a 25-pair twisted-pair copper cable from the Maintenance Office (Building 1). The optical fiber cable terminates in a rack mount fiber cabinet while the twisted-pair copper cable terminates in a 110-block mounted on the wall. Existing horizontal cabling is Category 5e for data and Category 3 for voice cabling. There is no UPS power available. A telecommunications grounding busbar was observed. There was no dedicated cooling observed in the space.

The existing backbone and horizontal cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling is required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal overhead ladder tray for cable support, leading to cables being draped or placed directly on equipment.
- No UPS.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

Recommendations:

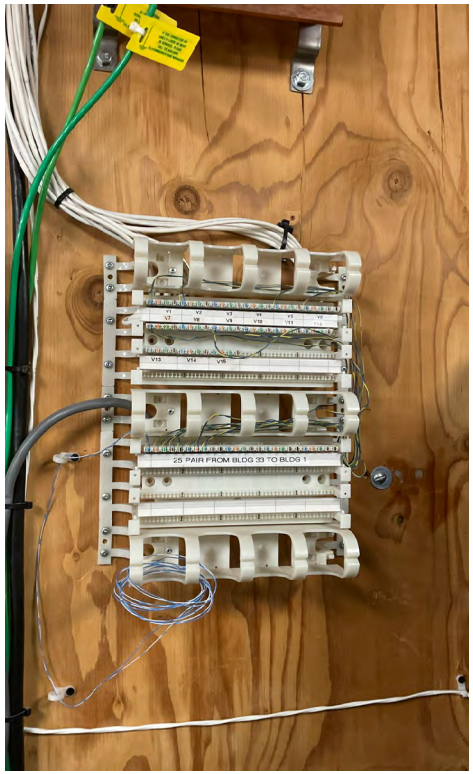
- Add ladder tray and cable management as needed.
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from Maintenance Shops (Building 32).
- Provide a properly sized UPS.
- Add Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-MAINTENANCE WAREHOUSE

Existing Telecom Equipment.

Existing Telecom Cabinet.

Existing Fiber Patching.



Existing Voice Patching.

STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

CARPENTER SHOP

TELECOMMUNICATIONS ROOM – TR-CARPENTER SHOP

The telecommunications room is a space located in the staff breakroom in the mezzanine. It contains a patch panel, and multiple 110-blocks mounted on the wall. There is also a wall mounted bracket with a network switch. Connectivity is provided by a 6-strand OM1 multi-mode optical fiber backbone cable from the Inventory Control Building (Building 32) and a 25-pair twisted-pair copper cable from the Maintenance Office (Building 1). The optical fiber cable terminates in a rack mount fiber cabinet while the twisted-pair copper cable terminates in a 110-block mounted on the wall. Existing horizontal cabling is Category 5e for data and Category 3 for voice cabling. There is no UPS power available. A telecommunications grounding busbar was observed. There is no dedicated cooling observed in the space.

The existing telecommunications space is not standards compliant. It is recommended to create a new, dedicated telecommunications room. The existing backbone and horizontal cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to provide a new, dedicated telecommunications room with standards compliant backbone and horizontal cabling. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling, rack space, and cable management should be provided. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

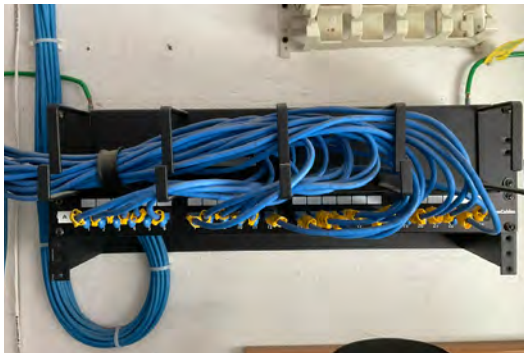
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Electrical infrastructure does not meet minimum requirements per standards.
- Minimal overhead ladder tray for cable support, leading to cables being draped or placed directly on equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

Recommendations:

- Add ladder tray and cable management as needed.
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from Maintenance Shops (Building 32).
- Add power circuits and receptacles as needed.
- Provide a properly sized UPS.
- Add Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-CARPENTER SHOP

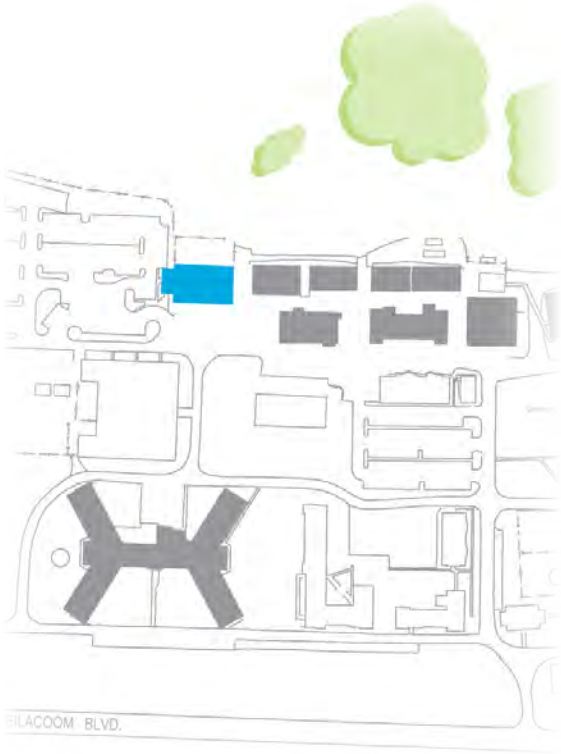
Existing Telecom Room.



Existing Data Patching.

Existing Backbone OFC.

Existing Voice Patching.



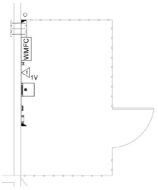
STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

WAREHOUSE



TELECOMMUNICATIONS ROOM – TR-WAREHOUSE

The telecommunications room is a dedicated space on the ground floor. It contains multiple patch panels, 66-blocks, and 110-blocks mounted on the wall. Connectivity is provided by a 2-strand OM1 multi-mode optical fiber backbone cable from the Inventory Control Building (Building 32) and a 25-pair twisted-pair copper cable from the Maintenance Office (Building 1). The optical fiber cable terminates in a wall mount fiber cabinet while the twisted-pair copper cable terminates in the 110-block. Existing horizontal cabling is Category 5e for data and Category 3 for voice cabling. There is a tower UPS power on the floor. A telecommunications grounding busbar was observed. There was no dedicated cooling observed in the space.

The existing backbone and horizontal cabling do not meet current TIA standards for healthcare facilities. To meet industry standards, it is recommended to upgrade the existing backbone. Additional Category 6A data ports should be provided as required to meet standards. Dedicated cooling is required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal overhead ladder tray for cable support, leading to cables being draped or placed directly on equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Minimal labeling of existing cabling.
- Uncontrolled access to space with no identity verification.

Recommendations:

- Add ladder tray and cable management as needed.
- Upgrade existing port locations to Category 6A.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand single-mode and 12-strand OM4 multi-mode optical fiber backbone from Maintenance Shops (Building 32).
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-WAREHOUSE

Existing Cut Fiber.

Existing Data Patching.

Existing Voice Patching.

APPENDIX A: FULL COST OPINIONS

telecommunications **cost opinion**

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Telecommunications Infrastructure Assessment Recommendations
Western State Hospital

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 20, 2024

JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

telecommunications summary	subtotal	OH&P	total
Building 1 - Maintenance Office	$ 138,882	$ 20,832	$ 159,714
Building 3 - Maintenance Shops	$ 134,395	$ 20,159	$ 154,555
Building 4 - Power House	$ 93,905	$ 14,086	$ 107,991
Building 5 - Laundry	$ 123,849	$ 18,577	$ 142,426
Building 6 - Auditorium	$ 126,445	$ 18,967	$ 145,411
Building 8 - Research, Security, And Library	$ 420,477	$ 63,072	$ 483,549
Building 9 - Office	$ 1,566,938	$ 235,041	$ 1,801,978
Building 16 - Office & Staff Development	$ 576,757	$ 86,514	$ 663,271
Building 17 - Central Campus	$ 1,118,093	$ 167,714	$ 1,285,807
Building 18 - Administration	$ 753,918	$ 113,088	$ 867,006
Building 19 - Wards C1-C3	$ 801,999	$ 120,300	$ 922,299
Building 20 - Wards C4-C6	$ 875,701	$ 131,355	$ 1,007,056
Building 22 - Kitchen, Pharmacy, And Commissary	$ 199,448	$ 29,917	$ 229,365
Building 27 - HMH & FSCRP	$ 606,982	$ 91,047	$ 698,029
Building 28 - Forensic Service	$ 3,197,994	$ 479,699	$ 3,677,693
Building 29 - East Campus	$ 2,588,807	$ 388,321	$ 2,977,128
Building 32 - Inventory Control	$ 90,452	$ 13,568	$ 104,019
Building 33 - Maintenance Warehouse	$ 139,121	$ 20,868	$ 159,989
Building 34 - Carpenter Shop	$ 119,241	$ 17,886	$ 137,127
Building 35 - Warehouse	$ 118,322	$ 17,748	$ 136,070
Sub-Total	$ 13,791,725	$ 2,068,759	$ 15,860,483
General Contractor OH&P **15%**			$ 2,379,072
Escalation **7%**			$ 166,535
Total			**$ 18,406,091**

EXCLUSIONS

1 - Design contingency

2 - Sales Tax

telecommunications **cost opinion**

Building 1 - Maintenance Office

Telecommunications Infrastructure Assessment Recommendations

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description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
DIVISION 27									
LOW-VOLTAGE SYSTEMS - DIVISIONS 27									
General Provisions (Submittals, Mobilization, Permits)	1	LS	1,682	1,682	3,363	3,363	5,045	757	5,801
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	4,167	4,167			4,167	625	4,792
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000	12,000	2,500	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150	600	50	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300	300	110	110	410	62	472
Ladder Rack	40	LF	8	300	20	800	1,100	165	1,265
Ventilated Rack	1	EA	7,500	7,500	800	800	8,300	1,245	9,545
2000VA UPS	1	EA	3,000	3,000	110	110	3,110	467	3,577
Telecommunication Room Demolition	1	EA			2,000	2,000	2,000	300	2,300
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	1,750	LF	3	4,375	.05	88	4,463	669	5,132
12 Strand Multimode Outside Plant (OSP) OFC	1,750	LF	1	2,079	.05	88	2,167	325	2,491

telecommunications **cost opinion**

Building 1 - Maintenance Office

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	quantity		material cost		labor cost		engineering opinion		
description	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
Telecommunications Device - 4-Port	11	EA	1,100	12,100	474	5,210	17,310	2,597	19,907
Telecommunications Device - 4-Port - Existing	15	EA	1,100	16,500	474	7,105	23,605	3,541	27,146
CAT 6A Quickport Connector	88	EA	36	3,182	25	2,200	5,382	807	6,189
CAT 6A Quickport Connector - Existing	120	EA	36	4,339	26	3,120	7,459	1,119	8,578
CAT 6A Patch Panel	3	EA	320	960	150	450	1,410	212	1,622
Copper 6-port Empty Cassette	24	EA	100	2,400	50	1,200	3,600	540	4,140
Telecom Room - Electrical Improvements	1	EA	4,000	4,000	2,500	2,500	6,500	975	7,475
Telecom Room - HVAC - Ductless Split System	1	EA	7,500	7,500	1,500	1,500	9,000	1,350	10,350
Pathway per Drop	11	EA	200	2,200	150	1,650	3,850	578	4,428
Subtotal Low-Voltage Systems (Divisions 27)							126,177	18,926	145,103
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138	138	276	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200	200	200	200	400	60	460

telecommunications **cost opinion**

Building 1 - Maintenance Office

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description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800	2,800	680	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535	535	85	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925	925	170	170	1,095	164	1,259
Portal Licenses	1	EA	100	100	50	50	150	23	173
Card Reader	1	EA	325	325	128	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800	1,800	600	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125	125	85	85	210	32	242
Wiring - Per Access Control Door	1	EA	400	400	700	700	1,100	165	1,265
Programming	1	LS			1,402	1,402	1,402	210	1,612
Engineering	1	LS			701	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 3 - Maintenance Shops

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JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
DIVISION 27									
LOW-VOLTAGE SYSTEMS - DIVISIONS 27									
General Provisions (Submittals, Mobilization, Permits)	1	LS	1,732	1,732	3,465	3,465	5,197	780	5,977
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	3,897	3,897			3,897	585	4,482
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Adaptor Plates - LC ACP	4	EA	150	600	50	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300	300	110	110	410	62	472
Ladder Rack	40	LF	8	300	20	800	1,100	165	1,265
Ventilated Rack	1	EA	7,500	7,500	800	800	8,300	1,245	9,545
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	1,500	LF	3	3,750	.05	75	3,825	574	4,399
12 Strand Multimode Outside Plant (OSP) OFC	1,500	LF	1	1,782	.05	75	1,857	279	2,136
Telecommunications Device - 4-Port	22	EA	1,100	24,200	474	10,421	34,621	5,193	39,814
Telecommunications Device - 4-Port - Existing	10	EA	1,100	11,000	474	4,737	15,737	2,361	18,097
CAT 6A Quickport Connector	176	EA	36	6,363	25	4,400	10,763	1,615	12,378
CAT 6A Quickport Connector - Existing	80	EA	36	2,892	26	2,080	4,972	746	5,718
CAT 6A Patch Panel	3	EA	320	960	150	450	1,410	212	1,622
Copper 6-port Empty Cassette	24	EA	100	2,400	50	1,200	3,600	540	4,140

telecommunications **cost opinion**

Building 3 - Maintenance Shops

Telecommunications Infrastructure Assessment Recommendations

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description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
Telecom Room - Electrical Improvements	1	EA	4,000	4,000	2,500	2,500	6,500	975	7,475
Telecom Room - HVAC - Ductless Split System	1	EA	7,500	7,500	1,500	1,500	9,000	1,350	10,350
Pathway per Drop	22	EA	200	4,400	150	3,300	7,700	1,155	8,855
Subtotal Low-Voltage Systems (Divisions 27)							121,690	18,254	139,944
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138	138	276	276	414	62.11	476
Basic Materials and Methods	1	LS	280	280			280	42.06	322
(Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)									
Raceway, Cabling Supports and Outlet Boxes	1	EA	200	200	200	200	400	60	460

telecommunications **cost opinion**

Building 3 - Maintenance Shops

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description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800	2,800	680	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535	535	85	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925	925	170	170	1,095	164	1,259
Portal Licenses	1	EA	100	100	50	50	150	23	173
Card Reader	1	EA	325	325	128	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800	1,800	600	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125	125	85	85	210	32	242
Wiring - Per Access Control Door	1	EA	400	400	700	700	1,100	165	1,265
Programming	1	LS			1,402	1,402	1,402	210	1,612
Engineering	1	LS			701	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 4 - Power House

Telecommunications Infrastructure Assessment Recommendations

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JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
DIVISION 27									
LOW-VOLTAGE SYSTEMS - DIVISIONS 27									
General Provisions (Submittals, Mobilization, Permits)	1	LS	1,121	1,121	2,242	2,242	3,362	504	3,867
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	2,639	2,639			2,639	396	3,035
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Adaptor Plates - LC ACP	4	EA	150	600	50	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300	300	110	110	410	62	472
Ladder Rack	30	LF	8	225	20	600	825	124	949
Ventilated Rack	1	EA	7,500	7,500	800	800	8,300	1,245	9,545
2000VA UPS	1	EA	3,000	3,000	110	110	3,110	467	3,577
Telecommunication Room Demolition	1	EA			2,000	2,000	2,000	300	2,300
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000	2,000	2,000	300	2,300

telecommunications **cost opinion**

Building 4 - Power House

Telecommunications Infrastructure Assessment Recommendations

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JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

	quantity		material cost		labor cost		engineering opinion		
description	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
12 Strand Singlemode Outside Plant (OSP) OFC	1,350	LF	3	3,375	.05	68	3,443	516	3,959
12 Strand Multimode Outside Plant (OSP) OFC	1,350	LF	1	1,604	.05	68	1,671	251	1,922
Telecommunications Device - 4-Port	8	EA	1,100	8,800	474	3,789	12,589	1,888	14,478
Telecommunications Device - 4-Port - Existing	7	EA	1,100	7,700	474	3,316	11,016	1,652	12,668
CAT 6A Quickport Connector	64	EA	36	2,314	25	1,600	3,914	587	4,501
CAT 6A Quickport Connector - Existing	56	EA	36	2,025	26	1,456	3,481	522	4,003
CAT 6A Patch Panel	2	EA	320	640	150	300	940	141	1,081
Copper 6-port Empty Cassette	16	EA	100	1,600	50	800	2,400	360	2,760
Telecom Room - Electrical Improvements	1	EA	4,000	4,000	2,500	2,500	6,500	975	7,475
Telecom Room - HVAC - Ductless Split System	1	EA	7,500	7,500	1,500	1,500	9,000	1,350	10,350
Pathway per Drop	8	EA	200	1,600	150	1,200	2,800	420	3,220
Subtotal Low-Voltage Systems (Divisions 27)							81,200	12,180	93,380
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138	138	276	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200	200	200	200	400	60	460

telecommunications **cost opinion**

Building 4 - Power House

Telecommunications Infrastructure Assessment Recommendations

Western State Hospital

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description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800	2,800	680	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535	535	85	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925	925	170	170	1,095	164	1,259
Portal Licenses	1	EA	100	100	50	50	150	23	173
Card Reader	1	EA	325	325	128	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800	1,800	600	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125	125	85	85	210	32	242
Wiring - Per Access Control Door	1	EA	400	400	700	700	1,100	165	1,265
Programming	1	LS			1,402	1,402	1,402	210	1,612
Engineering	1	LS			701	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 5 - Laundry

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JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
DIVISION 27									
LOW-VOLTAGE SYSTEMS - DIVISIONS 27									
General Provisions (Submittals, Mobilization, Permits)	1	LS	1,569	1,569	3,137	3,137	4,706	706	5,412
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	3,574	3,574			3,574	536	4,111
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Adaptor Plates - LC ACP	4	EA	150	600	50	200	800	120	920
Ventilated Rack	1	EA	7,500	7,500	800	800	8,300	1,245	9,545
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	1,150	LF	3	2,875		58	2,933	440	3,372
12 Strand Multimode Outside Plant (OSP) OFC	1,150	LF	1	1,366		58	1,424	214	1,637
Telecommunications Device - 4-Port	20	EA	1,100	22,000	474	9,473	31,473	4,721	36,194
Telecommunications Device - 4-Port - Existing	9	EA	1,100	9,900	474	4,263	14,163	2,124	16,288
CAT 6A Quickport Connector	160	EA	36	5,785	25	4,000	9,785	1,468	11,253
CAT 6A Quickport Connector - Existing	72	EA	36	2,603	26	1,872	4,475	671	5,147
CAT 6A Patch Panel	3	EA	320	960	150	450	1,410	212	1,622
Copper 6-port Empty Cassette	24	EA	100	2,400	50	1,200	3,600	540	4,140
Telecom Room - Electrical Improvements	1	EA	4,000	4,000	2,500	2,500	6,500	975	7,475
Telecom Room - HVAC - Ductless Split System	1	EA	7,500	7,500	1,500	1,500	9,000	1,350	10,350
Pathway per Drop	20	EA	200	4,000	150	3,000	7,000	1,050	8,050
Subtotal Low-Voltage Systems (Divisions 27)							111,144	16,672	127,815

telecommunications **cost opinion**

Building 5 - Laundry

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description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138	138	276	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200	200	200	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800	2,800	680	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535	535	85	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925	925	170	170	1,095	164	1,259
Portal Licenses	1	EA	100	100	50	50	150	23	173
Card Reader	1	EA	325	325	128	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800	1,800	600	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125	125	85	85	210	32	242
Wiring - Per Access Control Door	1	EA	400	400	700	700	1,100	165	1,265
Programming	1	LS			1,402	1,402	1,402	210	1,612
Engineering	1	LS			701	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 6 - Auditorium

Telecommunications Infrastructure Assessment Recommendations

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JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

	quantity		material cost		labor cost		engineering opinion		
description	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
DIVISION 27									
LOW-VOLTAGE SYSTEMS - DIVISIONS 27									
General Provisions (Submittals, Mobilization, Permits)	1	LS	1,670	1,670	3,340	3,340	5,010	751	5,761
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	3,587	3,587			3,587	538	4,125
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000	12,000	2,500	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150	600	50	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300	300	110	110	410	62	472
Ladder Rack	50	LF	8	375	20	1,000	1,375	206	1,581
2000VA UPS	1	EA	3,000	3,000	110	110	3,110	467	3,577
Telecommunication Room Demolition	1	EA			2,000	2,000	2,000	300	2,300
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000	2,000	2,000	300	2,300
12 Strand Multimode Outside Plant (OSP) OFC	1,750	LF	1	2,079	.05	88	2,167	325	2,491
Telecommunications Device - 4-Port	19	EA	1,100	20,900	474	9,000	29,900	4,485	34,385
Telecommunications Device - 4-Port - Existing	6	EA	1,100	6,600	474	2,842	9,442	1,416	10,858

telecommunications **cost opinion**

Building 6 - Auditorium

Telecommunications Infrastructure Assessment Recommendations

Western State Hospital

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BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 20, 2024

JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

	quantity		material cost		labor cost		engineering opinion		
description	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
CAT 6A Quickport Connector	152	EA	36	5,496	25	3,800	9,296	1,394	10,690
CAT 6A Quickport Connector - Existing	48	EA	36	1,735	26	1,248	2,983	448	3,431
CAT 6A Patch Panel	3	EA	320	960	150	450	1,410	212	1,622
Copper 6-port Empty Cassette	24	EA	100	2,400	50	1,200	3,600	540	4,140
Telecom Room - Electrical Improvements	1	EA	4,000	4,000	2,500	2,500	6,500	975	7,475
Telecom Room - HVAC - Ductless Split System	1	EA	7,500	7,500	1,500	1,500	9,000	1,350	10,350
Pathway per Drop	19	EA	200	3,800	150	2,850	6,650	998	7,648
Subtotal Low-Voltage Systems (Divisions 27)							113,740	17,061	130,801
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138	138	276	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200	200	200	200	400	60	460

telecommunications **cost opinion**

Building 6 - Auditorium

Telecommunications Infrastructure Assessment Recommendations

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JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800	2,800	680	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535	535	85	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925	925	170	170	1,095	164	1,259
Portal Licenses	1	EA	100	100	50	50	150	23	173
Card Reader	1	EA	325	325	128	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800	1,800	600	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125	125	85	85	210	32	242
Wiring - Per Access Control Door	1	EA	400	400	700	700	1,100	165	1,265
Programming	1	LS			1,402	1,402	1,402	210	1,612
Engineering	1	LS			701	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 8 - Research, Security, And Library

Telecommunications Infrastructure Assessment Recommendations

Western State Hospital

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BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 20, 2024

JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
DIVISION 27									
LOW-VOLTAGE SYSTEMS - DIVISIONS 27									
General Provisions (Submittals, Mobilization, Permits)	1	LS	6,044	6,044	12,088	12,088	18,132	2,720	20,852
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	11,921	11,921			11,921	1,788	13,710
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000	12,000	2,500	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150	600	50	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300	300	110	110	410	62	472
Ladder Rack	40	LF	8	300	20	800	1,100	165	1,265
Telecommunication Room Demolition	2	EA			2,000	4,000	4,000	600	4,600
Demolish Defunct Infrastructure After System Cutover	1	LS			6,000	6,000	6,000	900	6,900
12 Strand Singlemode Plenum Rated OFC	2,850	LF	1	2,668	.05	143	2,810	422	3,232
12 Strand Multimode Plenum Rated OFC	2,850	LF	1	3,563	.05	143	3,705	556	4,261
Telecommunications Device - 4-Port	64	EA	1,100	70,400	474	30,315	100,715	15,107	115,822
Telecommunications Device - 4-Port - Existing	59	EA	1,100	64,900	474	27,947	92,847	13,927	106,774

telecommunications **cost opinion**

Building 8 - Research, Security, And Library

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JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
CAT 6A Quickport Connector	512	EA	36	18,512	25	12,800	31,312	4,697	36,009
CAT 6A Quickport Connector - Existing	472	EA	36	17,066	26	12,272	29,338	4,401	33,738
CAT 6A Patch Panel	11	EA	320	3,521	150	1,650	5,171	776	5,947
Copper 6-port Empty Cassette	88	EA	100	8,800	50	4,400	13,200	1,980	15,180
Telecom Room - Electrical Improvements	2	EA	4,000	8,000	2,500	5,000	13,000	1,950	14,950
Telecom Room - HVAC - Ductless Split System	2	EA	7,500	15,000	1,500	3,000	18,000	2,700	20,700
Pathway per Drop	64	EA	200	12,800	150	9,600	22,400	3,360	25,760
Subtotal Low-Voltage Systems (Divisions 27)							389,361	58,404	447,765
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	360	360	721	721	1,081	162.11	1,243
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	632	632			632	94.77	727
Raceway, Cabling Supports and Outlet Boxes	4	EA	200	800	200	800	1,600	240	1,840

telecommunications **cost opinion**

Building 8 - Research, Security, And Library

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JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800	2,800	680	680	3,480	522	4,002
Door Controller - 2-Door	2	EA	535	1,070	85	170	1,240	186	1,426
Power Supply 10A/24V - 8-Door	1	EA	925	925	170	170	1,095	164	1,259
Portal Licenses	4	EA	100	400	50	200	600	90	690
Card Reader	4	EA	325	1,300	128	510	1,810	272	2,082
Electrified Hardware (Electrified Lock and Power Transfer)	4	EA	1,800	7,200	600	2,400	9,600	1,440	11,040
Request To Exit (REX)	4	EA	125	500	85	340	840	126	966
Wiring - Per Access Control Door	4	EA	400	1,600	700	2,800	4,400	660	5,060
Programming	1	LS			3,159	3,159	3,159	474	3,633
Engineering	1	LS			1,580	1,580	1,580	237	1,816
Subtotal Life Safety and Security Systems (Divisions 28)							31,116	4,667	35,783

telecommunications **cost opinion**

Building 9 - Office

Telecommunications Infrastructure Assessment Recommendations

Western State Hospital

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BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 20, 2024

JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
DIVISION 27									
LOW-VOLTAGE SYSTEMS - DIVISIONS 27									
General Provisions (Submittals, Mobilization, Permits)	1	LS	23,545	23,545	47,089	47,089	70,634	10,595	81,229
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	47,029	47,029			47,029	7,054	54,083
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Adaptor Plates - LC ACP	20	EA	150	3,000	50	1,000	4,000	600	4,600
Rack Mount Fiber Cabinet - 4RU	1	EA	390	390	110	110	500	75	575
Rack Mount Fiber Cabinet - 2RU	3	EA	300	900	110	330	1,230	185	1,415
Ladder Rack	120	LF	8	900	20	2,400	3,300	495	3,795
2000VA UPS	3	EA	3,000	9,000	110	330	9,330	1,400	10,730
Demolish Defunct Infrastructure After System Cutover	1	LS			10,000	10,000	10,000	1,500	11,500
12 Strand Singlemode Plenum Rated OFC	3,600	LF	1	3,370	.05	180	3,550	532	4,082
12 Strand Multimode Plenum Rated OFC	3,600	LF	1	4,500	.05	180	4,680	702	5,382
Telecommunications Device - 4-Port	316	EA	1,100	347,600	474	149,681	497,281	74,592	571,873
Telecommunications Device - 4-Port - Existing	222	EA	1,100	244,200	474	105,155	349,355	52,403	401,759

telecommunications **cost opinion**

Building 9 - Office

Telecommunications Infrastructure Assessment Recommendations

Western State Hospital

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JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

	quantity		material cost		labor cost		engineering opinion		
description	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
CAT 6A Quickport Connector	2,528	EA	36	91,402	25	63,200	154,602	23,190	177,793
CAT 6A Quickport Connector - Existing	1,776	EA	36	64,213	26	46,176	110,389	16,558	126,947
CAT 6A Patch Panel	45	EA	320	14,405	150	6,750	21,155	3,173	24,328
Copper 6-port Empty Cassette	360	EA	100	36,000	50	18,000	54,000	8,100	62,100
Telecom Room - Electrical Improvements	5	EA	4,000	20,000	2,500	12,500	32,500	4,875	37,375
Telecom Room - HVAC - Ductless Split System	5	EA	7,500	37,500	1,500	7,500	45,000	6,750	51,750
Pathway per Drop	316	EA	200	63,200	150	47,400	110,600	16,590	127,190
Subtotal Low-Voltage Systems (Divisions 27)							1,529,135	229,370	1,758,505
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	439	439	878	878	1,318	197.66	1,515
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	763	763			763	114.48	878
Raceway, Cabling Supports and Outlet Boxes	5	EA	200	1,000	200	1,000	2,000	300	2,300

telecommunications **cost opinion**

Building 9 - Office

Telecommunications Infrastructure Assessment Recommendations

Western State Hospital

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JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800	2,800	680	680	3,480	522	4,002
Door Controller - 2-Door	3	EA	535	1,605	85	255	1,860	279	2,139
Power Supply 10A/24V - 8-Door	1	EA	925	925	170	170	1,095	164	1,259
Portal Licenses	5	EA	100	500	50	250	750	113	863
Card Reader	5	EA	325	1,625	128	638	2,263	339	2,602
Electrified Hardware (Electrified Lock and Power Transfer)	5	EA	1,800	9,000	600	3,000	12,000	1,800	13,800
Request To Exit (REX)	5	EA	125	625	85	425	1,050	158	1,208
Wiring - Per Access Control Door	5	EA	400	2,000	700	3,500	5,500	825	6,325
Programming	1	LS			3,816	3,816	3,816	572	4,388
Engineering	1	LS			1,908	1,908	1,908	286	2,194
Subtotal Life Safety and Security Systems (Divisions 28)							37,802	5,670	43,473

telecommunications **cost opinion**

Building 16 - Office & Staff Development

Telecommunications Infrastructure Assessment Recommendations

Western State Hospital

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BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 20, 2024

JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
DIVISION 27									
LOW-VOLTAGE SYSTEMS - DIVISIONS 27									
General Provisions (Submittals, Mobilization, Permits)	1	LS	8,308	8,308	16,616	16,616	24,924	3,739	28,663
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	17,163	17,163			17,163	2,574	19,737
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	2	EA	12,000	24,000	2,500	5,000	29,000	4,350	33,350
Adaptor Plates - LC ACP	12	EA	150	1,800	50	600	2,400	360	2,760
Rack Mount Fiber Cabinet - 4RU	1	EA	390	390	110	110	500	75	575
Rack Mount Fiber Cabinet - 2RU	2	EA	300	600	110	220	820	123	943
Ladder Rack	130	LF	8	975	20	2,600	3,575	536	4,111
2000VA UPS	2	EA	3,000	6,000	110	220	6,220	933	7,153
Telecommunication Room Demolition	2	EA			2,000	4,000	4,000	600	4,600
Demolish Defunct Infrastructure After System Cutover	1	LS			6,000	6,000	6,000	900	6,900
12 Strand Singlemode Outside Plant (OSP) OFC	1,250	LF	3	3,125	.05	63	3,188	478	3,666
12 Strand Multimode Outside Plant (OSP) OFC	1,250	LF	1	1,485	.05	63	1,548	232	1,780
12 Strand Singlemode Plenum Rated OFC	200	LF	1	187	.05	10	197	30	227
12 Strand Multimode Plenum Rated OFC	200	LF	1	250	.05	10	260	39	299
Telecommunications Device - 4-Port	64	EA	1,100	70,400	474	30,315	100,715	15,107	115,822
Telecommunications Device - 4-Port - Existing	109	EA	1,100	119,900	474	51,630	171,530	25,730	197,260

telecommunications **cost opinion**

Building 16 - Office & Staff Development

Telecommunications Infrastructure Assessment Recommendations

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	quantity		material cost		labor cost		engineering opinion		
description	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
CAT 6A Quickport Connector	512	EA	36	18,512	25	12,800	31,312	4,697	36,009
CAT 6A Quickport Connector - Existing	872	EA	36	31,528	26	22,672	54,200	8,130	62,330
CAT 6A Patch Panel	15	EA	320	4,802	150	2,250	7,052	1,058	8,109
Copper 6-port Empty Cassette	120	EA	100	12,000	50	6,000	18,000	2,700	20,700
Telecom Room - Electrical Improvements	3	EA	4,000	12,000	2,500	7,500	19,500	2,925	22,425
Telecom Room - HVAC - Ductless Split System	3	EA	7,500	22,500	1,500	4,500	27,000	4,050	31,050
Pathway per Drop	64	EA	200	12,800	150	9,600	22,400	3,360	25,760
Subtotal Low-Voltage Systems (Divisions 27)							551,503	82,725	634,229
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	289	289	577	577	866	129.88	996
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	522	522			522	78.27	600
Raceway, Cabling Supports and Outlet Boxes	3	EA	200	600	200	600	1,200	180	1,380

telecommunications **cost opinion**

Building 16 - Office & Staff Development

Telecommunications Infrastructure Assessment Recommendations

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description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800	2,800	680	680	3,480	522	4,002
Door Controller - 2-Door	2	EA	535	1,070	85	170	1,240	186	1,426
Power Supply 10A/24V - 8-Door	1	EA	925	925	170	170	1,095	164	1,259
Portal Licenses	3	EA	100	300	50	150	450	68	518
Card Reader	3	EA	325	975	128	383	1,358	204	1,561
Electrified Hardware (Electrified Lock and Power Transfer)	3	EA	1,800	5,400	600	1,800	7,200	1,080	8,280
Request To Exit (REX)	3	EA	125	375	85	255	630	95	725
Wiring - Per Access Control Door	3	EA	400	1,200	700	2,100	3,300	495	3,795
Programming	1	LS			2,609	2,609	2,609	391	3,000
Engineering	1	LS			1,305	1,305	1,305	196	1,500
Subtotal Life Safety and Security Systems (Divisions 28)							25,254	3,788	29,042

telecommunications **cost opinion**

Building 17 - Central Campus

Telecommunications Infrastructure Assessment Recommendations

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description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
DIVISION 27									
LOW-VOLTAGE SYSTEMS - DIVISIONS 27									
General Provisions (Submittals, Mobilization, Permits)	1	LS	16,598	16,598	33,197	33,197	49,795	7,469	57,264
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	33,263	33,263			33,263	4,989	38,253
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	2	EA	12,000	24,000	2,500	5,000	29,000	4,350	33,350
Adaptor Plates - LC ACP	20	EA	150	3,000	50	1,000	4,000	600	4,600
Rack Mount Fiber Cabinet - 4RU	1	EA	390	390	110	110	500	75	575
Rack Mount Fiber Cabinet - 2RU	4	EA	300	1,200	110	440	1,640	246	1,886
Ladder Rack	300	LF	8	2,250	20	6,000	8,250	1,238	9,488
2000VA UPS	1	EA	3,000	3,000	110	110	3,110	467	3,577
Demolish Defunct Infrastructure After System Cutover	1	LS			10,000	10,000	10,000	1,500	11,500
12 Strand Singlemode Plenum Rated OFC	2,250	LF	1	2,106	.05	113	2,219	333	2,551
12 Strand Multimode Plenum Rated OFC	2,250	LF	1	2,813	.05	113	2,925	439	3,364
Telecommunications Device - 4-Port	225	EA	1,100	247,500	474	106,576	354,076	53,111	407,188
Telecommunications Device - 4-Port - Existing	128	EA	1,100	140,800	474	60,630	201,430	30,215	231,645

telecommunications **cost opinion**

Building 17 - Central Campus

Telecommunications Infrastructure Assessment Recommendations

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JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

	quantity		material cost		labor cost		engineering opinion		
description	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
CAT 6A Quickport Connector	1,800	EA	36	65,081	25	45,000	110,081	16,512	126,593
CAT 6A Quickport Connector - Existing	1,024	EA	36	37,024	26	26,624	63,648	9,547	73,195
CAT 6A Patch Panel	30	EA	320	9,603	150	4,500	14,103	2,116	16,219
Copper 6-port Empty Cassette	240	EA	100	24,000	50	12,000	36,000	5,400	41,400
Telecom Room - Electrical Improvements	5	EA	4,000	20,000	2,500	12,500	32,500	4,875	37,375
Telecom Room - HVAC - Ductless Split System	5	EA	7,500	37,500	1,500	7,500	45,000	6,750	51,750
Pathway per Drop	225	EA	200	45,000	150	33,750	78,750	11,813	90,563
Subtotal Low-Voltage Systems (Divisions 27)							1,080,290	162,044	1,242,334
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	439	439	878	878	1,318	197.66	1,515
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	763	763			763	114.48	878
Raceway, Cabling Supports and Outlet Boxes	5	EA	200	1,000	200	1,000	2,000	300	2,300

telecommunications **cost opinion**

Building 17 - Central Campus

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BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 20, 2024

JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800	2,800	680	680	3,480	522	4,002
Door Controller - 2-Door	3	EA	535	1,605	85	255	1,860	279	2,139
Power Supply 10A/24V - 8-Door	1	EA	925	925	170	170	1,095	164	1,259
Portal Licenses	5	EA	100	500	50	250	750	113	863
Card Reader	5	EA	325	1,625	128	638	2,263	339	2,602
Electrified Hardware (Electrified Lock and Power Transfer)	5	EA	1,800	9,000	600	3,000	12,000	1,800	13,800
Request To Exit (REX)	5	EA	125	625	85	425	1,050	158	1,208
Wiring - Per Access Control Door	5	EA	400	2,000	700	3,500	5,500	825	6,325
Programming	1	LS			3,816	3,816	3,816	572	4,388
Engineering	1	LS			1,908	1,908	1,908	286	2,194
Subtotal Life Safety and Security Systems (Divisions 28)							37,802	5,670	43,473

telecommunications **cost opinion**

Building 18 - Administration

Telecommunications Infrastructure Assessment Recommendations

Western State Hospital

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JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
DIVISION 27									
LOW-VOLTAGE SYSTEMS - DIVISIONS 27									
General Provisions (Submittals, Mobilization, Permits)	1	LS	11,184	11,184	22,368	22,368	33,552	5,033	38,584
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	22,170	22,170			22,170	3,326	25,496
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	2	EA	4,500	9,000	1,200	2,400	11,400	1,710	13,110
Adaptor Plates - LC ACP	16	EA	150	2,400	50	800	3,200	480	3,680
Rack Mount Fiber Cabinet - 2RU	4	EA	300	1,200	110	440	1,640	246	1,886
Ladder Rack	120	LF	8	900	20	2,400	3,300	495	3,795
2000VA UPS	1	EA	3,000	3,000	110	110	3,110	467	3,577
Demolish Defunct Infrastructure After System Cutover	1	LS			8,000	8,000	8,000	1,200	9,200
12 Strand Singlemode Plenum Rated OFC	250	LF	1	234	.05	13	247	37	283
12 Strand Multimode Plenum Rated OFC	250	LF	1	313	.05	13	325	49	374
Telecommunications Device - 4-Port	119	EA	1,100	130,900	474	56,367	187,267	28,090	215,357
Telecommunications Device - 4-Port - Existing	129	EA	1,100	141,900	474	61,104	203,004	30,451	233,454

telecommunications **cost opinion**

Building 18 - Administration

Telecommunications Infrastructure Assessment Recommendations

Western State Hospital

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JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
CAT 6A Quickport Connector	952	EA	36	34,421	25	23,800	58,221	8,733	66,954
CAT 6A Quickport Connector - Existing	1,032	EA	36	37,313	26	26,832	64,145	9,622	73,767
CAT 6A Patch Panel	21	EA	320	6,722	150	3,150	9,872	1,481	11,353
Copper 6-port Empty Cassette	168	EA	100	16,800	50	8,400	25,200	3,780	28,980
Telecom Room - Electrical Improvements	3	EA	4,000	12,000	2,500	7,500	19,500	2,925	22,425
Telecom Room - HVAC - Ductless Split System	3	EA	7,500	22,500	1,500	4,500	27,000	4,050	31,050
Pathway per Drop	119	EA	200	23,800	150	17,850	41,650	6,248	47,898
Subtotal Low-Voltage Systems (Divisions 27)							722,802	108,420	831,222
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	360	360	721	721	1,081	162.11	1,243
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	632	632			632	94.77	727
Raceway, Cabling Supports and Outlet Boxes	4	EA	200	800	200	800	1,600	240	1,840

telecommunications **cost opinion**

Building 18 - Administration

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description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800	2,800	680	680	3,480	522	4,002
Door Controller - 2-Door	2	EA	535	1,070	85	170	1,240	186	1,426
Power Supply 10A/24V - 8-Door	1	EA	925	925	170	170	1,095	164	1,259
Portal Licenses	4	EA	100	400	50	200	600	90	690
Card Reader	4	EA	325	1,300	128	510	1,810	272	2,082
Electrified Hardware (Electrified Lock and Power Transfer)	4	EA	1,800	7,200	600	2,400	9,600	1,440	11,040
Request To Exit (REX)	4	EA	125	500	85	340	840	126	966
Wiring - Per Access Control Door	4	EA	400	1,600	700	2,800	4,400	660	5,060
Programming	1	LS			3,159	3,159	3,159	474	3,633
Engineering	1	LS			1,580	1,580	1,580	237	1,816
Subtotal Life Safety and Security Systems (Divisions 28)							31,116	4,667	35,783

telecommunications **cost opinion**

Building 19 - Wards C1-C3

Telecommunications Infrastructure Assessment Recommendations

Western State Hospital

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BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 20, 2024

JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
DIVISION 27									
LOW-VOLTAGE SYSTEMS - DIVISIONS 27									
General Provisions (Submittals, Mobilization, Permits)	1	LS	11,850	11,850	23,700	23,700	35,550	5,333	40,883
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	24,009	24,009			24,009	3,601	27,611
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	3	EA	12,000	36,000	2,500	7,500	43,500	6,525	50,025
Adaptor Plates - LC ACP	12	EA	150	1,800	50	600	2,400	360	2,760
Rack Mount Fiber Cabinet - 2RU	3	EA	300	900	110	330	1,230	185	1,415
Ladder Rack	120	LF	8	900	20	2,400	3,300	495	3,795
2000VA UPS	2	EA	3,000	6,000	110	220	6,220	933	7,153
Telecommunication Room Demolition	3	EA			2,000	6,000	6,000	900	6,900
Demolish Defunct Infrastructure After System Cutover	1	LS			6,000	6,000	6,000	900	6,900
12 Strand Singlemode Plenum Rated OFC	750	LF	1	702	.05	38	740	111	850
12 Strand Multimode Plenum Rated OFC	750	LF	1	938	.05	38	975	146	1,121
Telecommunications Device - 4-Port	145	EA	1,100	159,500	474	68,683	228,183	34,227	262,410
Telecommunications Device - 4-Port - Existing	104	EA	1,100	114,400	474	49,262	163,662	24,549	188,211

telecommunications **cost opinion**

Building 19 - Wards C1-C3

Telecommunications Infrastructure Assessment Recommendations

Western State Hospital

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JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

	quantity		material cost		labor cost		engineering opinion		
description	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
CAT 6A Quickport Connector	1,160	EA	36	41,941	25	29,000	70,941	10,641	81,582
CAT 6A Quickport Connector - Existing	832	EA	36	30,082	26	21,632	51,714	7,757	59,471
CAT 6A Patch Panel	21	EA	320	6,722	150	3,150	9,872	1,481	11,353
Copper 6-port Empty Cassette	168	EA	100	16,800	50	8,400	25,200	3,780	28,980
Telecom Room - Electrical Improvements	3	EA	4,000	12,000	2,500	7,500	19,500	2,925	22,425
Telecom Room - HVAC - Ductless Split System	3	EA	7,500	22,500	1,500	4,500	27,000	4,050	31,050
Pathway per Drop	145	EA	200	29,000	150	21,750	50,750	7,613	58,363
Subtotal Low-Voltage Systems (Divisions 27)							776,746	116,512	893,258
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	289	289	577	577	866	129.88	996
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	522	522			522	78.27	600
Raceway, Cabling Supports and Outlet Boxes	3	EA	200	600	200	600	1,200	180	1,380

telecommunications **cost opinion**

Building 19 - Wards C1-C3

Telecommunications Infrastructure Assessment Recommendations

Western State Hospital

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JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800	2,800	680	680	3,480	522	4,002
Door Controller - 2-Door	2	EA	535	1,070	85	170	1,240	186	1,426
Power Supply 10A/24V - 8-Door	1	EA	925	925	170	170	1,095	164	1,259
Portal Licenses	3	EA	100	300	50	150	450	68	518
Card Reader	3	EA	325	975	128	383	1,358	204	1,561
Electrified Hardware (Electrified Lock and Power Transfer)	3	EA	1,800	5,400	600	1,800	7,200	1,080	8,280
Request To Exit (REX)	3	EA	125	375	85	255	630	95	725
Wiring - Per Access Control Door	3	EA	400	1,200	700	2,100	3,300	495	3,795
Programming	1	LS			2,609	2,609	2,609	391	3,000
Engineering	1	LS			1,305	1,305	1,305	196	1,500
Subtotal Life Safety and Security Systems (Divisions 28)							25,254	3,788	29,042

telecommunications **cost opinion**

Building 20 - Wards C4-C6

Telecommunications Infrastructure Assessment Recommendations

Western State Hospital

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BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 20, 2024

JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
DIVISION 27									
LOW-VOLTAGE SYSTEMS - DIVISIONS 27									
General Provisions (Submittals, Mobilization, Permits)	1	LS	12,995	12,995	25,991	25,991	38,986	5,848	44,834
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	26,264	26,264			26,264	3,940	30,204
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	3	EA	12,000	36,000	2,500	7,500	43,500	6,525	50,025
Adaptor Plates - LC ACP	12	EA	150	1,800	50	600	2,400	360	2,760
Rack Mount Fiber Cabinet - 2RU	3	EA	300	900	110	330	1,230	185	1,415
Ladder Rack	180	LF	8	1,350	20	3,600	4,950	743	5,693
2000VA UPS	3	EA	3,000	9,000	110	330	9,330	1,400	10,730
Telecommunication Room Demolition	3	EA			2,000	6,000	6,000	900	6,900
Demolish Defunct Infrastructure After System Cutover	1	LS			6,000	6,000	6,000	900	6,900
12 Strand Singlemode Plenum Rated OFC	1,500	LF	1	1,404	.05	75	1,479	222	1,701
12 Strand Multimode Plenum Rated OFC	1,500	LF	1	1,875	.05	75	1,950	293	2,243
Telecommunications Device - 4-Port	188	EA	1,100	206,800	474	89,051	295,851	44,378	340,228
Telecommunications Device - 4-Port - Existing	82	EA	1,100	90,200	474	38,841	129,041	19,356	148,397

telecommunications **cost opinion**

Building 20 - Wards C4-C6

Telecommunications Infrastructure Assessment Recommendations

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JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

	quantity		material cost		labor cost		engineering opinion		
description	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
CAT 6A Quickport Connector	1,504	EA	36	54,379	25	37,600	91,979	13,797	105,775
CAT 6A Quickport Connector - Existing	656	EA	36	23,718	26	17,056	40,774	6,116	46,890
CAT 6A Patch Panel	23	EA	320	7,363	150	3,450	10,813	1,622	12,434
Copper 6-port Empty Cassette	184	EA	100	18,400	50	9,200	27,600	4,140	31,740
Telecom Room - Electrical Improvements	3	EA	4,000	12,000	2,500	7,500	19,500	2,925	22,425
Telecom Room - HVAC - Ductless Split System	3	EA	7,500	22,500	1,500	4,500	27,000	4,050	31,050
Pathway per Drop	188	EA	200	37,600	150	28,200	65,800	9,870	75,670
Subtotal Low-Voltage Systems (Divisions 27)							850,447	127,567	978,014
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	289	289	577	577	866	129.88	996
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	522	522			522	78.27	600
Raceway, Cabling Supports and Outlet Boxes	3	EA	200	600	200	600	1,200	180	1,380

telecommunications **cost opinion**

Building 20 - Wards C4-C6

Telecommunications Infrastructure Assessment Recommendations

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description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800	2,800	680	680	3,480	522	4,002
Door Controller - 2-Door	2	EA	535	1,070	85	170	1,240	186	1,426
Power Supply 10A/24V - 8-Door	1	EA	925	925	170	170	1,095	164	1,259
Portal Licenses	3	EA	100	300	50	150	450	68	518
Card Reader	3	EA	325	975	128	383	1,358	204	1,561
Electrified Hardware (Electrified Lock and Power Transfer)	3	EA	1,800	5,400	600	1,800	7,200	1,080	8,280
Request To Exit (REX)	3	EA	125	375	85	255	630	95	725
Wiring - Per Access Control Door	3	EA	400	1,200	700	2,100	3,300	495	3,795
Programming	1	LS			2,609	2,609	2,609	391	3,000
Engineering	1	LS			1,305	1,305	1,305	196	1,500
Subtotal Life Safety and Security Systems (Divisions 28)							25,254	3,788	29,042

telecommunications **cost opinion**

Building 22 - Kitchen, Pharmacy, And Commissary

Telecommunications Infrastructure Assessment Recommendations

Western State Hospital

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description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
DIVISION 27									
LOW-VOLTAGE SYSTEMS - DIVISIONS 27									
General Provisions (Submittals, Mobilization, Permits)	1	LS	2,906	2,906	5,812	5,812	8,718	1,308	10,025
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	5,112	5,112			5,112	767	5,879
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Adaptor Plates - LC ACP	12	EA	150	1,800	50	600	2,400	360	2,760
Rack Mount Fiber Cabinet - 2RU	3	EA	300	900	110	330	1,230	185	1,415
Ladder Rack	30	LF	8	225	20	600	825	124	949
Demolish Defunct Infrastructure After System Cutover	1	LS			6,000	6,000	6,000	900	6,900
12 Strand Multimode Outside Plant (OSP) OFC	1,300	LF	1	1,544	.05	65	1,609	241	1,851
Telecommunications Device - 4-Port	58	EA	1,100	63,800	474	27,473	91,273	13,691	104,964
CAT 6A Quickport Connector	464	EA	36	16,776	25	11,600	28,376	4,256	32,633
CAT 6A Patch Panel	5	EA	320	1,601	150	750	2,351	353	2,703
Copper 6-port Empty Cassette	40	EA	100	4,000	50	2,000	6,000	900	6,900
Pathway per Drop	58	EA	200	11,600	150	8,700	20,300	3,045	23,345
Subtotal Low-Voltage Systems (Divisions 27)							174,194	26,129	200,324

telecommunications **cost opinion**

Building 22 - Kitchen, Pharmacy, And Commissary

Telecommunications Infrastructure Assessment Recommendations

Western State Hospital

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description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	289	289	577	577	866	129.88	996
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	522	522			522	78.27	600
Raceway, Cabling Supports and Outlet Boxes	3	EA	200	600	200	600	1,200	180	1,380
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800	2,800	680	680	3,480	522	4,002
Door Controller - 2-Door	2	EA	535	1,070	85	170	1,240	186	1,426
Power Supply 10A/24V - 8-Door	1	EA	925	925	170	170	1,095	164	1,259
Portal Licenses	3	EA	100	300	50	150	450	68	518
Card Reader	3	EA	325	975	128	383	1,358	204	1,561
Electrified Hardware (Electrified Lock and Power Transfer)	3	EA	1,800	5,400	600	1,800	7,200	1,080	8,280
Request To Exit (REX)	3	EA	125	375	85	255	630	95	725
Wiring - Per Access Control Door	3	EA	400	1,200	700	2,100	3,300	495	3,795
Programming	1	LS			2,609	2,609	2,609	391	3,000
Engineering	1	LS			1,305	1,305	1,305	196	1,500
Subtotal Life Safety and Security Systems (Divisions 28)							25,254	3,788	29,042

telecommunications **cost opinion**

Building 27 - HMH & FSCRP

Telecommunications Infrastructure Assessment Recommendations

Western State Hospital

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BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 20, 2024

JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
DIVISION 27									
LOW-VOLTAGE SYSTEMS - DIVISIONS 27									
General Provisions (Submittals, Mobilization, Permits)	1	LS	8,985	8,985	17,969	17,969	26,954	4,043	30,997
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	18,179	18,179			18,179	2,727	20,906
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000	12,000	2,500	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	12	EA	150	1,800	50	600	2,400	360	2,760
Rack Mount Fiber Cabinet - 2RU	2	EA	300	600	110	220	820	123	943
Ladder Rack	60	LF	8	450	20	1,200	1,650	248	1,898
Telecommunication Room Demolition	2	EA			2,000	4,000	4,000	600	4,600
Demolish Defunct Infrastructure After System Cutover	2	LS			4,000	8,000	8,000	1,200	9,200
12 Strand Singlemode Outside Plant (OSP) OFC	5,550	LF	3	13,875	.05	278	14,153	2,123	16,275
12 Strand Multimode Outside Plant (OSP) OFC	5,550	LF	1	6,593	.05	278	6,871	1,031	7,902
Telecommunications Device - 4-Port	110	EA	1,100	121,000	474	52,104	173,104	25,966	199,070
Telecommunications Device - 4-Port - Existing	81	EA	1,100	89,100	474	38,368	127,468	19,120	146,588

telecommunications **cost opinion**

Building 27 - HMH & FSCRP

Telecommunications Infrastructure Assessment Recommendations

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description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
CAT 6A Quickport Connector	880	EA	36	31,817	25	22,000	53,817	8,073	61,890
CAT 6A Quickport Connector - Existing	648	EA	36	23,429	26	16,848	40,277	6,042	46,319
CAT 6A Patch Panel	16	EA	320	5,122	150	2,400	7,522	1,128	8,650
Copper 6-port Empty Cassette	128	EA	100	12,800	50	6,400	19,200	2,880	22,080
Telecom Room - Electrical Improvements	2	EA	4,000	8,000	2,500	5,000	13,000	1,950	14,950
Telecom Room - HVAC - Ductless Split System	2	EA	7,500	15,000	1,500	3,000	18,000	2,700	20,700
Pathway per Drop	110	EA	200	22,000	150	16,500	38,500	5,775	44,275
Subtotal Low-Voltage Systems (Divisions 27)							588,415	88,262	676,677
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	210	210	419	419	629	94.34	723
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	390	390			390	58.56	449
Raceway, Cabling Supports and Outlet Boxes	2	EA	200	400	200	400	800	120	920

telecommunications **cost opinion**

Building 27 - HMH & FSCRP

Telecommunications Infrastructure Assessment Recommendations

Western State Hospital

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BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 20, 2024

JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800	2,800	680	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535	535	85	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925	925	170	170	1,095	164	1,259
Portal Licenses	2	EA	100	200	50	100	300	45	345
Card Reader	2	EA	325	650	128	255	905	136	1,041
Electrified Hardware (Electrified Lock and Power Transfer)	2	EA	1,800	3,600	600	1,200	4,800	720	5,520
Request To Exit (REX)	2	EA	125	250	85	170	420	63	483
Wiring - Per Access Control Door	2	EA	400	800	700	1,400	2,200	330	2,530
Programming	1	LS			1,952	1,952	1,952	293	2,245
Engineering	1	LS			976	976	976	146	1,122
Subtotal Life Safety and Security Systems (Divisions 28)							18,567	2,785	21,352

telecommunications **cost opinion**

Building 28 - Forensic Service

Telecommunications Infrastructure Assessment Recommendations

Western State Hospital

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BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 20, 2024

JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
DIVISION 27									
LOW-VOLTAGE SYSTEMS - DIVISIONS 27									
General Provisions (Submittals, Mobilization, Permits)	1	LS	46,874	46,874	93,749	93,749	140,623	21,093	161,717
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	97,880	97,880			97,880	14,682	112,563
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	5	EA	12,000	60,000	2,500	12,500	72,500	10,875	83,375
Adaptor Plates - LC ACP	36	EA	150	5,400	50	1,800	7,200	1,080	8,280
Rack Mount Fiber Cabinet - 2RU	6	EA	300	1,800	110	660	2,460	369	2,829
Ladder Rack	100	LF	8	750	20	2,000	2,750	413	3,163
2000VA UPS	2	EA	3,000	6,000	110	220	6,220	933	7,153
Demolish Defunct Infrastructure After System Cutover	1	LS			18,000	18,000	18,000	2,700	20,700
12 Strand Singlemode Outside Plant (OSP) OFC	36,850	LF	3	92,125	.05	1,843	93,968	14,095	108,063
12 Strand Multimode Outside Plant (OSP) OFC	38,650	LF	1	45,916	.05	1,933	47,849	7,177	55,026
Trenching	450	LF	8	3,375	15	6,750	10,125	1,519	11,644
(4)4"C w/ 3" 3-Cell Textile Innerduct	450	LF	61	27,630	71	31,950	59,580	8,937	68,517
Utility Vault (Medium)	1	EA	4,335	4,335	3,500	3,500	7,835	1,175	9,010
Telecommunications Device - 4-Port	727	EA	1,100	799,700	474	344,360	1,144,060	171,609	1,315,669
Telecommunications Device - 4-Port - Existing	258	EA	1,100	283,800	474	122,208	406,008	60,901	466,909

telecommunications **cost opinion**

Building 28 - Forensic Service

Telecommunications Infrastructure Assessment Recommendations

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JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

	quantity		material cost		labor cost		engineering opinion		
description	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
CAT 6A Quickport Connector	5,816	EA	36	210,283	25	145,400	355,683	53,352	409,036
CAT 6A Quickport Connector - Existing	2,064	EA	36	74,626	26	53,664	128,290	19,243	147,533
CAT 6A Patch Panel	83	EA	320	26,569	150	12,450	39,019	5,853	44,872
Copper 6-port Empty Cassette	664	EA	100	66,400	50	33,200	99,600	14,940	114,540
Telecom Room - Electrical Improvements	9	EA	4,000	36,000	2,500	22,500	58,500	8,775	67,275
Telecom Room - HVAC - Ductless Split System	9	EA	7,500	67,500	1,500	13,500	81,000	12,150	93,150
Pathway per Drop	727	EA	200	145,400	150	109,050	254,450	38,168	292,618
Subtotal Low-Voltage Systems (Divisions 27)							3,133,600	470,040	3,603,640
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	752	752	1,505	1,505	2,257	338.51	2,595
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	1,287	1,287			1,287	193.05	1,480
Raceway, Cabling Supports and Outlet Boxes	9	EA	200	1,800	200	1,800	3,600	540	4,140

telecommunications **cost opinion**

Building 28 - Forensic Service

Telecommunications Infrastructure Assessment Recommendations

Western State Hospital

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JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800	2,800	680	680	3,480	522	4,002
Door Controller - 2-Door	5	EA	535	2,675	85	425	3,100	465	3,565
Power Supply 10A/24V - 16-Door	1	EA	1,950	1,950	255	255	2,205	331	2,536
Portal Licenses	9	EA	100	900	50	450	1,350	203	1,553
Card Reader	9	EA	325	2,925	128	1,148	4,073	611	4,683
Electrified Hardware (Electrified Lock and Power Transfer)	9	EA	1,800	16,200	600	5,400	21,600	3,240	24,840
Request To Exit (REX)	9	EA	125	1,125	85	765	1,890	284	2,174
Wiring - Per Access Control Door	9	EA	400	3,600	700	6,300	9,900	1,485	11,385
Programming	1	LS			6,435	6,435	6,435	965	7,400
Engineering	1	LS			3,218	3,218	3,218	483	3,700
Subtotal Life Safety and Security Systems (Divisions 28)							64,394	9,659	74,053

telecommunications **cost opinion**

Building 29 - East Campus

Telecommunications Infrastructure Assessment Recommendations

Western State Hospital

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JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
DIVISION 27									
LOW-VOLTAGE SYSTEMS - DIVISIONS 27									
General Provisions (Submittals, Mobilization, Permits)	1	LS	39,895	39,895	79,789	79,789	119,684	17,953	137,636
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	76,906	76,906			76,906	11,536	88,441
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	4	EA	12,000	48,000	2,500	10,000	58,000	8,700	66,700
Adaptor Plates - LC ACP	36	EA	150	5,400	50	1,800	7,200	1,080	8,280
Rack Mount Fiber Cabinet - 2RU	9	EA	300	2,700	110	990	3,690	554	4,244
Ladder Rack	300	LF	8	2,250	20	6,000	8,250	1,238	9,488
2000VA UPS	1	EA	3,000	3,000	110	110	3,110	467	3,577
Telecommunication Room Demolition	3	EA			2,000	6,000	6,000	900	6,900
Demolish Defunct Infrastructure After System Cutover	1	LS			16,000	16,000	16,000	2,400	18,400
12 Strand Singlemode Outside Plant (OSP) OFC	21,550	LF	3	53,875	.05	1,078	54,953	8,243	63,195
12 Strand Multimode Outside Plant (OSP) OFC	21,550	LF	1	25,601	.05	1,078	26,679	4,002	30,681
Trenching	1,050	LF	8	7,875	15	15,750	23,625	3,544	27,169
(4)4"C w/ 3" 3-Cell Textile Innerduct	1,050	LF	61	64,470	71	74,550	139,020	20,853	159,873
Utility Vault (Medium)	4	EA	4,335	17,340	3,500	14,000	31,340	4,701	36,041

telecommunications **cost opinion**

Building 29 - East Campus

Telecommunications Infrastructure Assessment Recommendations

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JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

	quantity		material cost		labor cost		engineering opinion		
description	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
Telecommunications Device - 4-Port	540	EA	1,100	594,000	474	255,784	849,784	127,468	977,251
Telecommunications Device - 4-Port - Existing	199	EA	1,100	218,900	474	94,261	313,161	46,974	360,135
CAT 6A Quickport Connector	4,320	EA	36	156,194	25	108,000	264,194	39,629	303,823
CAT 6A Quickport Connector - Existing	1,592	EA	36	57,560	26	41,392	98,952	14,843	113,795
CAT 6A Patch Panel	62	EA	320	19,847	150	9,300	29,147	4,372	33,519
Copper 6-port Empty Cassette	496	EA	100	49,600	50	24,800	74,400	11,160	85,560
Telecom Room - Electrical Improvements	9	EA	4,000	36,000	2,500	22,500	58,500	8,775	67,275
Telecom Room - HVAC - Ductless Split System	9	EA	7,500	67,500	1,500	13,500	81,000	12,150	93,150
Pathway per Drop	540	EA	200	108,000	150	81,000	189,000	28,350	217,350
Subtotal Low-Voltage Systems (Divisions 27)							2,532,593	379,889	2,912,482
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	661	661	1,323	1,323	1,984	297.67	2,282
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	1,115	1,115			1,115	167.19	1,282
Raceway, Cabling Supports and Outlet Boxes	8	EA	200	1,600	200	1,600	3,200	480	3,680

telecommunications **cost opinion**

Building 29 - East Campus

Telecommunications Infrastructure Assessment Recommendations

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JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800	2,800	680	680	3,480	522	4,002
Door Controller - 2-Door	4	EA	535	2,140	85	340	2,480	372	2,852
Power Supply 10A/24V - 8-Door	1	EA	925	925	170	170	1,095	164	1,259
Portal Licenses	8	EA	100	800	50	400	1,200	180	1,380
Card Reader	8	EA	325	2,600	128	1,020	3,620	543	4,163
Electrified Hardware (Electrified Lock and Power Transfer)	8	EA	1,800	14,400	600	4,800	19,200	2,880	22,080
Request To Exit (REX)	8	EA	125	1,000	85	680	1,680	252	1,932
Wiring - Per Access Control Door	8	EA	400	3,200	700	5,600	8,800	1,320	10,120
Programming	1	LS			5,573	5,573	5,573	836	6,409
Engineering	1	LS			2,787	2,787	2,787	418	3,204
Subtotal Life Safety and Security Systems (Divisions 28)							56,214	8,432	64,646

telecommunications **cost opinion**

Building 32 - Inventory Control

Telecommunications Infrastructure Assessment Recommendations

Western State Hospital

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BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 20, 2024

JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
DIVISION 27									
LOW-VOLTAGE SYSTEMS - DIVISIONS 27									
General Provisions (Submittals, Mobilization, Permits)	1	LS	968	968	1,936	1,936	2,904	436	3,339
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	2,642	2,642			2,642	396	3,038
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000	12,000	2,500	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150	600	50	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300	300	110	110	410	62	472
Ladder Rack	60	LF	8	450	20	1,200	1,650	248	1,898
2000VA UPS	1	EA	3,000	3,000	110	110	3,110	467	3,577
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	1,950	LF	3	4,875	.05	98	4,973	746	5,718
12 Strand Multimode Outside Plant (OSP) OFC	1,950	LF	1	2,317	.05	98	2,414	362	2,776
Telecommunications Device - 4-Port	7	EA	1,100	7,700	474	3,316	11,016	1,652	12,668
Telecommunications Device - 4-Port - Existing	4	EA	1,100	4,400	474	1,895	6,295	944	7,239

telecommunications **cost opinion**

Building 32 - Inventory Control

Telecommunications Infrastructure Assessment Recommendations

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BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 20, 2024

JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
CAT 6A Quickport Connector	56	EA	36	2,025	25	1,400	3,425	514	3,938
CAT 6A Quickport Connector - Existing	32	EA	36	1,157	26	832	1,989	298	2,287
CAT 6A Patch Panel	1	EA	320	320	150	150	470	71	541
Copper 6-port Empty Cassette	8	EA	100	800	50	400	1,200	180	1,380
Telecom Room - Electrical Improvements	1	EA	4,000	4,000	2,500	2,500	6,500	975	7,475
Telecom Room - HVAC - Ductless Split System	1	EA	7,500	7,500	1,500	1,500	9,000	1,350	10,350
Pathway per Drop	7	EA	200	1,400	150	1,050	2,450	368	2,818
Subtotal Low-Voltage Systems (Divisions 27)							77,747	11,662	89,409
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138	138	276	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200	200	200	200	400	60	460

telecommunications **cost opinion**

Building 32 - Inventory Control

Telecommunications Infrastructure Assessment Recommendations

Western State Hospital

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JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800	2,800	680	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535	535	85	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925	925	170	170	1,095	164	1,259
Portal Licenses	1	EA	100	100	50	50	150	23	173
Card Reader	1	EA	325	325	128	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800	1,800	600	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125	125	85	85	210	32	242
Wiring - Per Access Control Door	1	EA	400	400	700	700	1,100	165	1,265
Programming	1	LS			1,402	1,402	1,402	210	1,612
Engineering	1	LS			701	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 33 - Maintenance Warehouse

Telecommunications Infrastructure Assessment Recommendations

Western State Hospital

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BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 20, 2024

JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
DIVISION 27									
LOW-VOLTAGE SYSTEMS - DIVISIONS 27									
General Provisions (Submittals, Mobilization, Permits)	1	LS	1,705	1,705	3,410	3,410	5,114	767	5,882
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	4,153	4,153			4,153	623	4,776
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000	12,000	2,500	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150	600	50	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300	300	110	110	410	62	472
Ladder Rack	60	LF	8	450	20	1,200	1,650	248	1,898
2000VA UPS	1	EA	3,000	3,000	110	110	3,110	467	3,577
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	2,000	LF	3	5,000	.05	100	5,100	765	5,865
12 Strand Multimode Outside Plant (OSP) OFC	2,000	LF	1	2,376	.05	100	2,476	371	2,847
Telecommunications Device - 4-Port	7	EA	1,100	7,700	474	3,316	11,016	1,652	12,668
Telecommunications Device - 4-Port - Existing	24	EA	1,100	26,400	474	11,368	37,768	5,665	43,433

telecommunications **cost opinion**

Building 33 - Maintenance Warehouse

Telecommunications Infrastructure Assessment Recommendations

Western State Hospital

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BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 20, 2024

JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
CAT 6A Quickport Connector	56	EA	36	2,025	25	1,400	3,425	514	3,938
CAT 6A Quickport Connector - Existing	192	EA	36	6,942	26	4,992	11,934	1,790	13,724
CAT 6A Patch Panel	3	EA	320	960	150	450	1,410	212	1,622
Copper 6-port Empty Cassette	24	EA	100	2,400	50	1,200	3,600	540	4,140
Telecom Room - Electrical Improvements	1	EA	4,000	4,000	2,500	2,500	6,500	975	7,475
Telecom Room - HVAC - Ductless Split System	1	EA	7,500	7,500	1,500	1,500	9,000	1,350	10,350
Pathway per Drop	7	EA	200	1,400	150	1,050	2,450	368	2,818
Subtotal Low-Voltage Systems (Divisions 27)							126,416	18,962	145,378
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138	138	276	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200	200	200	200	400	60	460

telecommunications **cost opinion**

Building 33 - Maintenance Warehouse

Telecommunications Infrastructure Assessment Recommendations

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description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800	2,800	680	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535	535	85	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925	925	170	170	1,095	164	1,259
Portal Licenses	1	EA	100	100	50	50	150	23	173
Card Reader	1	EA	325	325	128	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800	1,800	600	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125	125	85	85	210	32	242
Wiring - Per Access Control Door	1	EA	400	400	700	700	1,100	165	1,265
Programming	1	LS			1,402	1,402	1,402	210	1,612
Engineering	1	LS			701	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 34 - Carpenter Shop

Telecommunications Infrastructure Assessment Recommendations

Western State Hospital

HARGIS
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BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 20, 2024

JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
DIVISION 27									
LOW-VOLTAGE SYSTEMS - DIVISIONS 27									
General Provisions (Submittals, Mobilization, Permits)	1	LS	1,446	1,446	2,892	2,892	4,338	651	4,989
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	3,489	3,489			3,489	523	4,013
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000	12,000	2,500	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150	600	50	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300	300	110	110	410	62	472
Ladder Rack	60	LF	8	450	20	1,200	1,650	248	1,898
2000VA UPS	1	EA	3,000	3,000	110	110	3,110	467	3,577
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	1,500	LF	3	3,750	.05	75	3,825	574	4,399
12 Strand Multimode Outside Plant (OSP) OFC	1,500	LF	1	1,782	.05	75	1,857	279	2,136
Telecommunications Device - 4-Port	18	EA	1,100	19,800	474	8,526	28,326	4,249	32,575
Telecommunications Device - 4-Port - Existing	4	EA	1,100	4,400	474	1,895	6,295	944	7,239

telecommunications **cost opinion**

Building 34 - Carpenter Shop

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	quantity		material cost		labor cost		engineering opinion		
description	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
CAT 6A Quickport Connector	144	EA	36	5,206	25	3,600	8,806	1,321	10,127
CAT 6A Quickport Connector - Existing	32	EA	36	1,157	26	832	1,989	298	2,287
CAT 6A Patch Panel	2	EA	320	640	150	300	940	141	1,081
Copper 6-port Empty Cassette	16	EA	100	1,600	50	800	2,400	360	2,760
Telecom Room - Electrical Improvements	1	EA	4,000	4,000	2,500	2,500	6,500	975	7,475
Telecom Room - HVAC - Ductless Split System	1	EA	7,500	7,500	1,500	1,500	9,000	1,350	10,350
Pathway per Drop	18	EA	200	3,600	150	2,700	6,300	945	7,245
Subtotal Low-Voltage Systems (Divisions 27)							106,536	15,980	122,517
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138	138	276	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200	200	200	200	400	60	460

telecommunications **cost opinion**

Building 34 - Carpenter Shop

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description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800	2,800	680	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535	535	85	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925	925	170	170	1,095	164	1,259
Portal Licenses	1	EA	100	100	50	50	150	23	173
Card Reader	1	EA	325	325	128	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800	1,800	600	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125	125	85	85	210	32	242
Wiring - Per Access Control Door	1	EA	400	400	700	700	1,100	165	1,265
Programming	1	LS			1,402	1,402	1,402	210	1,612
Engineering	1	LS			701	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 35 - Warehouse

Telecommunications Infrastructure Assessment Recommendations

Western State Hospital

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BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 20, 2024

JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

	quantity		material cost		labor cost		engineering opinion		
description	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
DIVISION 27									
LOW-VOLTAGE SYSTEMS - DIVISIONS 27									
General Provisions (Submittals, Mobilization, Permits)	1	LS	1,381	1,381	2,761	2,761	4,142	621	4,763
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	3,517	3,517			3,517	528	4,045
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000	12,000	2,500	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150	600	50	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300	300	110	110	410	62	472
Ladder Rack	60	LF	8	450	20	1,200	1,650	248	1,898
2000VA UPS	1	EA	3,000	3,000	110	110	3,110	467	3,577
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	2,300	LF	3	5,750		115	5,865	880	6,745
12 Strand Multimode Outside Plant (OSP) OFC	2,300	LF	1	2,732		115	2,847	427	3,275
Telecommunications Device - 4-Port	13	EA	1,100	14,300	474	6,158	20,458	3,069	23,526
Telecommunications Device - 4-Port - Existing	8	EA	1,100	8,800	474	3,789	12,589	1,888	14,478

telecommunications **cost opinion**

Building 35 - Warehouse

Telecommunications Infrastructure Assessment Recommendations

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JOB NUMBER 23087 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

	quantity		material cost		labor cost		engineering opinion		
description	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
CAT 6A Quickport Connector	104	EA	36	3,760	25	2,600	6,360	954	7,314
CAT 6A Quickport Connector - Existing	64	EA	36	2,314	26	1,664	3,978	597	4,575
CAT 6A Patch Panel	2	EA	320	640	150	300	940	141	1,081
Copper 6-port Empty Cassette	16	EA	100	1,600	50	800	2,400	360	2,760
Telecom Room - Electrical Improvements	1	EA	4,000	4,000	2,500	2,500	6,500	975	7,475
Telecom Room - HVAC - Ductless Split System	1	EA	7,500	7,500	1,500	1,500	9,000	1,350	10,350
Pathway per Drop	13	EA	200	2,600	150	1,950	4,550	683	5,233
Subtotal Low-Voltage Systems (Divisions 27)							105,617	15,843	121,460
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138	138	276	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200	200	200	200	400	60	460

telecommunications **cost opinion**

Building 35 - Warehouse

Telecommunications Infrastructure Assessment Recommendations

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description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800	2,800	680	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535	535	85	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925	925	170	170	1,095	164	1,259
Portal Licenses	1	EA	100	100	50	50	150	23	173
Card Reader	1	EA	325	325	128	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800	1,800	600	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125	125	85	85	210	32	242
Wiring - Per Access Control Door	1	EA	400	400	700	700	1,100	165	1,265
Programming	1	LS			1,402	1,402	1,402	210	1,612
Engineering	1	LS			701	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611