HARGIS TELECOMMUNICATIONS ASSESSMENT

DSHS

FIRCREST SCHOOL

WA STATE PROJECT NUMBER: 2024-429 J (8)

EXECUTIVE SUMMARY

OVERVIEW

The Fircrest Residential Habilitation Center provides support to approximately 200 individuals with intellectual and developmental disabilities in a residential setting. Originally established in 1959 within a facility that was once a Naval Hospital and later a Tuberculosis Sanitarium, Fircrest has evolved its care philosophy over the years. It has transitioned from a medical model to a person-centered approach, placing the individual at the center of the process. The goal is to encourage growth and independence, with an eventual move to a less restrictive community setting.

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.

The existing campus telecommunications cabling backbone infrastructure includes inter-building optical fiber cabling and twisted-pair copper

CONSULTING TEAM

Hargis Engineers, Inc.

Seattle, WA 98101

Patrick Shannon, RCDD, PMP

Principal

Ben Helms, PE, RCDD

Associate

backbone cabling installed between buildings on campus. The Administration Building and 200 Apartment Building also include intra-building copper backbone. The existing backbone cabling was installed many years ago. In most areas, the backbone cabling is antiquated and is not able to support the deployment of new technologies nor does it comply with current industry standards. The twisted-pair copper backbone is rated for traditional telephony service. As DSHS transitions towards new technologies, the existing copper backbone is outmoded and should be replaced with new single and multi-mode optical fiber cabling.

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, 6 and 6A. The Category 6A cabling is primarily used for Wireless Access Points (WAPs), and meets current industry infrastructure standards, while Category 3, 5e, and 6 do not.

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 current industry standards and that it will not support evolutions to modern and/or future technologies. The existing optical fiber infrastructure consists mostly of OM1 62.5-micron multi-mode optical fiber cable and single-mode optical fiber cable. The single-mode optical fiber was installed as part of a network upgrade in 2019 and meets the current industry standard. The OM1 multi-mode optical fiber cable, however, is obsolete. Improving the IP backbone connectivity will be a fundamental component to creating an environment that will permit Fircrest and DSHS to identify, adapt, and implement new technologies that contribute to safety and operational improvements.

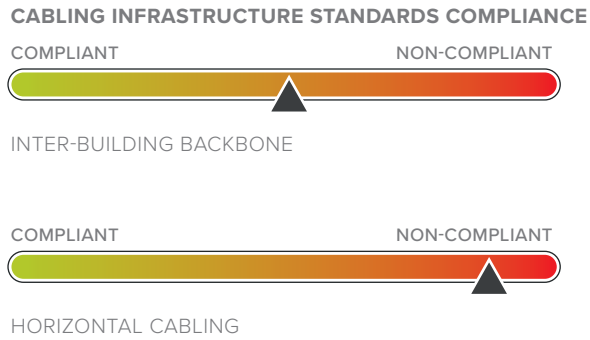
Existing horizontal cabling is not compliant with current TIA standards for this facility type. Upgrading category cabling requires a replacement of the complete channel to include horizontal cabling, patch cords, patch panels, and work area outlets. At Fircrest, this upgrade also requires installation of additional cabling to be compliant with port density requirements defined in TIA-1179.

In addition to the cabling noted above, the existing telecommunications spaces do not meet industry standards. Per TIA-1179 a dedicated telecommunications space 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.



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, 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 Fircrest and DSHS 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

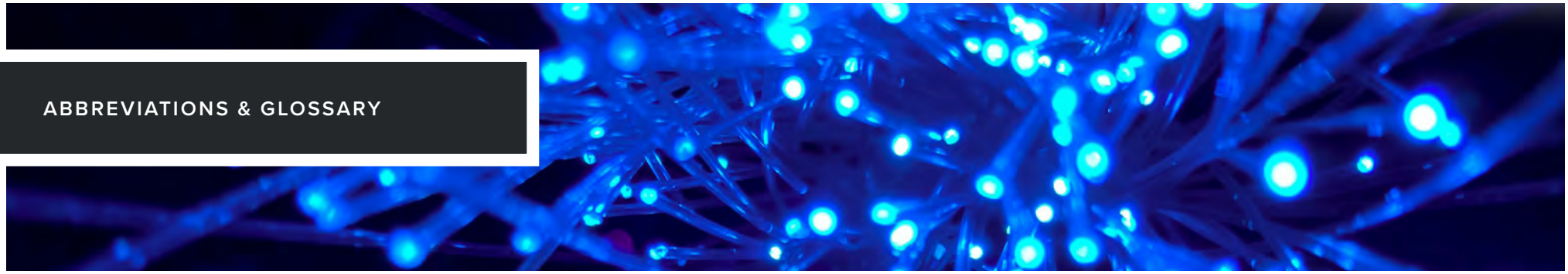
Review, assess and evaluate systems in each building

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 20, 24, 25, 27, 28, 34, 35, 39, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 55, 56, 57, 58, 59, 60, 63, 64, 65, 66, 67, & 91 - 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 dedicated cooling for 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.)	$1,112,000
INSTALL BACKBONE OFC TO NEW TELECOM SPACES			
2	N/A	» Pull 12 st OM4 OFC from MER of Building 66 to each telecom room in Buildings 20, 24, 25, 27, 28, 34, 35, 39, 44, 45, 46, 47, 48, 49, & 67 - Terminate OFC Cabling if RMFC is installed. » Pull 12 st OS2 OFC from MER of Building 66 to each telecom room in Buildings 27, 39, & 43 - Terminate OFC Cabling if RMFC is installed. » Pull 12 st OM4 OFC from TR-Admin 1 of Building 65 to each telecom room in Buildings 39, 43, 50, 51, 52, 53, 55, 56, 57, 58, 59, 60, 63, 64, 65, 66, 86, & 91 - Terminate OFC Cabling if RMFC is installed. » Pull 12 st OS2 OFC from TR-Admin 1 of Building 65 to telecom room in Building 63 - Terminate OFC Cabling if RMFC is installed. » Pull 12 st OM4 and 12 st OS2 OFC from MER of Building 66 to each telecom room in Building 66 - Terminate OFC Cabling if RMFC is installed. » Pull 12 st OM4 and 12 st OS2 OFC from TR-Admin 1 of Building 65 to each telecom room in Building 65 - Terminate OFC Cabling if RMFC is installed.	$14,000
INSTALL HORISONTAL 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.	$858,000
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.	$460,000
DEMOLISH DEFUNCT INFRASTRUCTURE			
6	1-5	» Demolish OSP cable. - Demolish OM1 Multi-mode OSP OFC to from MER to Buildings 20, 44, 45, 46, 47, 48, & 49 - Demolish OM1 Multi-mode OSP OFC to from Building 86 to Buildings 43 & 91 - Demolish OM1 Multi-mode OSP OFC to from TR-Admin 1 of Building 65 to Buildings 35, 39, 50, 51, 52, 53, 55, 56, & 63 - Demolish OM1 Multi-mode OSP OFC to from Building 35 to Buildings 24, 27, 28, & 34 - Demolish OM1 Multi-mode OSP OFC to from Building 63 to Buildings 57, 58, 59, 60, & 67 - Demolish Copper twisted pair OSP Backbone cabling from MER to Buildings 20, 24, 25, 27, 28, 34, 35, 39, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 55, 56, 57, 58, 59, 60, 63, 64, 65, 66, 67, & 91 » Demolish Building 65 backbone cabling - Demolish Copper twisted pair cabling between TRs. » Demolish Building 66 backbone cabling - 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.	$43,000

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 providing connectivity to the Fircrest campus is a mix of 62.5-micron OM1 multi-mode outside plant optical fiber cable, single-mode outside plant optical fiber cable, and twisted-pair copper cable for voice applications.

All buildings on the Fircrest campus are connected to either the ATP Building, 200 Apartment, Administration Building, Maintenance Office, or the Fiber Shed through a 62.5-micron OM1 multi-mode outside plant optical fiber cable backbone. The buildings are also connected to either the 200 Apartment or Administration Building through a 12-strand single-mode outside plant optical fiber cable.

The current OM1 fiber backbone is extremely limited in bandwidth and data speeds. OM1 fiber is obsolete, not readily available through distribution, and 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. 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 outside plant optical fiber cable supporting each building. The existing OM1 optical fiber backbone cabling should be demolished.

All buildings are served by Category 3 twisted-pair copper cabling for voice applications. The existing Avaya digital phone system utilizes existing Category 3 backbone cabling. The backbone cabling originates in the 200 Apartment, terminating on 110-blocks and building entrance protection. The backbone cable routes to numerous hand-holes and manholes on the campus and gets spliced before entering each building where it lands on building entrance protection then patches to on 110 blocks. Due to the limited capacity of the backbone cabling, it is recommended that the existing Category 3 twisted-pair copper backbone be replaced and/or augmented with industry standard compliant backbone cabling consisting of a hybrid of single-mode and multi-mode optical fiber cabling and the voice network combined on the IP network.

INTRA-BUILDING BACKBONE CABLING

The only intra-building backbone cabling resides within the 200 Apartment and the Administration Building. The existing intra-building backbone is twisted-pair copper. The intra-building twisted-pair copper backbone is extremely limited in bandwidth and data speeds, is not readily available, and should be replaced with standards compliant OM4 or single-mode optical fiber backbone cabling.

Existing Copper Backbone.

Existing Interbuilding Voice Backbone.

Existing Interbuilding Backbone Cabling.

Existing Fiber Backbone.

Existing Intrabuilding Backbone.

HORIZONTAL CABLING

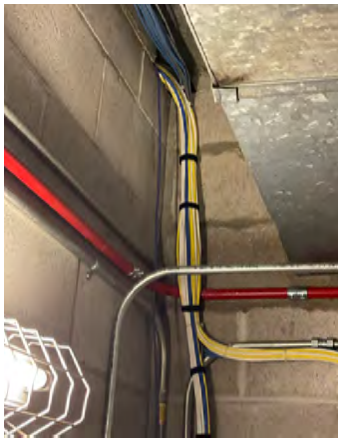
CATEGORY CABLE COMPARISON				
Category	Max. Data Rate	Bandwidth	Max. Distance	Usage
Category 1	1 Mbps	0.4 MHz		Telephone and modem lines
Category 2	4 Mbps	4 MHz		LocalTalk & Telephone
Category 3	10 Mbps	16 MHz	100 m (328 ft.)	Telephone & 10BaseT Ethernet
Category 4	16 Mbps	20 MHz	100 m (328 ft.)	Token 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

A review of the horizontal voice cabling infrastructure found it to be inadequate to serve the current and future needs of Fircrest. The horizontal cabling consists of twisted-pair copper cabling, which is terminated on 110-blocks on each building. These 110-blocks serve as cable termination points, allowing interconnection of on-premises wiring within a structured cabling system. From the 110-blocks, the cabling is patched to a Category 3 backbone cable that routes back to the 200 Apartment Building.

Category 3 cabling does not meet TIA-1179 standards for horizontal cabling. It is recommended that all Category 3 cabling be removed, and the voice network be collapsed onto a converged network infrastructure utilizing standards compliant cabling.



Existing Category 5 Cabling.

Existing Category 3 Cabling.

Existing Data Port Without Cover Plate.

Existing Phone Port.

ETHERNET HORIZONTAL CABLING

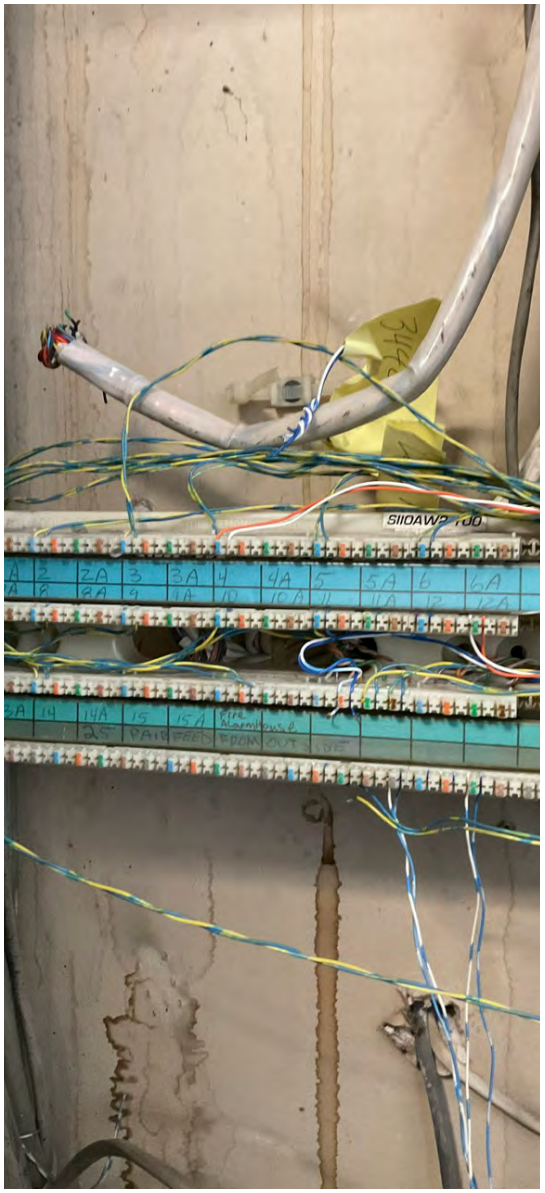
The existing ethernet network is primarily comprised of a mix of Category 5e, 6, and 6A cabling. The Category 6A cabling is primarily used for WAPs. The existing patch panels and connectors are a mix of Category 5, 5e, 6, and 6A and meet those respective standards.

The existing Category 5e and 6 infrastructure, while adequate to meet current needs of Fircrest, is not in compliance with TIA standards for infrastructure in healthcare facilities. It is recommended that the existing cabling infrastructure be replaced with a new Category 6A cabling infrastructure and that additional data ports be added throughout the facility to provide employees with an adequate quantity of network port connections to support required device connections and meet industry standards.

Meeting TIA-1179 standards will require the entire channel to be Category 6A certified. Meeting this standard will require all new patch panels, modular jacks, and wall outlets comprising a replacement of the entire infrastructure. Existing Category 5, Category 5e, and Category 6 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.

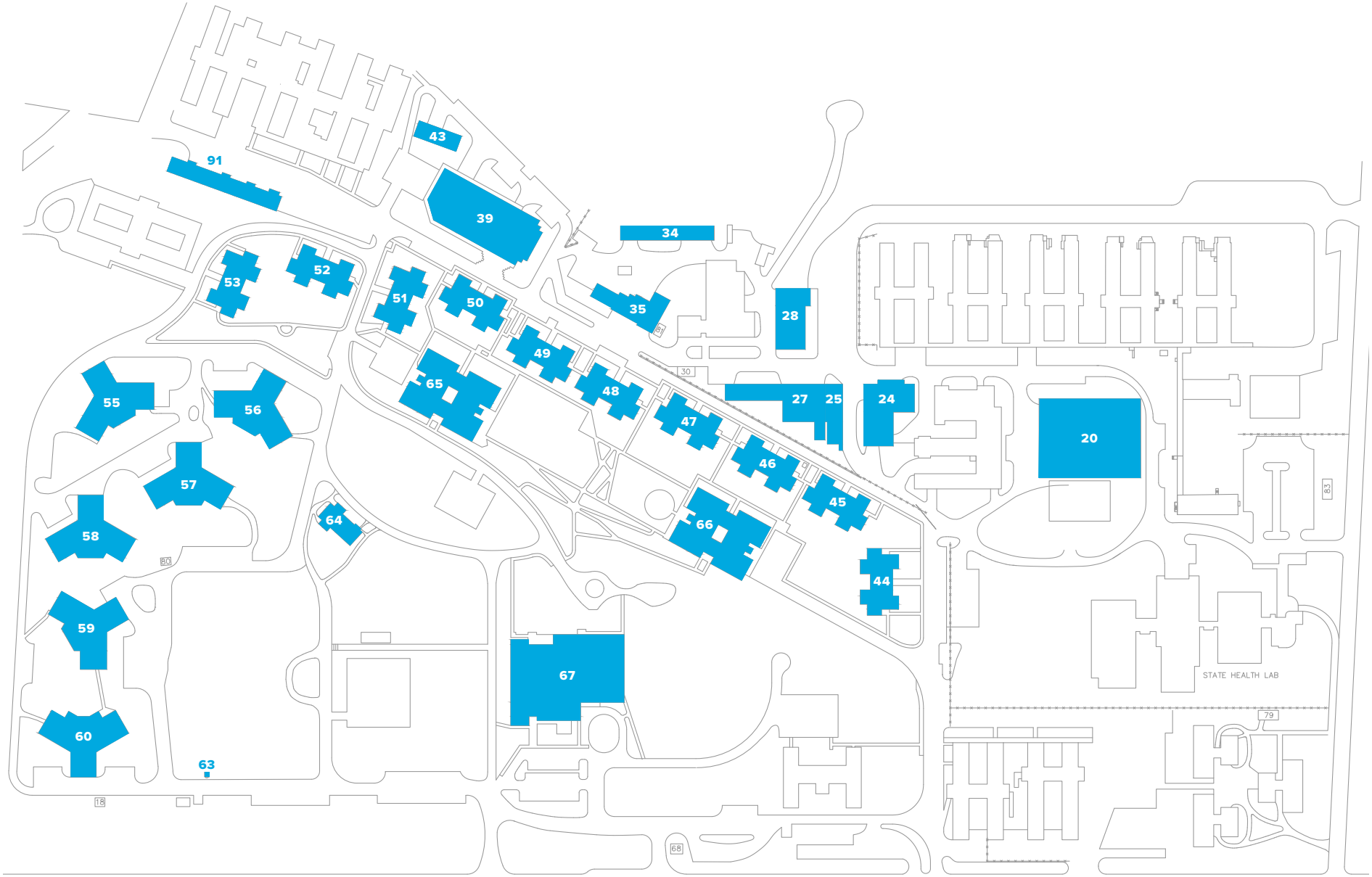
MICROSOFT TEAMS BANDWIDTH REQUIREMENTS PER ENDPOINT						
	MINIMUM		RECOMMENDED		BEST PERFORMANCE	
	Download	*Upload*	*Download*	*Upload*	*Download*	*Upload*
AUDIO						
One-to-One	10 kbps	10 kbps	58 kbps	58 kbps	76 kbps	76 kbps
Meetings	10 kbps	10 kbps	58 kbps	58 kbps	76 kbps	76 kbps
VIDEO						
One-to-One	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 Voice Patching.

CAMPUS MAP



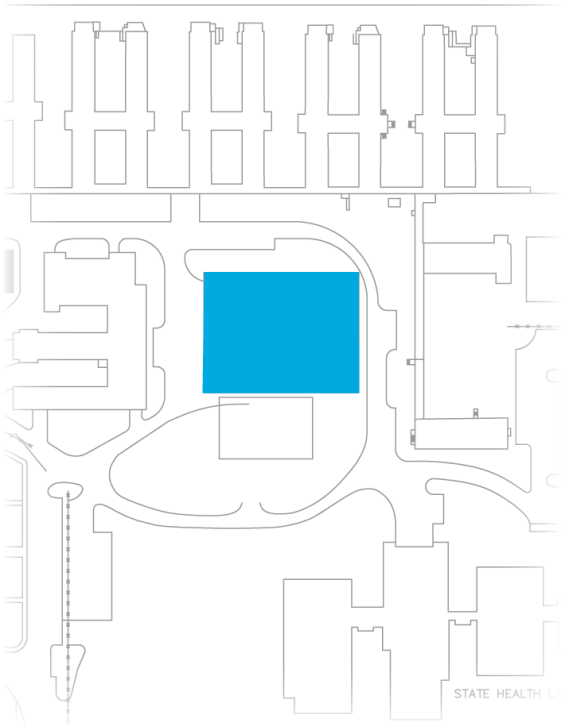
HARGIS

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

TELECOMMUNICATIONS SPACES

The existing telecommunications spaces are not compliant with current standards. Some buildings do not have telecommunications rooms, while some have enclosures located in shared spaces. Some of the issues observed during the site survey included a lack of dedicated telecommunications spaces, small, non-standards compliant spaces, a lack of dedicated cooling systems, inconsistent grounding, and a lack of rack space and cable management.

To support future expanded infrastructure and meet industry standards, it is recommended to modify the telecommunications rooms. Some recommended upgrades include installation of Category 6A patch panels and standards compliant grounding systems. To comply with the Health Insurance Portability and Accountability Act (HIPAA) and current telecommunications standards, controlled access to the space will need to be provided to limit access to authorized staff. Access control can be accomplished using different methods, including, keys and locks or an electronic access control system. Per HIPAA security requirements, the facility must "Implement procedures to control and validate a person's access to facilities based on their role or function..." Electronic access control systems have this capability built in. This capability can be accomplished with keys and locks using third-party key control systems like Keywatcher or other manual processes of controlling the physical keys, which allows keys to be checked out after entering a code or some other means of identifying information to validate a person's access to the telecommunications spaces. See room summaries later in this document.



STANDARDS COMPLIANCE

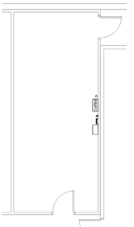
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

FOOD LIFELINE

The Food Lifeline Building has been converted into laundry facility for the campus.



TELECOMMUNICATIONS ROOM – TR-FOOD LIFELINE

The telecommunications space in the Food Lifeline Building is a wall mounted telecommunications enclosure located adjacent to walk-in cooler. There is no dedicated telecommunications room. The room is shared with electrical equipment and fire alarm equipment. Access to the telecommunications room is controlled through key management. The room consists of a wall mounted rack containing a rack mount fiber cabinet, patch panel, and network switch. 110 blocks and entrance protection are wall mounted by the rack. Connectivity is provided by 6-strand OM1 multi-mode and 12-strand single-mode optical fiber backbone cables from the 200 Apartments (Building 66). Voice service to the building is provided by a 25-pair twisted-pair backbone cable from the 200 Apartments (Building 66). Existing horizontal cabling is Category 5 for data, and Category 3 for voice applications. Neither a telecommunications grounding busbar nor dedicated cooling were observed within the room. Electrical infrastructure is not standards compliant.

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.

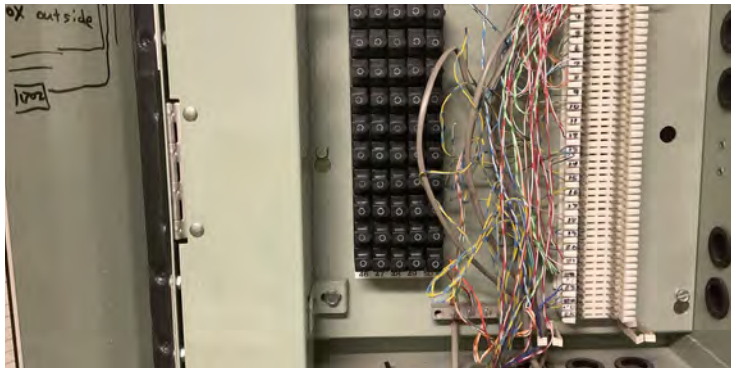
TELECOMMUNICATIONS ROOM – TR-FOOD LIFELINE

Deficiencies:

- No dedicated telecommunications room.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal cable support, leading to cables being draped or placed directly on equipment.
- No grounding busbar for the telecommunications equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Electrical infrastructure does not meet minimum requirements per standards.

Recommendations:

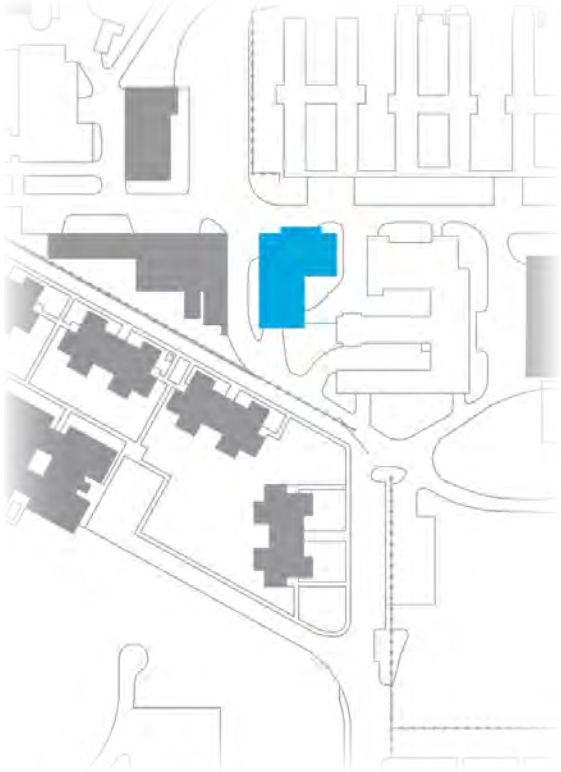
- Provide a new telecommunications space.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the 200 Apartments (Building 66).
- Add cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

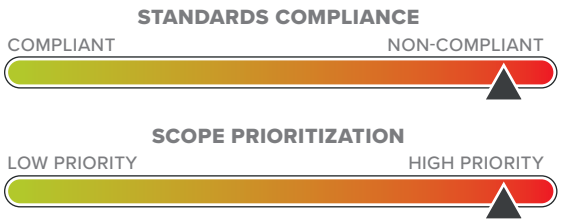


Existing Building Entrance Protection

Existing Telecom Cabinet.

Existing Voice Patching.





COMMISSARY

The Commissary Building serves as a storage facility for the campus.

TELECOMMUNICATIONS ROOM – TR-COMMISSARY

The telecommunications space in the Commissary Building is on the east wall near the main entrance door to the building. There is no dedicated telecommunications room. The space consists of a wall mounted rack, rack mount fiber cabinet, patch panel, 110 block, and entrance protectors. Connectivity is provided by a 6-strand OM1 multi-mode optical fiber backbone cable from the Maintenance Office (Building 35) and a 12-strand single-mode optical fiber backbone cable from the 200 Apartments (Building 66). Voice service to the building is provided by a 25-pair twisted-pair backbone cable from the 200 Apartments (Building 66). Existing horizontal cabling is Category 5 for data, and Category 3 for voice applications. Neither a telecommunications grounding busbar nor dedicated cooling were observed within the room. Electrical infrastructure is not standards compliant.

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 fact that the building is inactive, we recommend maintaining the space as the telecommunications room. The existing backbone and horizontal cabling are sufficient to meet current facility needs, however, they 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.

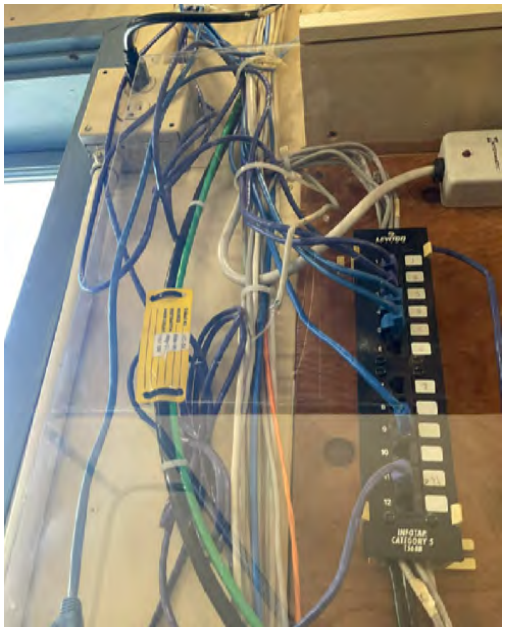
Deficiencies:

- No dedicated telecommunications room.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal cable support, leading to cables being draped or placed directly on equipment.
- No grounding busbar for the telecommunications equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Electrical infrastructure does not meet minimum requirements per standards.

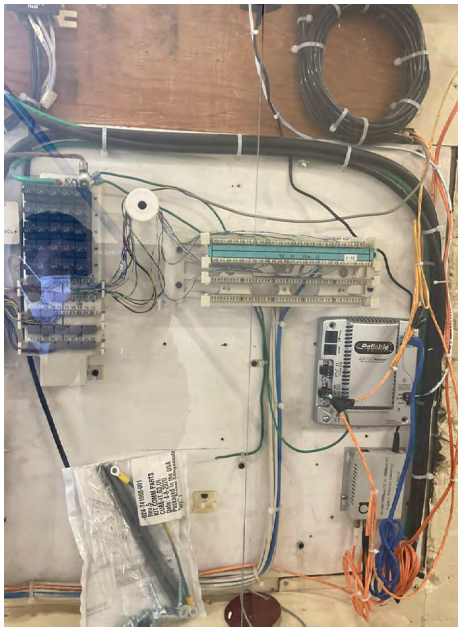
Recommendations:

- Provide a dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the Maintenance Office (Building 35).
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-COMMISSARY

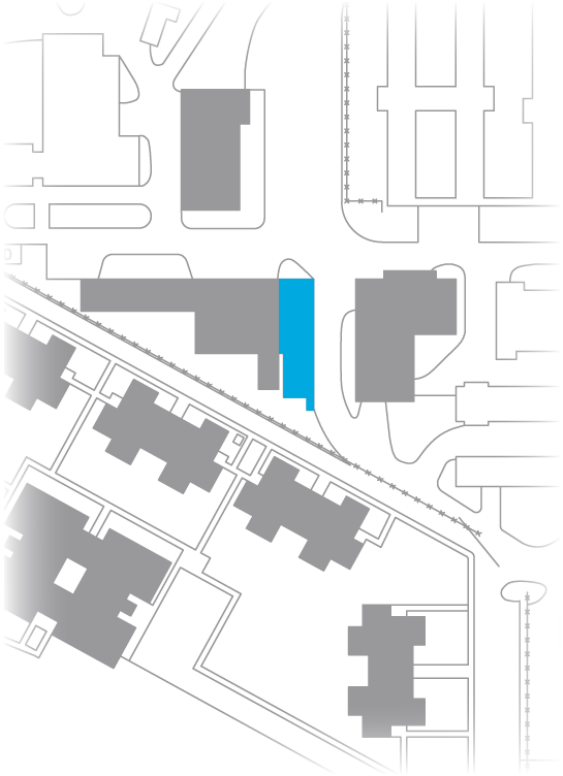


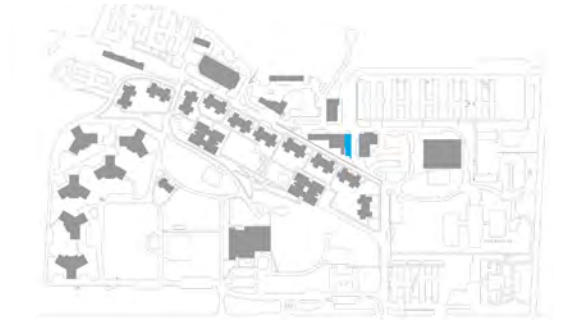
Existing Data Patching.

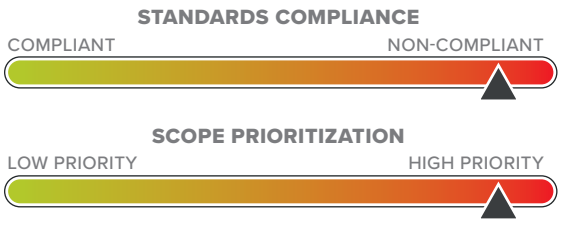


Existing Voice Patching.

Existing Telecom Cabinet.







PLANT MECHANIC SHOP (WELD SHOP)

TELECOMMUNICATIONS ROOM – TR-PLANT MECHANIC SHOP

The telecommunications space in the Plant Mechanic Shop is on the east wall near the main entrance. There is no dedicated telecommunications room. The space consists of a wall mounted rack, rack mount fiber cabinet, 110 block and building entrance protectors. Connectivity is provided by a 12-strand single-mode optical fiber backbone cable from the 200 Apartments (Building 66). Voice service to the building is provided by a 25-pair twisted-pair backbone cable from the 200 Apartments (Building 66). Existing horizontal cabling is Category 5 for data, and Category 3 for voice applications. Neither a telecommunications grounding busbar nor dedicated cooling were observed within the room. Electrical infrastructure is not standards compliant.

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.

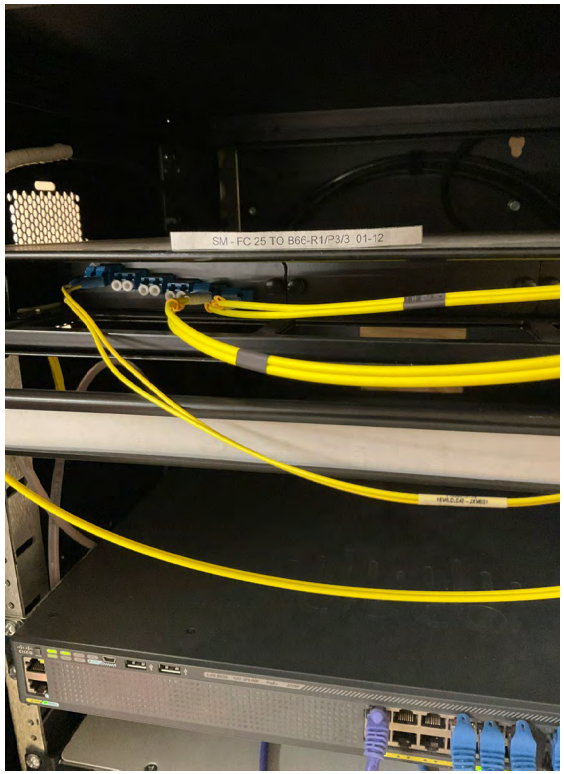
Deficiencies:

- No dedicated telecommunications room.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal cable support, leading to cables being draped or placed directly on equipment.
- No grounding busbar for the telecommunications equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Electrical infrastructure does not meet minimum requirements per standards.

Recommendations:

- Provide a dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the 200 Apartments (Building 66).
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

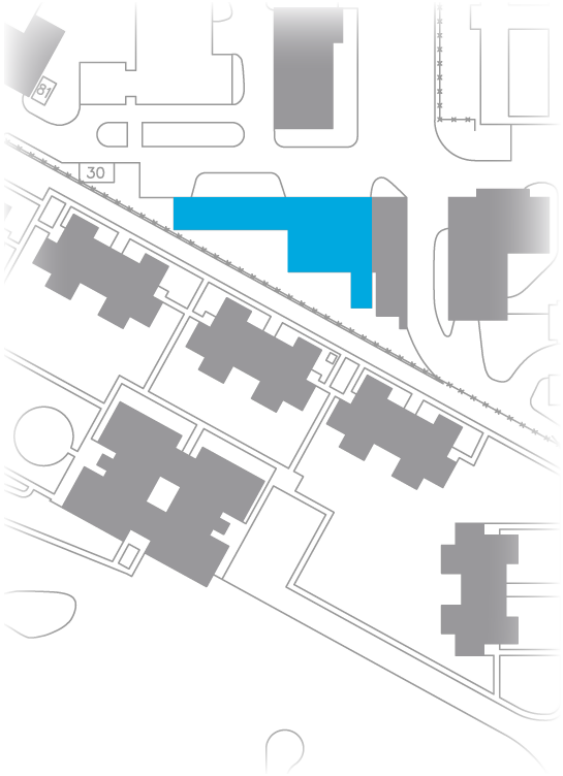
TELECOMMUNICATIONS ROOM – TR-PLANT MECHANIC SHOP



Existing Fiber Patching.

Existing Grounding.

Existing Telecom Cabinet.



STANDARDS COMPLIANCE

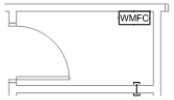
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

GARDEN SHOP

TELECOMMUNICATIONS ROOM – TR-GARDEN SHOP



The telecommunications space in the Garden Shop is on the wall inside the building pump room. There is no dedicated telecommunications room. The space consists of a wall mount fiber cabinet. Connectivity is provided by a 6-strand OM1 multi-mode optical fiber backbone cable from the Maintenance Office (Building 35). Voice service to the building is provided by a 25-pair twisted-pair backbone cable from the 200 Apartments (Building 66). Existing horizontal cabling is Category 5 for data, and Category 3 for voice applications. Neither a telecommunications grounding busbar nor dedicated cooling were observed within the room. Electrical infrastructure is not standards compliant.

The existing backbone and horizontal cabling are sufficient to meet current facility needs, however, it 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:

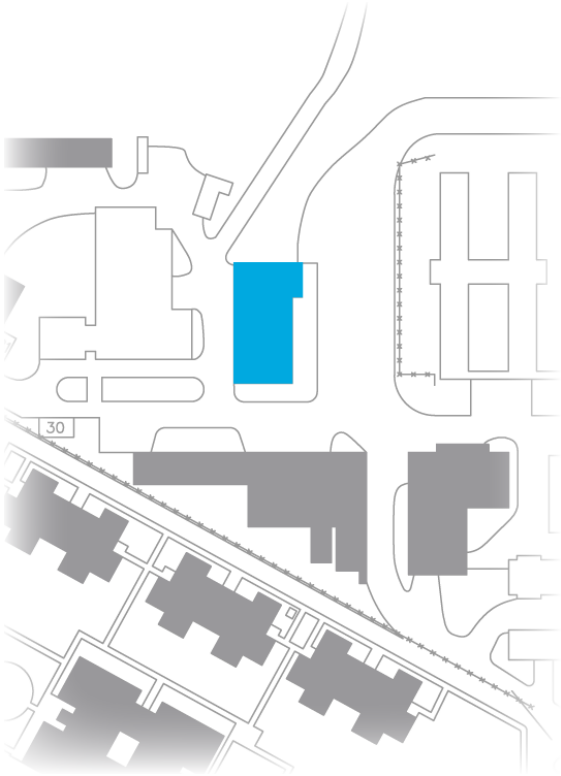
- No dedicated telecommunications room.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal cable support, leading to cables being draped or placed directly on equipment.
- No grounding busbar for the telecommunications equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Electrical infrastructure does not meet minimum requirements per standards.

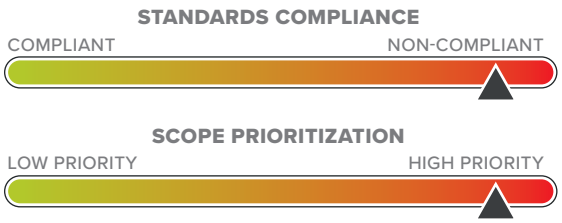
Recommendations:

- Provide a dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the Maintenance Office (Building 35).
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-GARDEN SHOP

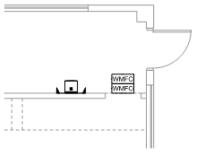
Existing Fiber Cabinet.





STEAM PLANT

TELECOMMUNICATIONS ROOM – TR-STEAM PLANT



The telecommunication space in the Steam Plant is on the mezzanine wall facing Level 1. There is no dedicated telecommunications room. The space consists of three wall mount fiber cabinets. Connectivity is provided by a 24-strand OM1 multi-mode optical fiber backbone cable from the Maintenance Office (Building 35) and a 12-strand single-mode optical fiber backbone cables from the 200 Apartments (Building 66). Voice service to the building is provided by a 25-pair twisted-pair backbone cable from the 200 Apartments (Building 66). Existing horizontal cabling is Category 5 for data, and Category 3 for voice applications. Neither a telecommunications grounding busbar nor dedicated cooling were observed within the room. Electrical infrastructure is not standards compliant.

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:

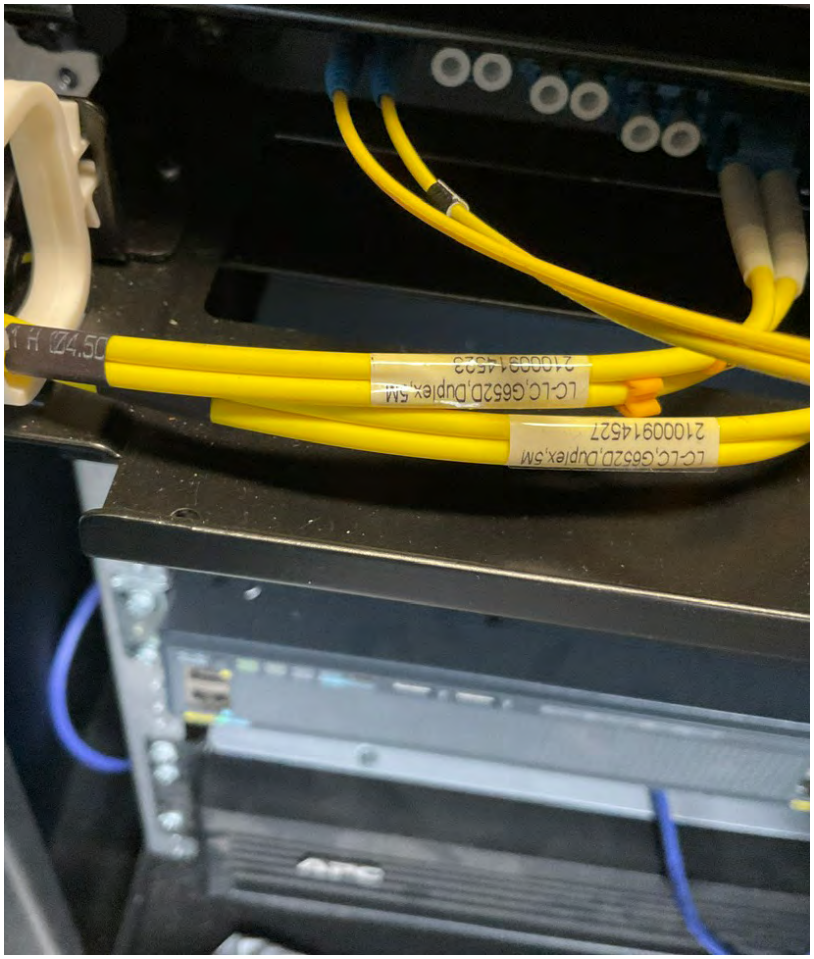
- No dedicated telecommunications room.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal cable support, leading to cables being draped or placed directly on equipment.
- No grounding busbar for the telecommunications equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Electrical infrastructure does not meet minimum requirements per standards.

Recommendations:

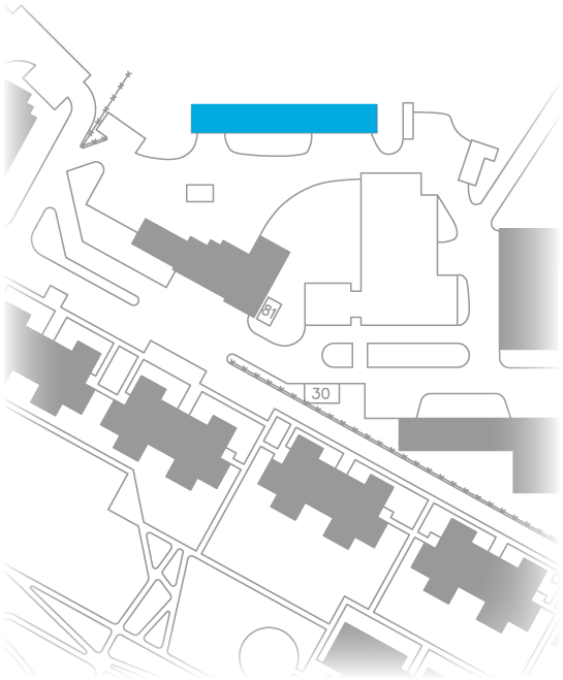
- Provide a dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the Maintenance Office (Building 35).
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

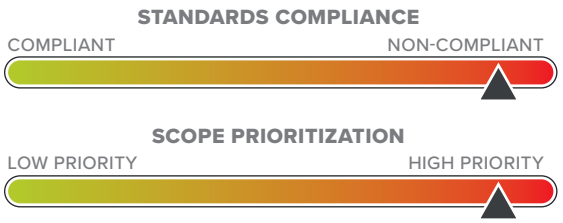
TELECOMMUNICATIONS ROOM – TR-STEAM PLANT

Existing Telecom Cabinet.



Existing Fiber Patching.





CARPENTER SHOP

TELECOMMUNICATIONS ROOM – TR-CARPENTER SHOP

The telecommunications space in the Carpenter Shop is located near building's east entrance. There is no dedicated telecommunications room. The space consists of a wall mounted rack and a wall mounted enclosure. The wall mounted rack includes a rack mount fiber cabinet, network switch and UPS power supply. The wall mounted enclosure includes a wall mount fiber cabinet (mounted in the enclosure), media converter, duplex electrical outlet, and a power strip. Connectivity is provided by a 6-strand OM1 multi-mode optical fiber backbone cable from the Maintenance Office (Building 35) and a 12-strand single-mode optical fiber backbone cable from the 200 Apartments (Building 66). Voice service to the building is provided by a 25-pair twisted-pair backbone cable from the 200 Apartments (Building 66). Existing horizontal cabling is Category 5 for data, and Category 3 for voice applications. Neither a telecommunications grounding busbar nor dedicated cooling were observed within the room. Electrical infrastructure is not standards compliant.

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:

- No dedicated telecommunications room.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal cable support, leading to cables being draped or placed directly on equipment.
- No grounding busbar for the telecommunications equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Electrical infrastructure does not meet minimum requirements per standards.

Recommendations:

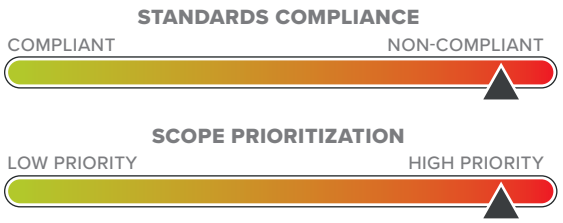
- Provide a dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the Maintenance Office (Building 35).
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-CARPENTER SHOP

Existing Telecom Cabinet.

Existing Fiber Patching.

Existing Decommissioned Telecom Cabinet.



MAINTENANCE OFFICE BUILDING

The Maintenance Office is a one-story building containing offices and shops for the Maintenance and Operations Department.

TELECOMMUNICATIONS ROOM – TR-101

The telecommunications space in the Maintenance Office Building is inside the reception area. There is no dedicated telecommunications room. The space contains one floor mounted rack and one wall mounted rack, situated next to each other. The floor mounted rack consists of a rack mount fiber cabinet, copper patch panels, cable management, a network switch, and a rack mounted power distribution unit. The wall mounted rack contains a rack mount fiber cabinet, a network switch, a patch panel, and a UPS. There are 110 blocks and building entrance protection mounted on the wall. Connectivity is provided by a 12-strand OM1 multi-mode optical fiber backbone cable from the Administration Building (Building 65) and a 12-strand single-mode optical fiber backbone cable from the 200 Apartments (Building 66). The Maintenance Office serves as one of the fiber hubs on campus, connecting to the Carpenter Shop, Steam Plant, Garden Shop, and Commissary via OM1 multi-mode fiber optic backbone cable. Existing horizontal cabling is Category 5 for data, and Category 3 for voice applications. Voice service to the building is provided by a 25-pair twisted-pair backbone cable from the 200 Apartments (Building 66). A telecommunications grounding busbar was observed behind the rack. No dedicated cooling was observed within the room. Electrical infrastructure is not standards compliant.

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.

TELECOMMUNICATIONS ROOM – TR-101

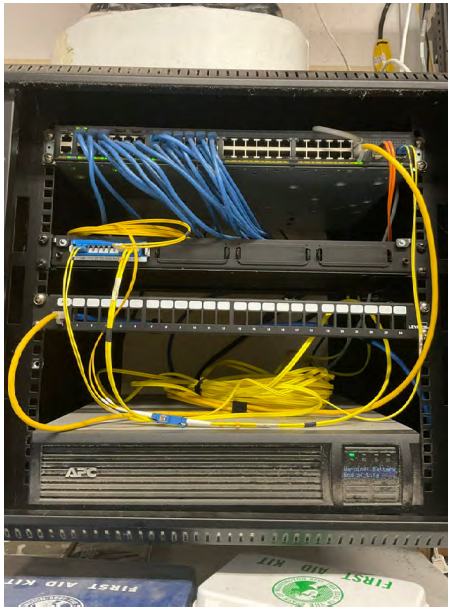
Deficiencies:

- No dedicated telecommunications room.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal 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.

Recommendations:

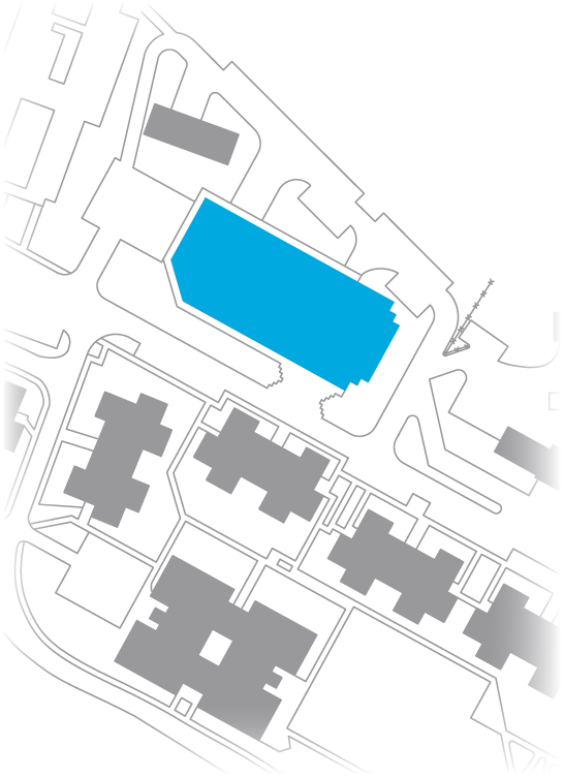
- Provide a dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the Administration Building (Building 65).
- Add ladder tray and cable management as needed.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

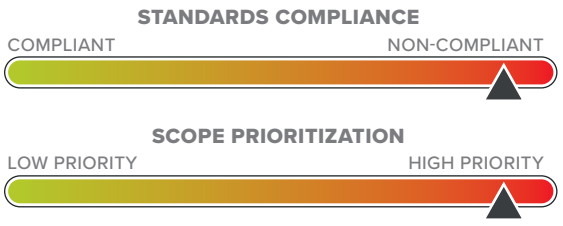
Existing Telecom Cabinet.



Existing Fiber & Data Patching.

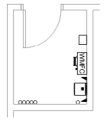
Existing Decommissioned Telecom Rack.





KITCHEN & DINING

TELECOMMUNICATIONS ROOM – TR-18



The telecommunications room TR-18 is located along the corridor adjacent Kitchen offices. While there is a dedicated telecommunications room, it is also being used for storage and it does not meet minimum standard size requirements. Access to the telecommunications room is controlled through key management. The room supports a wall mounted rack, wall mount fiber cabinet, wall mounted patch panel, 66 blocks and building entrance protectors. The wall mounted rack contains a rack mount fiber cabinet, a network switch, a patch panel, and a UPS. The 110 blocks and building entrance protection are mounted on the wall. Connectivity is provided by 6-strand OM1 multi-mode and 12-strand single-mode optical fiber backbone cables from the Administration Building (Building 65). Voice service to the building is provided by a 25-pair twisted-pair backbone cable from the 200 Apartments (Building 66). Existing horizontal cabling is Category 5 for data, and Category 3 for voice applications. A telecommunications grounding busbar was observed. There is no dedicated cooling for temperature and humidity control. Electrical infrastructure is not standards compliant.

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.

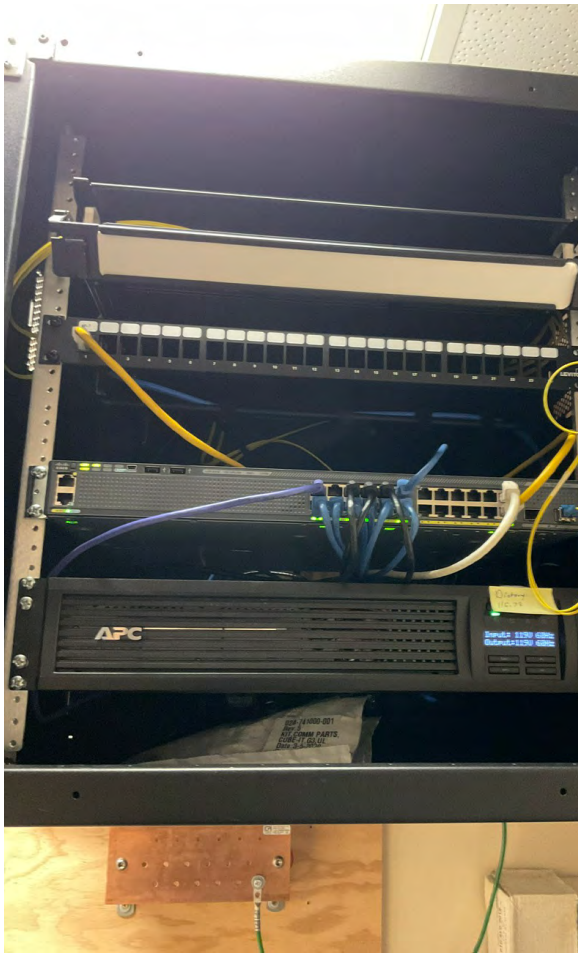
Deficiencies:

- Dedicated telecommunications room does not meet minimum standards.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal 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.

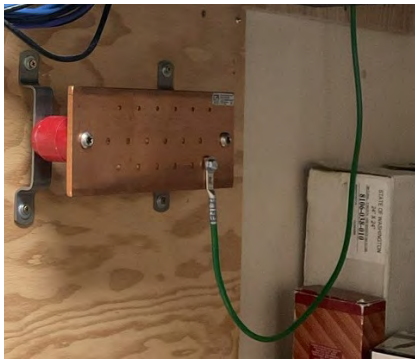
Recommendations:

- Provide a new, standards compliant dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the Administration Building (Building 65).
- Add ladder tray and cable management as needed.
- Properly ground to Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-18

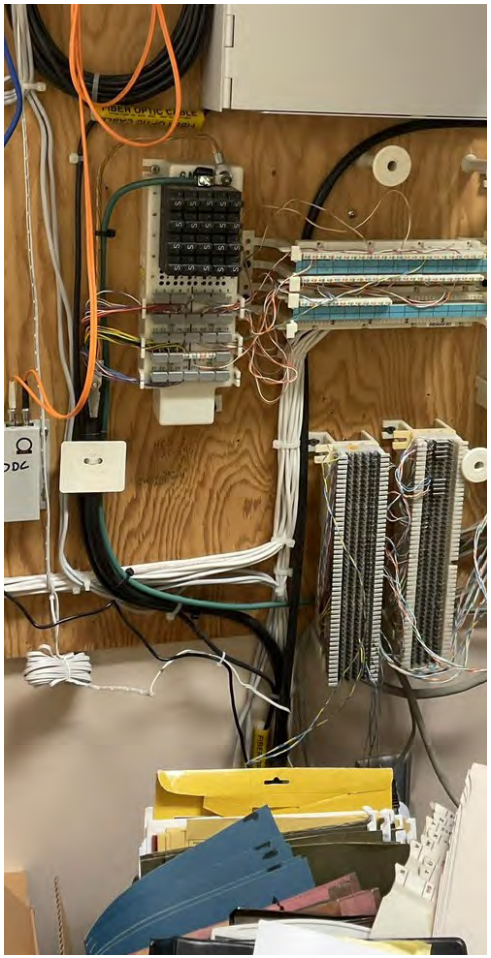


Existing Telecom Cabinet.



Existing Grounding.

Existing Patch Panel.



Existing Voice Patching.

STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

PAINT SHOP

TELECOMMUNICATIONS ROOM – TR-PAINT SHOP

The telecommunications space in the Paint Shop is located on east wall of the main entry. There is no dedicated telecommunications room. It consists of one wall mounted rack and one wall mount fiber cabinet, situated next to each other. The wall mounted rack contains a rack mount fiber cabinet. The 110 blocks and building entrance protections are mounted on the wall. Connectivity is provided by 12-strand OM1 multi-mode optical fiber backbone cables from the Administration Building (Building 65) and 12-strand single-mode optical fiber backbone cables from the ATP (Building 86). Voice service to the building is provided by a 25-pair twisted-pair backbone cable from the 200 Apartments (Building 66). Existing horizontal cabling is Category 5 for data, and Category 3 for voice applications. Neither a telecommunications grounding busbar nor dedicated cooling were observed within the room. Electrical infrastructure is not standards compliant.

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.

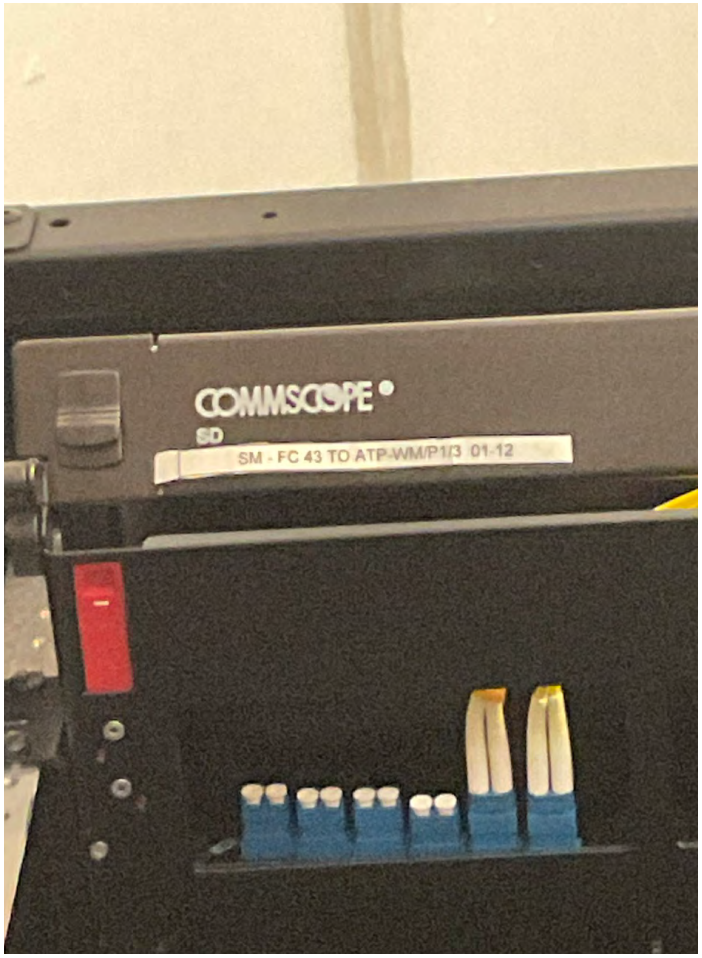
Deficiencies:

- No dedicated telecommunications room.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal cable support, leading to cables being draped or placed directly on equipment.
- No grounding busbar for the telecommunications equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Electrical infrastructure does not meet minimum requirements per standards.

Recommendations:

- Provide a dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the Administration Building (Building 65).
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

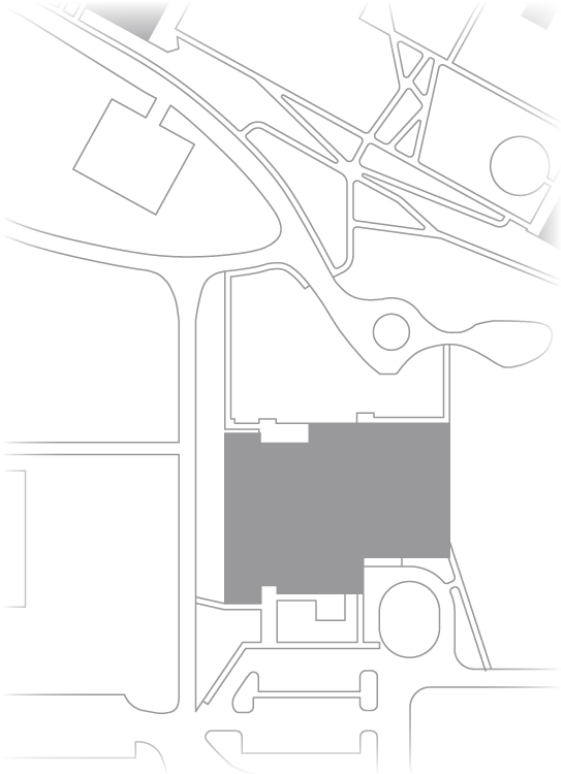
TELECOMMUNICATIONS ROOM – TR-PAINT SHOP



Existing Fiber Patching.

Existing Voice Patching.

Existing Telecom Cabinet.

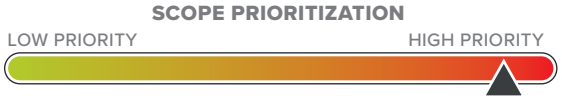


STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

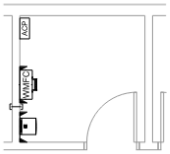
SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY



DUPLEX 301-302

Duplex 301- 302 is a two-story building that serves as a housing unit for residents.



TELECOMMUNICATIONS ROOM – TR-20

The telecommunications room, TR-20, is located inside the secure print room across the corridor from the main entry. There is no dedicated telecommunications room. Access to the telecommunications room is controlled through key management. The room consists of a wall mounted rack and a wall mount fiber cabinet. The wall mounted rack contains a rack mount fiber cabinet, a network switch, two patch panels, and a UPS. Connectivity is provided by 6-strand OM1 multi-mode and 12-strand single-mode optical fiber backbone cables from the 200 Apartments (Building 66). A 25-pair twisted-pair backbone cable from the 200 Apartments (Building 66) has been cut at the entry and building entrance protection has been removed. Existing horizontal cabling is a mix of Category 5e and Category 6A for data applications and Category 5 for voice applications. A telecommunications grounding busbar was observed. There is no dedicated cooling for temperature and humidity control. Electrical infrastructure is not standards compliant.

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. While the existing Category 6A horizontal cabling meets current standards, the existing Category 5 and 5e cabling utilized does not meet standards and should be upgraded to Category 6A. 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.

TELECOMMUNICATIONS ROOM – TR-20

Deficiencies:

- No dedicated telecommunications room.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal 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.

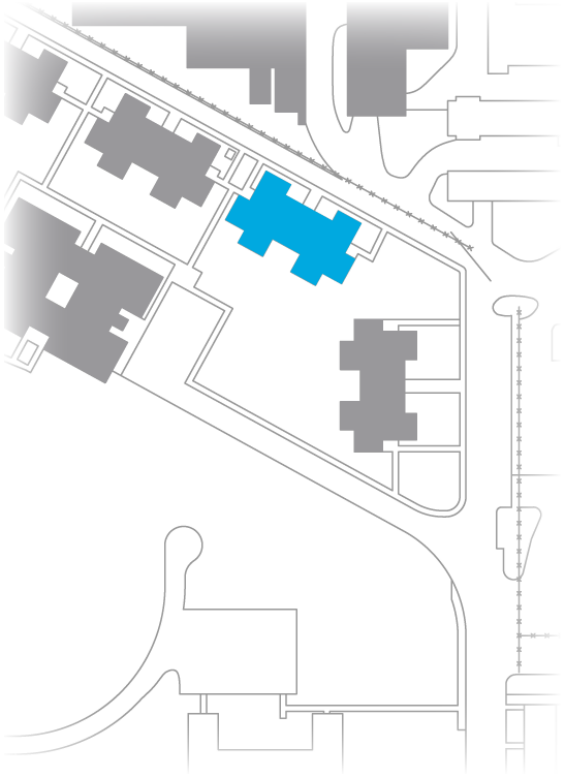
Recommendations:

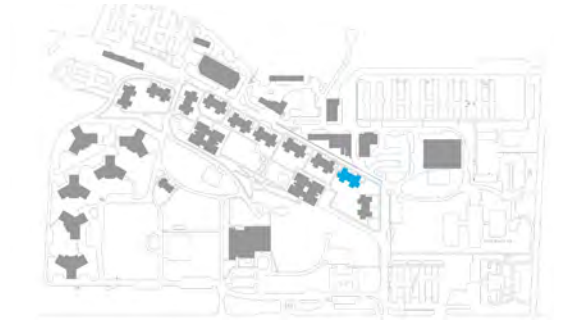
- Provide a dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the 200 Apartments (Building 66).
- Add ladder tray and cable management as needed.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

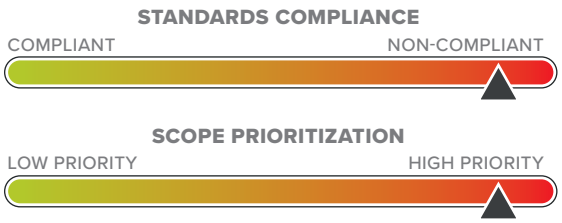
Existing Grounding.

Existing Telecom Cabinet.

Existing Voice & Data Patching.

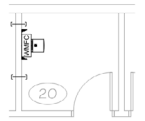






DUPLEX 303-304

Duplex 303- 304 is a two-story building that serves as a housing unit for residents.



TELECOMMUNICATIONS ROOM – TR-20

The telecommunications room, TR-20, is located inside the secure print room across the corridor from the main entry. There is no dedicated telecommunications room. Access to the telecommunications room is controlled through key management. The room consists of a wall mounted rack and a wall mount fiber cabinet. The wall mounted rack contains a rack mount fiber cabinet, a network switch, two patch panels, and a UPS. Connectivity is provided by 6-strand OM1 multi-mode and 12-strand single-mode optical fiber backbone cables from the 200 Apartments (Building 66). Voice service to the building is provided by a 25-pair twisted-pair backbone cable from the 200 Apartments (Building 66). Existing horizontal cabling is a mix of Category 5e and Category 6A for data applications and Category 5 for voice applications. A telecommunications grounding busbar was observed. There is no dedicated cooling for temperature and humidity control. Electrical infrastructure is not standards compliant.

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. While the existing Category 6A horizontal cabling meets current standards, the existing Category 5 and 5e cabling utilized does not meet standards and should be upgraded to Category 6A. 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.

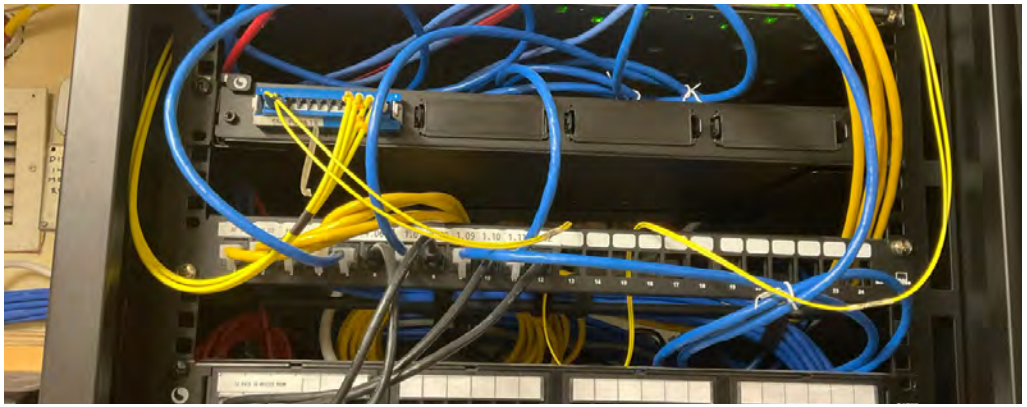
Deficiencies:

- No dedicated telecommunications room.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal 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.

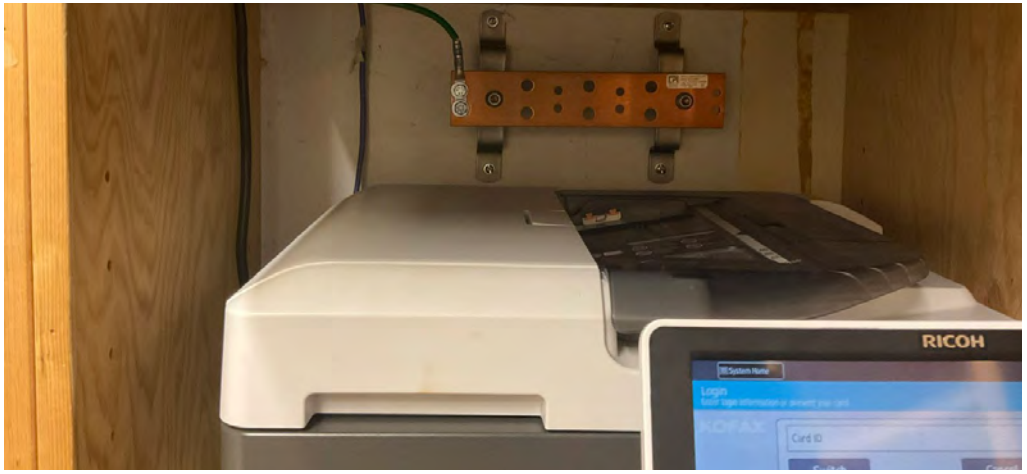
Recommendations:

- Provide a dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the 200 Apartments (Building 66).
- Add ladder tray and cable management as needed.
- Properly ground to Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

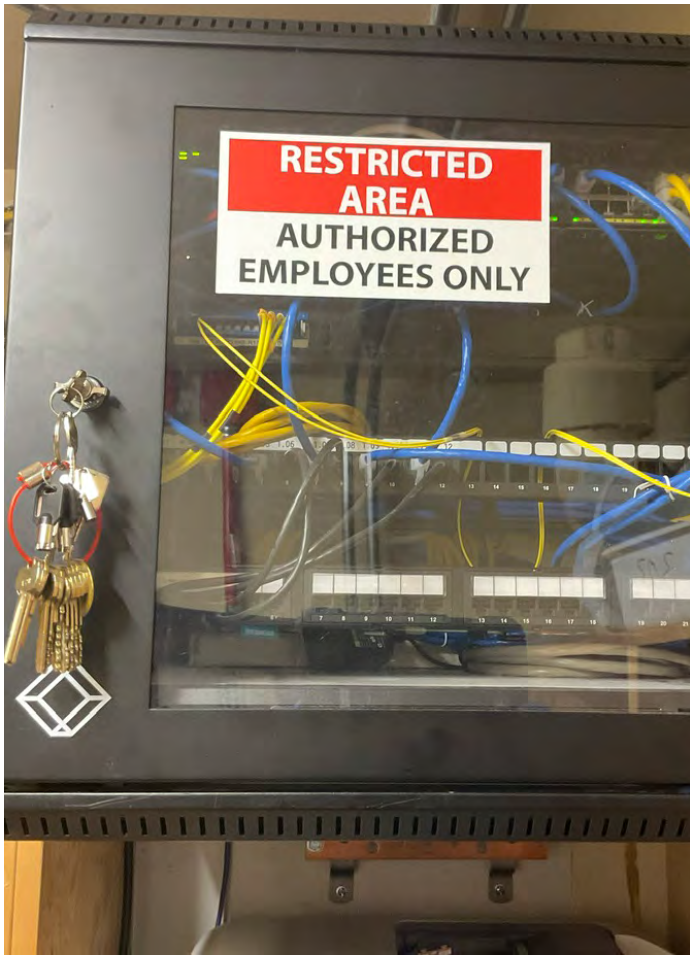
TELECOMMUNICATIONS ROOM – TR-20



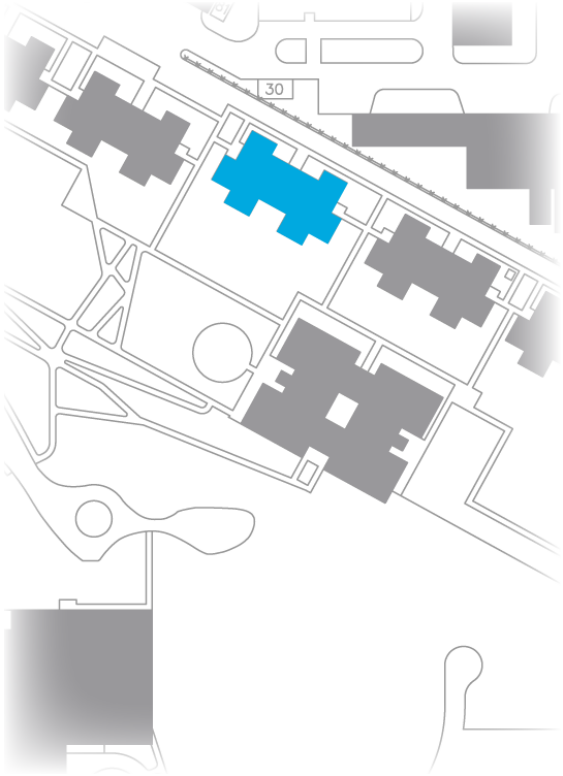
Existing Fiber & Data Patching.

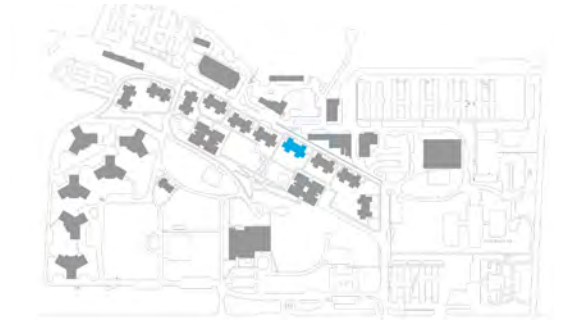


Existing Grounding.



Existing Telecom Cabinet.





STANDARDS COMPLIANCE

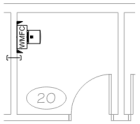
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

DUPLEX 307-308

Duplex 307- 308 is a two-story building serves as a housing unit for residents.



TELECOMMUNICATIONS ROOM – TR-20

The telecommunications room, TR-20, is located inside the secure print room across the corridor from the main entry. There is no dedicated telecommunications room. Access to the telecommunications room is controlled through key management. The room consists of a wall mounted rack and a wall mount fiber cabinet. The wall mounted rack contains a rack mount fiber cabinet, a network switch, two patch panels, and a UPS. Connectivity is provided by 6-strand OM1 multi-mode and 12-strand single-mode optical fiber backbone cables from the 200 Apartments (Building 66). Voice service to the building is provided by a 25-pair twisted-pair backbone cable from the 200 Apartments (Building 66). Existing horizontal cabling is a mix of Category 5e and Category 6A for data applications and Category 5 for voice applications. A telecommunications grounding busbar was observed. There is no dedicated cooling for temperature and humidity control. Electrical infrastructure is not standards compliant.

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. While the existing Category 6A horizontal cabling meets current standards, the existing Category 5 and 5e cabling utilized does not meet standards and should be upgraded to Category 6A. 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.

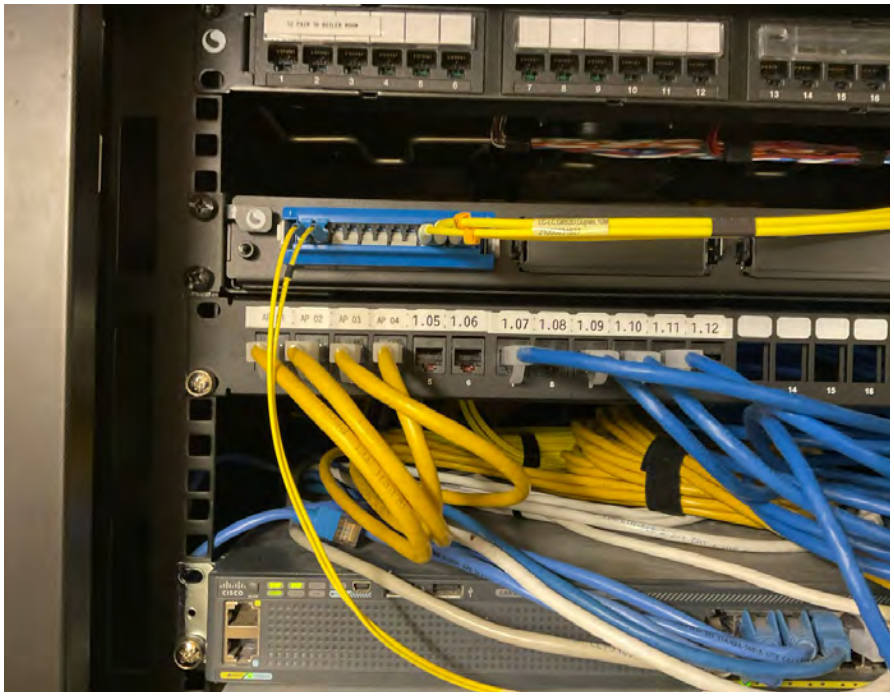
Deficiencies:

- No dedicated telecommunications room.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal 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.

Recommendations:

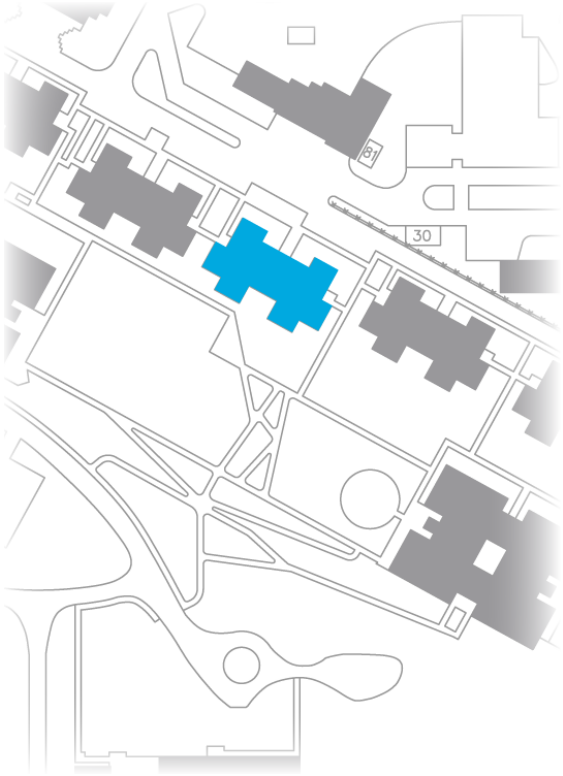
- Provide a dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the 200 Apartments (Building 66).
- Add ladder tray and cable management as needed.
- Properly ground to Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

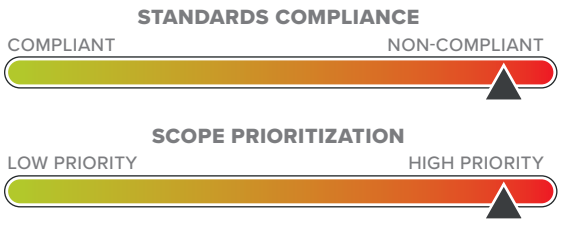
TELECOMMUNICATIONS ROOM – TR-20



Existing Fiber & Data Patching.

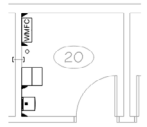
Existing Grounding.





DUPLEX 309-310

Duplex 309- 310 is a two-story building serves as a housing unit for residents.



TELECOMMUNICATIONS ROOM – TR-20

The telecommunications room, TR-20, is located inside the secure print room across the corridor from the main entry. There is no dedicated telecommunications room. Access to the telecommunications room is controlled through key management. The room consists of a wall mounted rack and a wall mount fiber cabinet. The wall mounted rack contains a rack mount fiber cabinet, a network switch, two patch panels, and a UPS. Connectivity is provided by 6-strand OM1 multi-mode and 12-strand single-mode optical fiber backbone cables from the 200 Apartments (Building 66). Voice service to the building is provided by a 25-pair twisted-pair backbone cable from the 200 Apartments (Building 66). Existing horizontal cabling is a mix of Category 5e and Category 6A for data applications and Category 5 for voice applications. A telecommunications grounding busbar was observed. There is no dedicated cooling for temperature and humidity control. Electrical infrastructure is not standards compliant.

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. While the existing Category 6A horizontal cabling meets current standards, the existing Category 5 and 5e cabling utilized does not meet standards and should be upgraded to Category 6A. 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:

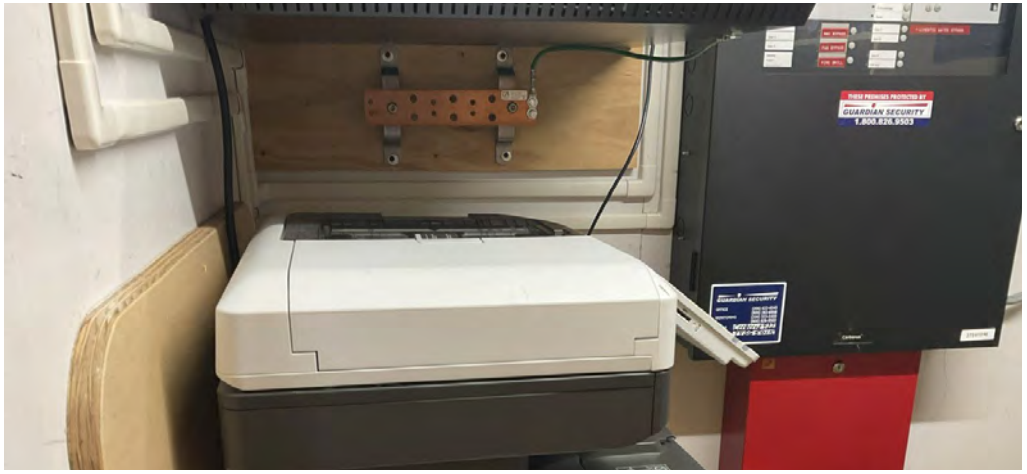
- No dedicated telecommunications room.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal cable support, leading to cables being draped or placed directly on equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Electrical infrastructure does not meet minimum requirements per standards.

Recommendations:

- Provide a dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the 200 Apartments (Building 66).
- Add ladder tray and cable management as needed.
- Properly ground to Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

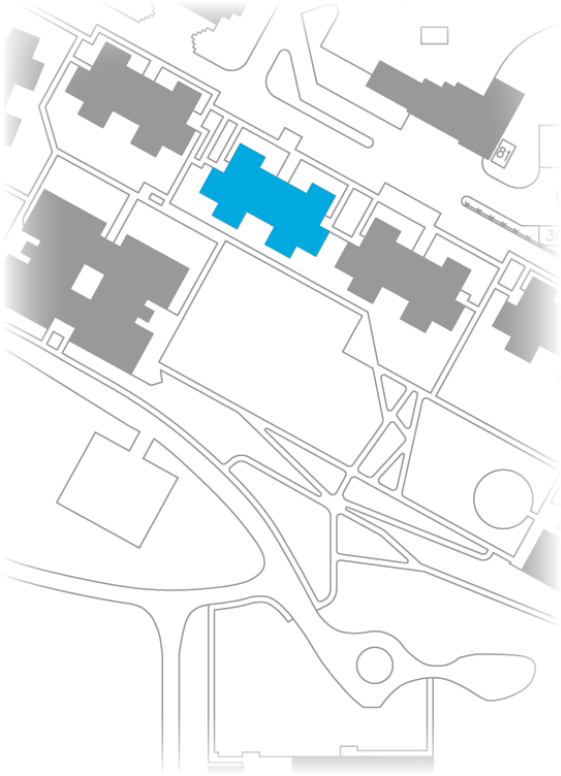
TELECOMMUNICATIONS ROOM – TR-20

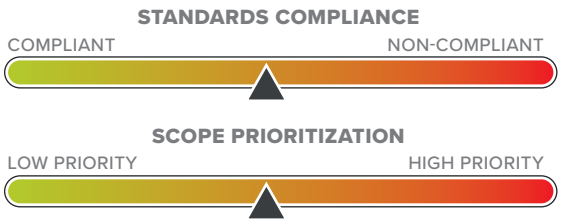
Existing Data Patching.



Existing Grounding.

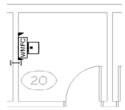
Existing Telecom Cabinet.





DUPLEX 311-312

Duplex 311- 312 is a two-story building serves as a housing unit for residents.



TELECOMMUNICATIONS ROOM – TR-20

The telecommunications room, TR-20, is located inside the secure print room across the corridor from the main entry. There is no dedicated telecommunications room. Access to the telecommunications room is controlled through key management. The room consists of a wall mounted rack and a wall mount fiber cabinet. The wall mounted rack contains a rack mount fiber cabinet, a network switch, two patch panels, and a UPS. Connectivity is provided by 6-strand OM1 multi-mode and 12-strand single-mode optical fiber backbone cables from the 200 Apartments (Building 66). Voice service to the building is provided by a 25-pair twisted-pair backbone cable from the 200 Apartments (Building 66). Existing horizontal cabling is a mix of Category 5e and Category 6A for data applications and Category 5 for voice applications. A telecommunications grounding busbar was observed. There is no dedicated cooling for temperature and humidity control. Electrical infrastructure is not standards compliant.

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. While the existing Category 6A horizontal cabling meets current standards, the existing Category 5 and 5e cabling utilized does not meet standards and should be upgraded to Category 6A. 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:

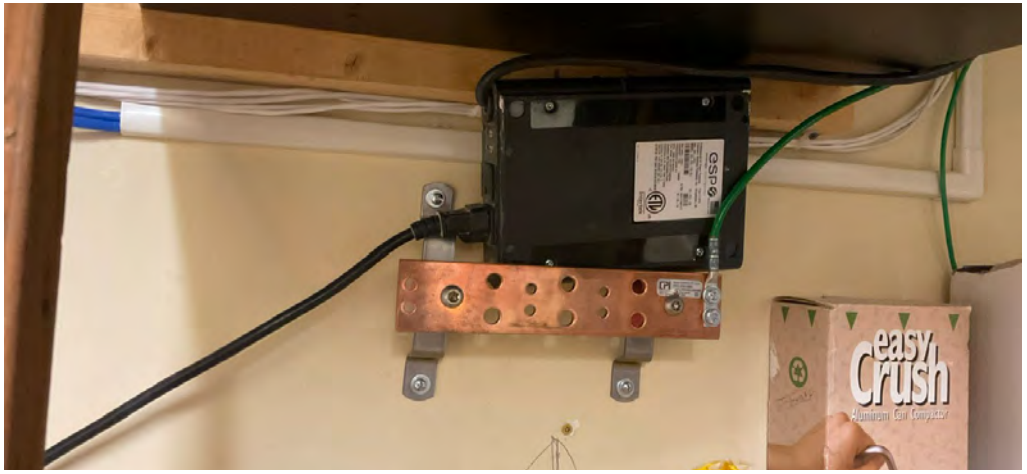
- No dedicated telecommunications room.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal cable support, leading to cables being draped or placed directly on equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Electrical infrastructure does not meet minimum requirements per standards.

Recommendations:

- Provide a dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the 200 Apartments (Building 66).
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-20

Existing Data Patching.



Existing Grounding.

Existing Telecom Cabinet.

STANDARDS COMPLIANCE

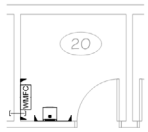
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

DUPLEX 313-314

Duplex 313- 314 is a two-story building serves as a housing unit for residents.



TELECOMMUNICATIONS ROOM – TR-20

The telecommunications room, TR-20, is located inside the secure print room across the corridor from the main entry. There is no dedicated telecommunications room. Access to the telecommunications room is controlled through key management. The room consists of a wall mounted rack and a wall mount fiber cabinet. The wall mounted rack contains a rack mount fiber cabinet, a network switch, two patch panels, and a UPS. Connectivity is provided by 6-strand OM1 multi-mode and 12-strand single-mode optical fiber backbone cables from the 200 Apartments (Building 66). Voice service to the building is provided by a 25-pair twisted-pair backbone cable from the 200 Apartments (Building 66). Existing horizontal cabling is a mix of Category 5e and Category 6A for data applications and Category 5 for voice applications. A telecommunications grounding busbar was observed. There is no dedicated cooling for temperature and humidity control. Electrical infrastructure is not standards compliant.

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. While the existing Category 6A horizontal cabling meets current standards, the existing Category 5 and 5e cabling utilized does not meet standards and should be upgraded to Category 6A. 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:

- No dedicated telecommunications room.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal 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.

Recommendations:

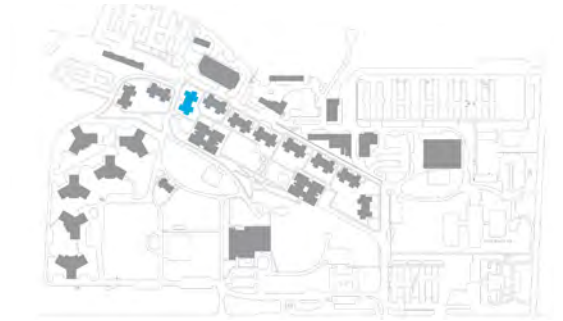
- Provide a dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the Administration Building (Building 65).
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-20

Existing Fiber & Data Patching.

Existing Grounding.

Existing Telecom Cabinet.



STANDARDS COMPLIANCE

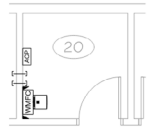
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

DUPLEX 315-316

Duplex 315-316 is a two-story building serves as a housing unit for residents.



TELECOMMUNICATIONS ROOM – TR-20

The telecommunications room, TR-20, is located inside the secure print room across the corridor from the main entry. There is no dedicated telecommunications room. Access to the telecommunications room is controlled through key management. The room consists of a wall mounted rack and a wall mount fiber cabinet. The wall mounted rack contains a rack mount fiber cabinet, a network switch, two patch panels, and a UPS. Connectivity is provided by 6-strand OM1 multi-mode and 12-strand single-mode optical fiber backbone cables from the Administration Building (Building 65). Voice service to the building is provided by a 25-pair twisted-pair backbone cable from the 200 Apartments (Building 66). Existing horizontal cabling is a mix of Category 5e and Category 6A for data applications and Category 5 for voice applications. A telecommunications grounding busbar was observed. There is no dedicated cooling for temperature and humidity control. Electrical infrastructure is not standards compliant.

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. While the existing Category 6A horizontal cabling meets current standards, the existing Category 5 and 5e cabling utilized does not meet standards and should be upgraded to Category 6A. 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:

- No dedicated telecommunications room.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal 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.

Recommendations:

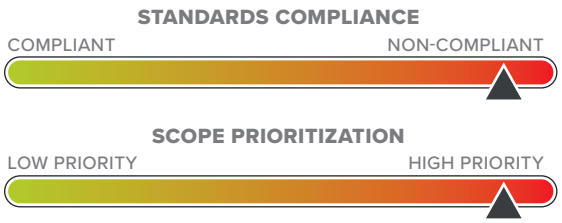
- Provide a dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the Administration Building (Building 65).
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-20

Existing Fiber & Data Patching.

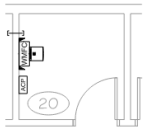
Existing Grounding.

Existing Telecom Cabinet.



DUPLEX 317-318

Duplex 317-318 is a two-story building serves as a housing unit for residents.



TELECOMMUNICATIONS ROOM – TR-20

The telecommunications room, TR-20, is located inside the secure print room across the corridor from the main entry. There is no dedicated telecommunications room. Access to the telecommunications room is controlled through key management. The room consists of a wall mounted rack and a wall mount fiber cabinet. The wall mounted rack contains a rack mount fiber cabinet, a network switch, two patch panels, and a UPS. Connectivity is provided by 6-strand OM1 multi-mode and 12-strand single-mode optical fiber backbone cables from the Administration Building (Building 65). Voice service to the building is provided by a 25-pair twisted-pair backbone cable from the 200 Apartments (Building 66). Existing horizontal cabling is a mix of Category 5e and Category 6A for data applications and Category 5 for voice applications. A telecommunications grounding busbar was observed. There is no dedicated cooling for temperature and humidity control. Electrical infrastructure is not standards compliant.

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. While the existing Category 6A horizontal cabling meets current standards, the existing Category 5 and 5e cabling utilized does not meet standards and should be upgraded to Category 6A. 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.

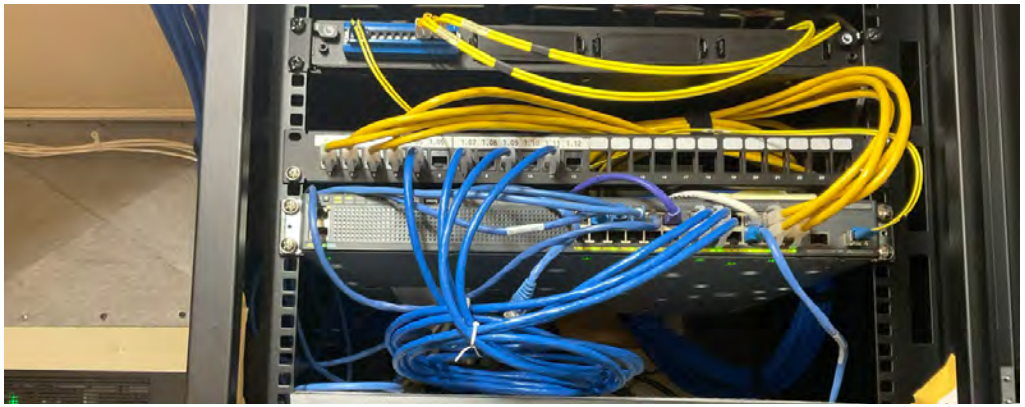
Deficiencies:

- No dedicated telecommunications room.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal 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.

Recommendations:

- Provide a dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the Administration Building (Building 65).
- Add ladder tray and cable management as needed.
- Properly ground to Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

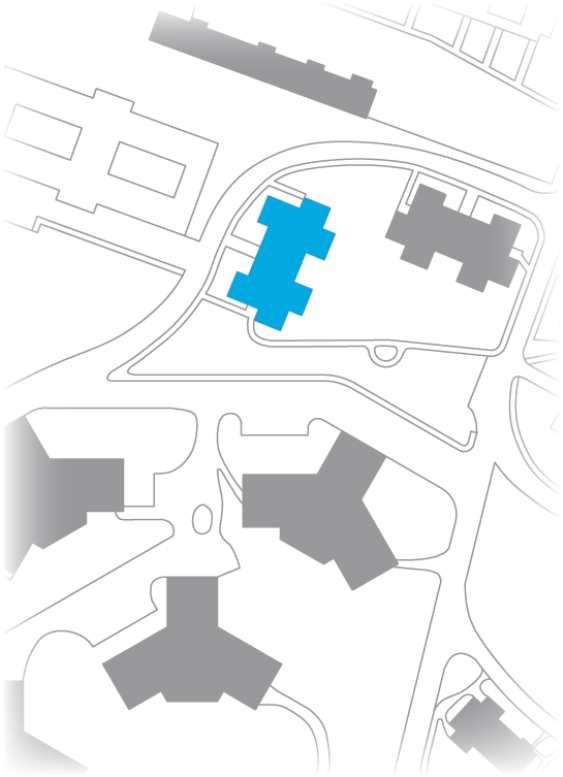
TELECOMMUNICATIONS ROOM – TR-20

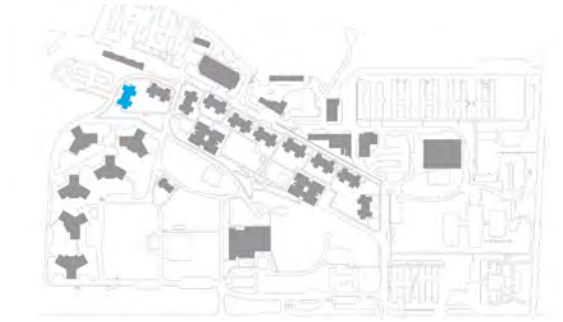


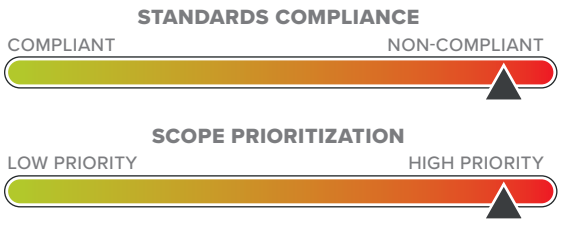
Existing Fiber & Data Patching.

Existing Grounding.

Existing Telecom Cabinet.

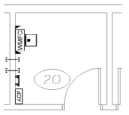






DUPLEX 319-320

Duplex 319-320 is a two-story building serves as a housing unit for residents.



TELECOMMUNICATIONS ROOM – TR-20

The telecommunications room, TR-20, is located inside the secure print room across the corridor from the main entry. There is no dedicated telecommunications room. Access to the telecommunications room is controlled through key management. The room consists of a wall mounted rack and a wall mount fiber cabinet. The wall mounted rack contains a rack mount fiber cabinet, a network switch, two patch panels, and a UPS. Connectivity is provided by 6-strand OM1 multi-mode and 12-strand single-mode optical fiber backbone cables from the Administration Building (Building 65). Voice service to the building is provided by a 25-pair twisted-pair backbone cable from the 200 Apartments (Building 66). Existing horizontal cabling is a mix of Category 5e and Category 6A for data applications and Category 5 for voice applications. A telecommunications grounding busbar was observed. There is no dedicated cooling for temperature and humidity control. Electrical infrastructure is not standards compliant.

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. While the existing Category 6A horizontal cabling meets current standards, the existing Category 5 and 5e cabling utilized does not meet standards and should be upgraded to Category 6A. 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:

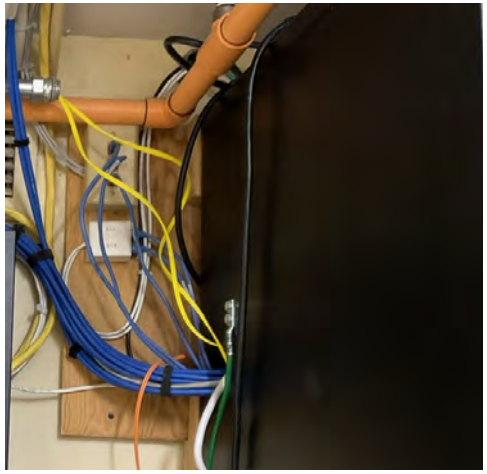
- No dedicated telecommunications room.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal cable support, leading to cables being draped or placed directly on equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Electrical infrastructure does not meet minimum requirements per standards.

Recommendations:

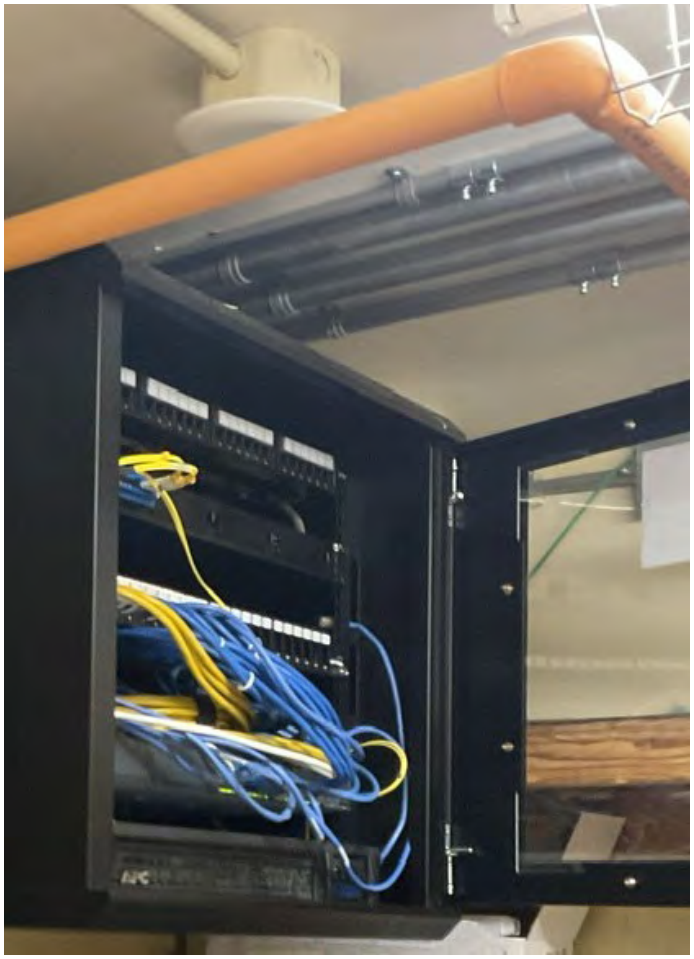
- Provide a dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the Administration Building (Building 65).
- Add ladder tray and cable management as needed.
- Properly ground to Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-20

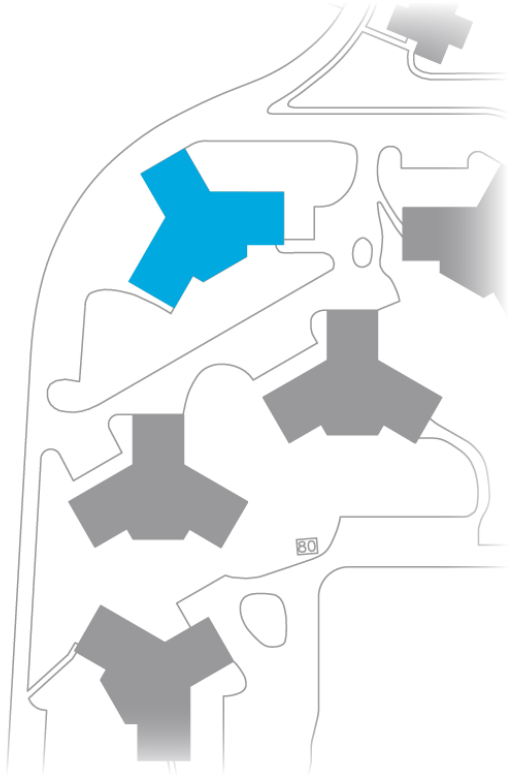
Existing Fiber & Data Patching.

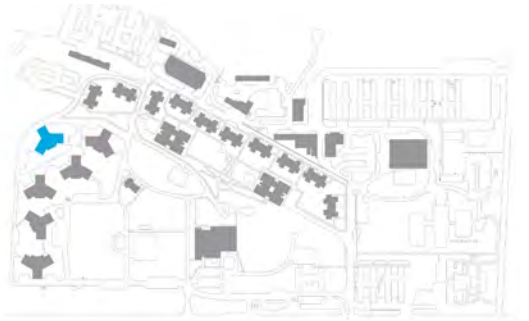


Existing Grounding.



Existing Telecom Cabinet.





STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

HICKORY

Hickory serves as a housing unit for residents with limited mobility.

TELECOMMUNICATIONS ROOM – TR-11

The telecommunications space is above the interior door of the pharmacy. There is no dedicated telecommunications room. It consists of a vertical wall mounted rack mount bracket supporting a network switch and a UPS. It also includes a wall mount fiber cabinet, two wall mounted patch panels, and a 110 block. Connectivity is provided by 6-strand OM1 multi-mode and 12-strand single-mode optical fiber backbone cables from the Administration Building (Building 65). Voice service to the building is provided by a 25-pair twisted-pair backbone cable from the 200 Apartments (Building 66). Existing horizontal cabling is a mix of Category 5e and Category 6A for data applications and Category 3 for voice applications. Neither a telecommunications grounding busbar nor dedicated cooling were observed within the room. Electrical infrastructure is not standards compliant.

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. While the existing Category 6A horizontal cabling meets current standards, the existing Category 5e and 3 cabling utilized does not meet standards and should be upgraded to Category 6A. 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.

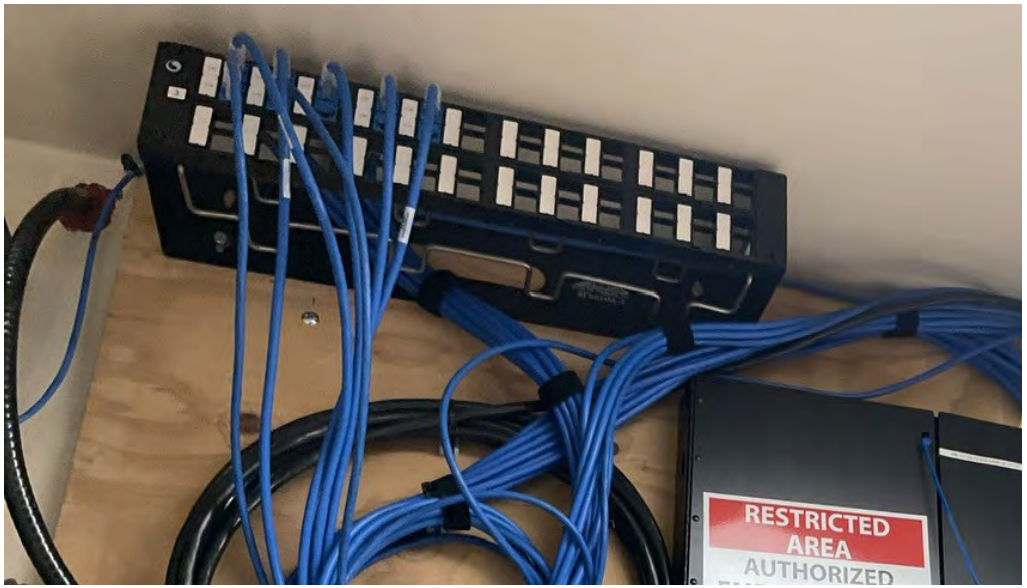
Deficiencies:

- No dedicated telecommunications room.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal 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.

Recommendations:

- Provide a dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the Administration Building (Building 65).
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

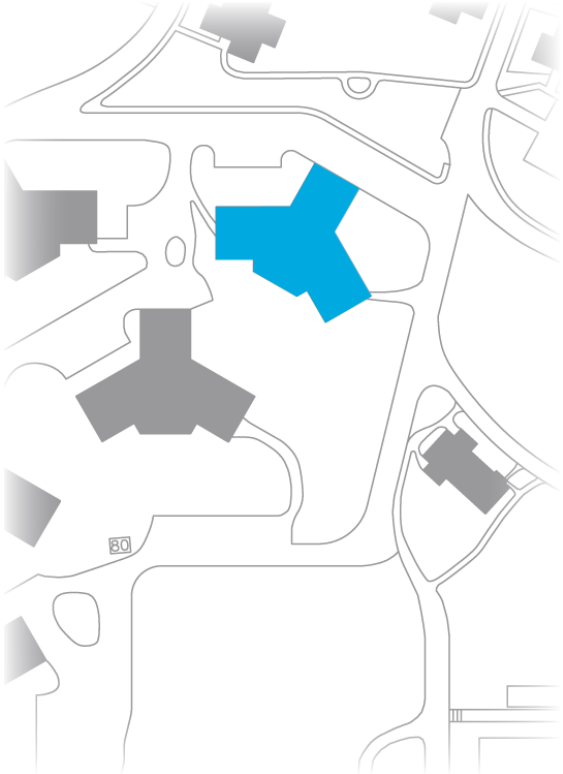
TELECOMMUNICATIONS ROOM – TR-11



Existing Category 6A Patch Panel.

Existing Fiber Cabinet.

Existing Telecommunications Space.



STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

JUNKIN WAY

Junkin way serves as a housing unit for residents with limited mobility.

TELECOMMUNICATIONS ROOM – TR-11

The telecommunications space is above the interior door of the pharmacy. There is no dedicated telecommunications room. It consists of a vertical wall mounted rack mount bracket supporting a network switch and a UPS. It also includes a wall mount fiber cabinet, two wall mounted patch panels, and a 110 block. Connectivity is provided by 6-strand OM1 multi-mode and 12-strand single-mode optical fiber backbone cables from the Administration Building (Building 65). Voice service to the building is provided by a 25-pair twisted-pair backbone cable from the 200 Apartments (Building 66). Existing horizontal cabling is a mix of Category 5e and Category 6A for data applications and Category 3 for voice applications. Neither a telecommunications grounding busbar nor dedicated cooling were observed within the room. Electrical infrastructure is not standards compliant.

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. While the existing Category 6A horizontal cabling meets current standards, the existing Category 5e and 3 cabling utilized does not meet standards and should be upgraded to Category 6A. 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:

- No dedicated telecommunications room.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal 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.

Recommendations:

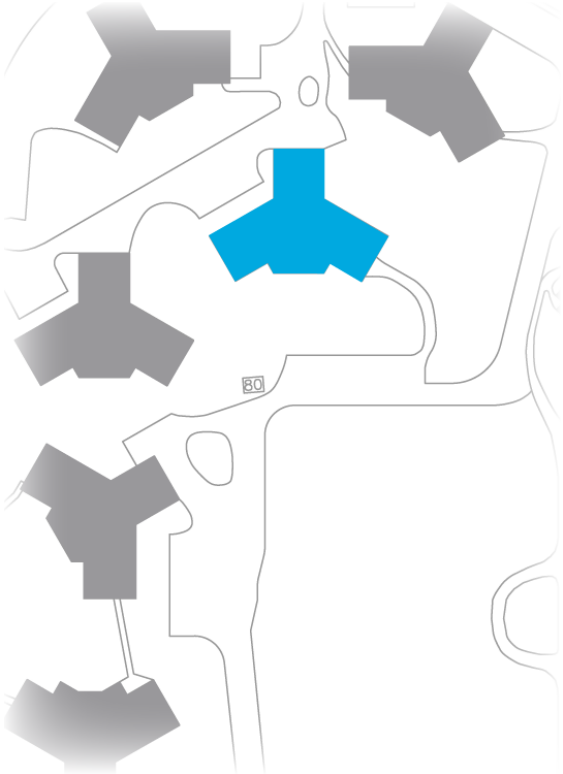
- Provide a dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the Administration Building (Building 65).
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

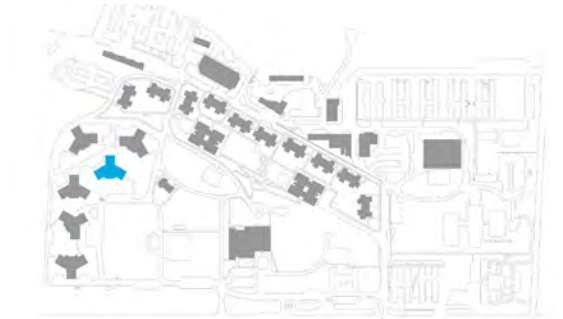
TELECOMMUNICATIONS ROOM – TR-11

Existing Category 6A Patch Panel.

Existing Telecommunications Space.

Existing Fiber Patching.





STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

ELM

Elm serves as a housing unit for residents with limited mobility.

TELECOMMUNICATIONS ROOM – TR-11

The telecommunications space is above the interior door of the pharmacy. There is no dedicated telecommunications room. It consists of a vertical wall mounted bracket supporting a network switch and a UPS. It also includes a wall mount fiber cabinet, two wall mounted patch panels, and a 110 block. Connectivity is provided by a 6-strand OM1 multi-mode optical fiber backbone cable from the Fiber Shed Building (Building 63) and a 12-strand single-mode optical fiber backbone cable from the Administration Building (Building 65). Voice service to the building is provided by a 25-pair twisted-pair backbone cable from the 200 Apartments (Building 66). Existing horizontal cabling is a mix of Category 5e and Category 6A for data applications and Category 3 for voice applications. Neither a telecommunications grounding busbar nor dedicated cooling were observed within the room. Electrical infrastructure is not standards compliant.

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. While the existing Category 6A horizontal cabling meets current standards, the existing Category 5e and 3 cabling utilized does not meet standards and should be upgraded to Category 6A. 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.

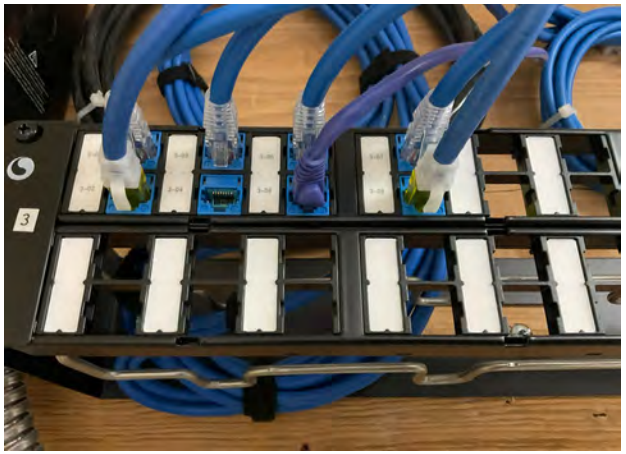
Deficiencies:

- No dedicated telecommunications room.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal 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.

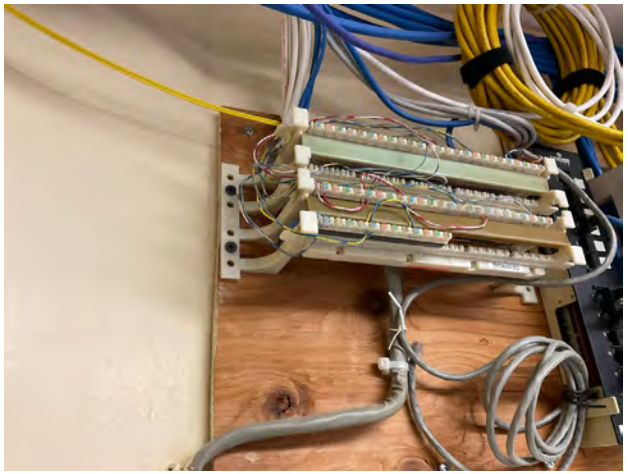
Recommendations:

- Provide a dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the Administration Building (Building 65).
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-11

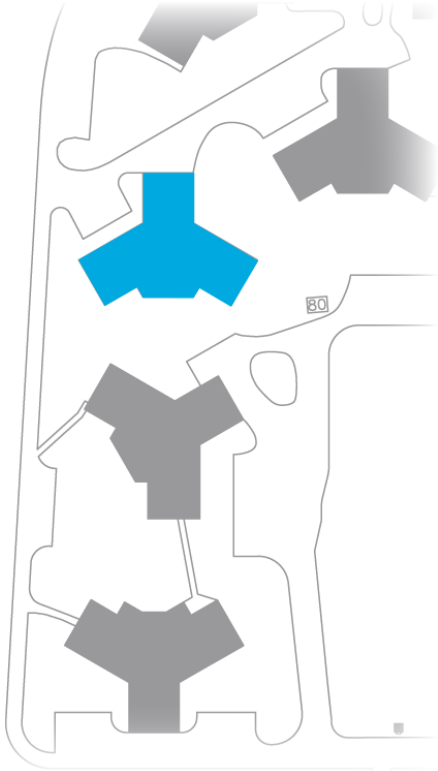


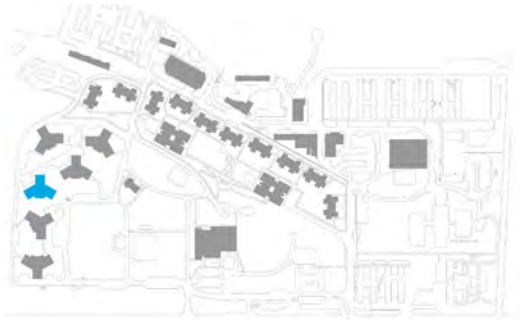
Existing Category 6A Patch Panel.



Existing Voice Patching.

Existing Telecommunications Space.





STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

CHERRY

Cherry serves as a housing unit for residents with limited mobility.

TELECOMMUNICATIONS ROOM – TR-11

The telecommunications space is above the interior door of the pharmacy. There is no dedicated telecommunications room. It consists of a vertical wall mounted bracket supporting a network switch and a UPS. It also includes a wall mount fiber cabinet, two wall mounted patch panels, and a 110 block. Connectivity is provided by a 6-strand OM1 multi-mode optical fiber backbone cable from the Fiber Shed Building (Building 63) and a 12-strand single-mode optical fiber backbone cable from the Administration Building (Building 65). Voice service to the building is provided by a 25-pair twisted-pair backbone cable from the 200 Apartments (Building 66). Existing horizontal cabling is a mix of Category 5e and Category 6A for data applications and Category 3 for voice applications. Neither a telecommunications grounding busbar nor dedicated cooling were observed within the room. Electrical infrastructure is not standards compliant.

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. While the existing Category 6A horizontal cabling meets current standards, the existing Category 5e and 3 cabling utilized does not meet standards and should be upgraded to Category 6A. 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.

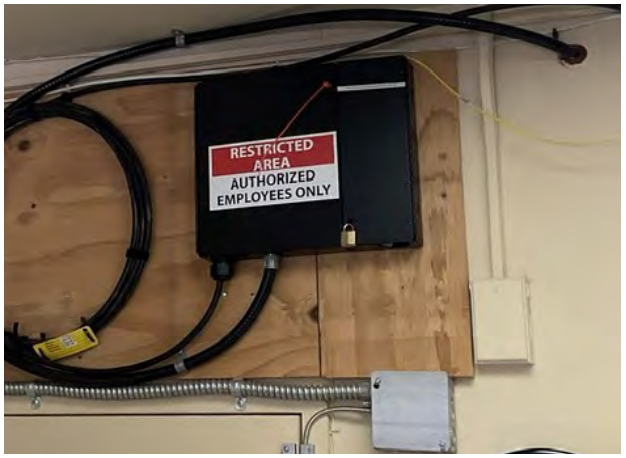
Deficiencies:

- No dedicated telecommunications room.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal 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.

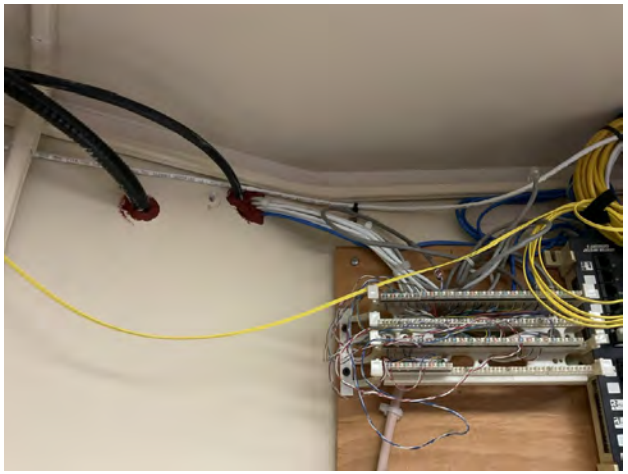
Recommendations:

- Provide a dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the Administration Building (Building 65).
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-11

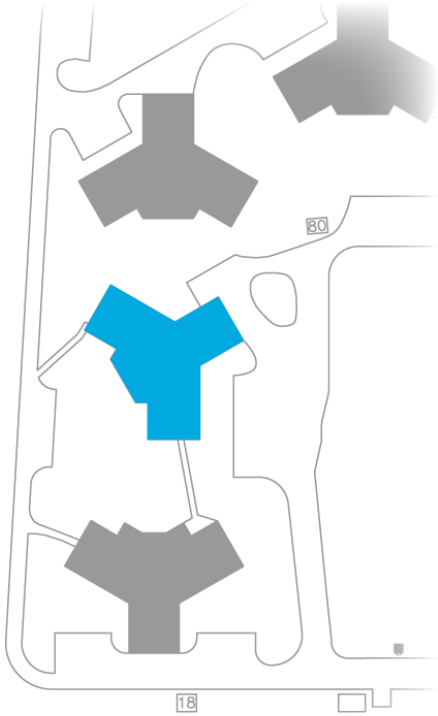


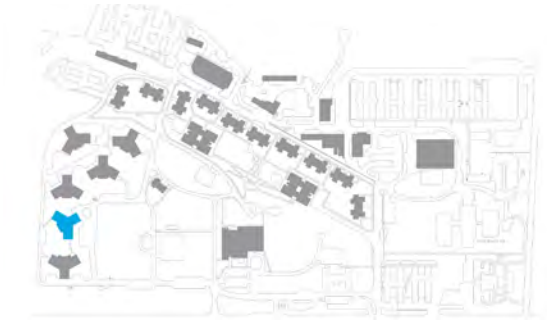
Existing Fiber Cabinet.



Existing Voice Patching.

Existing Telecommunications Space.





STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

BIRCH

Birch serves as a housing unit for residents with limited mobility.

TELECOMMUNICATIONS ROOM – TR-11

The telecommunications space is above the interior door of the pharmacy. There is no dedicated telecommunications room. It consists of a vertical wall mounted bracket supporting a network switch and a UPS. It also includes a wall mount fiber cabinet, two wall mounted patch panels, and a 110 block. Connectivity is provided by a 6-strand OM1 multi-mode optical fiber backbone cable from the Fiber Shed Building (Building 63) and a 12-strand single-mode optical fiber backbone cable from the Administration Building (Building 65). Voice service to the building is provided by a 25-pair twisted-pair backbone cable from the 200 Apartments (Building 66). Existing horizontal cabling is a mix of Category 5e and Category 6A for data applications and Category 3 for voice applications. Neither a telecommunications grounding busbar nor dedicated cooling were observed within the room. Electrical infrastructure is not standards compliant.

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. While the existing Category 6A horizontal cabling meets current standards, the existing Category 5e and 3 cabling utilized does not meet standards and should be upgraded to Category 6A. 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:

- No dedicated telecommunications room.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal 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.

Recommendations:

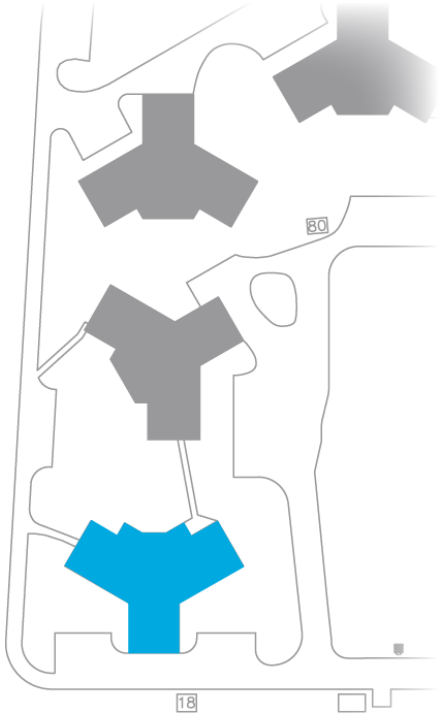
- Provide a dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the Administration Building (Building 65).
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

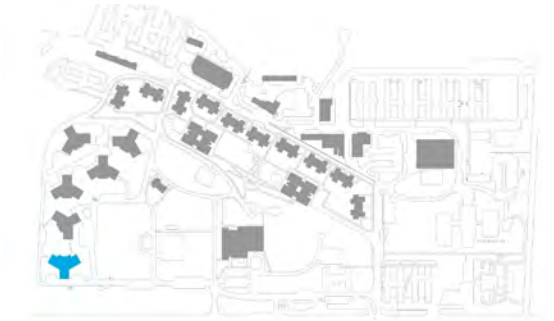
TELECOMMUNICATIONS ROOM – TR-11

Existing Fiber Cabinet.

Existing Voice Patching.

Existing Data Patching.





STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

ASPEN

Aspen serves as a housing unit for residents with limited mobility.

TELECOMMUNICATIONS ROOM – TR-14

The telecommunications space is above the interior door of the pharmacy. There is no dedicated telecommunications room. It consists of a vertical wall mounted bracket supporting a network switch and a UPS. It also includes a wall mount fiber cabinet, two wall mounted patch panels, and a 110 block. Connectivity is provided by a 6-strand OM1 multi-mode optical fiber backbone cable from the Fiber Shed Building (Building 63) and a 12-strand single-mode optical fiber backbone cable from the Administration Building (Building 65). Voice service to the building is provided by a 25-pair twisted-pair backbone cable from the 200 Apartments (Building 66). Existing horizontal cabling is a mix of Category 5e and Category 6A for data applications and Category 3 for voice applications. Neither a telecommunications grounding busbar nor dedicated cooling were observed within the room. Electrical infrastructure is not standards compliant.

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. While the existing Category 6A horizontal cabling meets current standards, the existing Category 5e and 3 cabling utilized does not meet standards and should be upgraded to Category 6A. 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:

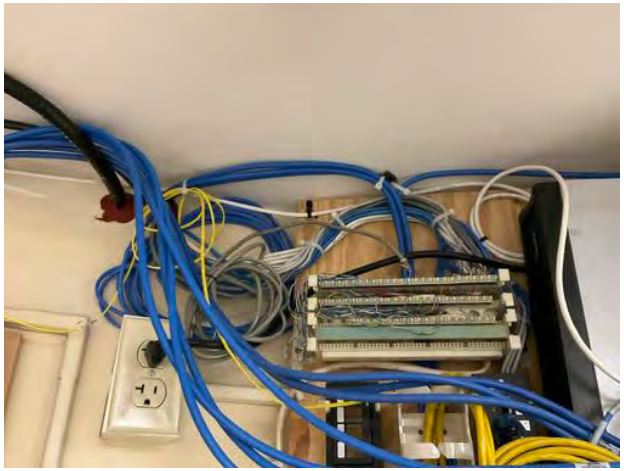
- No dedicated telecommunications room.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal cable support, leading to cables being draped or placed directly on equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Electrical infrastructure does not meet minimum requirements per standards.

Recommendations:

- Provide a dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the Administration Building (Building 65).
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

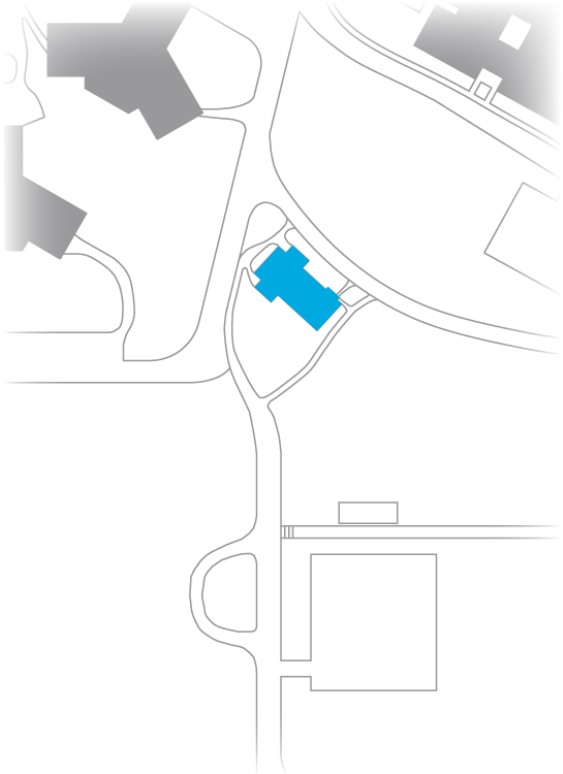
TELECOMMUNICATIONS ROOM – TR-14

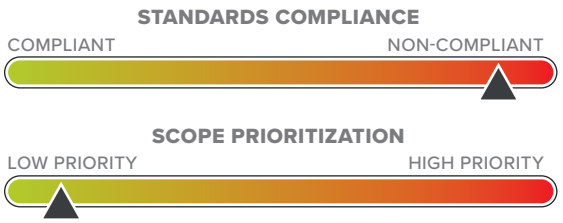
Existing Fiber Cabinet.



Existing Voice Patching.

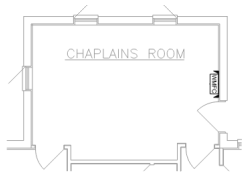
Existing Data Patching.





CHAPEL

The Chapel serves as a campus worship facility.



TELECOMMUNICATIONS ROOM – TR-CHAPEL

The telecommunications space in the Chapel is on the northeast wall inside the Chaplain's office. There is no dedicated telecommunications room. It consists of one wall mounted rack. The wall mounted rack contains a rack mount fiber cabinet. Connectivity is provided by a 12-strand single-mode optical fiber backbone cable from the Administration Building (65). Voice service to the building is provided by a 25-pair twisted-pair backbone cable from the 200 Apartments (66). Neither a telecommunications grounding busbar nor dedicated cooling were observed within the room. Electrical infrastructure is not standards compliant.

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. While the existing Category 6A horizontal cabling meets current standards, the existing Category 5e and 3 cabling utilized does not meet standards and should be upgraded to Category 6A. 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.

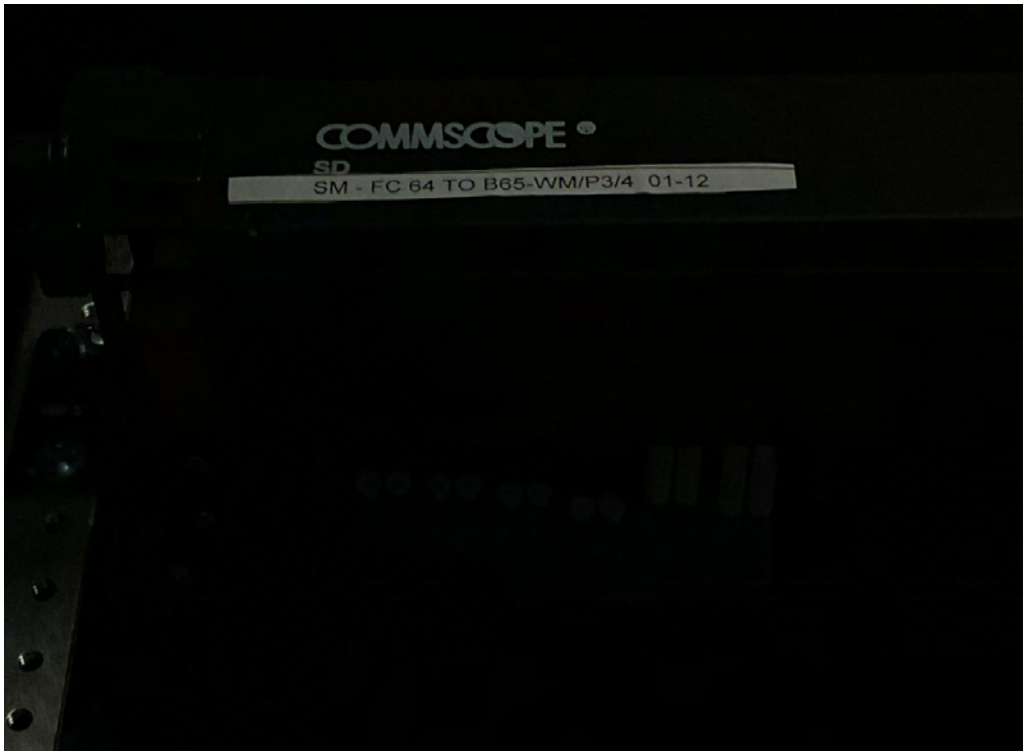
Deficiencies:

- No dedicated telecommunications room.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal 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.

Recommendations:

- Provide a dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the Administration Building (Building 65).
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-CHAPEL



Existing Fiber Cabinet.

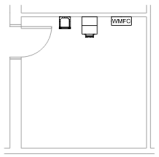
STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

ADMINISTRATION & MEDICAL SERVICES



The Administration & Medical Services contains the administrative and medical offices for the campus.

TELECOMMUNICATIONS ROOM – TR-ADMIN

Telecommunications Room TR-Admin contains multiple wall mounted telecommunications racks, wall mounted 110-blocks, and a wall mount fiber cabinet. TR-Admin is a primary hub for fiber optic backbone cabling and has OM1 multi-mode and single-mode optical fiber backbone cable connections to numerous buildings on campus. Connectivity to the MER in Building 66 is provided by a 12 strand OM1 multi-mode, and 144-strand and 24-strand single-mode optical fiber backbone cables. Existing horizontal cabling is a mix of Category 5e and Category 6A for data applications and Category 5 and 5e for voice applications. While it is a dedicated telecommunications room, it is being utilized as a Main Equipment Room. It is a primary hub for optical fiber backbone cabling and contains multiple core fiber network switches. There are plumbing, HVAC, and sprinkler pipes running through the space. The electrical infrastructure and telecommunications grounding are both inadequate for a space of this type.

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. While the existing Category 6A horizontal cabling meets current standards, the existing Category 5 and 5e cabling utilized does not meet standards and should be upgraded to Category 6A. 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.

TELECOMMUNICATIONS ROOM – TR-ADMIN

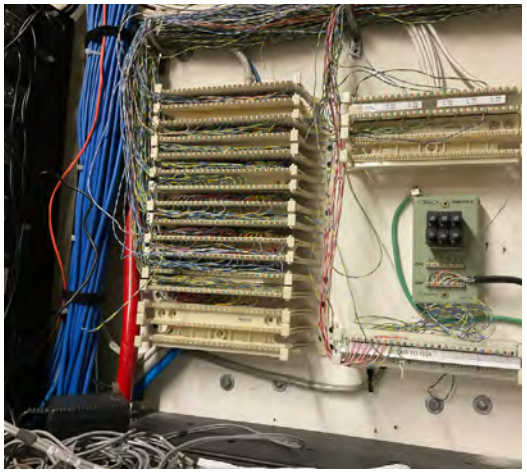
Deficiencies:

- Space is inadequate for use.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal cable support, leading to cables being draped or placed directly on equipment.
- No grounding busbar for the telecommunications equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Electrical infrastructure does not meet minimum requirements per standards.
- Plumbing, HVAC, and sprinkler lines route through the space.

Recommendations:

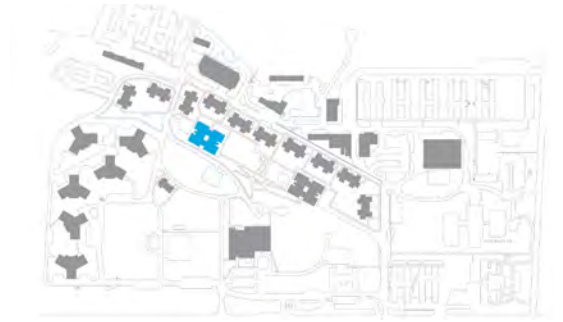
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OM4 multi-mode optical fiber backbone to replace all existing OM1.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.

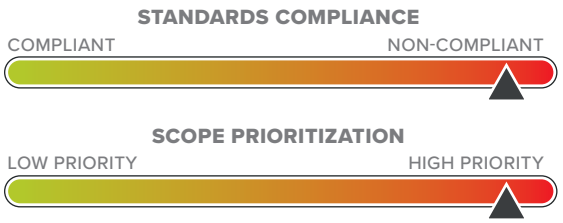
Existing Data Patching.



Existing Voice Patching.

Existing Decommissioned Telecom Rack.





ADMINISTRATION & MEDICAL SERVICES

The Administration & Medical Services contains the administrative and medical offices for the campus.

TELECOMMUNICATIONS ROOM – TR-1-8

Telecommunications Room TR-1-8 contains a single wall mounted enclosure with a patch panel, switch, and UPS. The room is served by copper backbone only. Existing horizontal cabling is a mix of Category 5e and Category 6A for data applications and Category 5 and 5e for voice applications. It is not a dedicated telecommunications room. Neither a telecommunications grounding busbar nor dedicated cooling were observed.

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. While the existing Category 6A horizontal cabling meets current standards, the existing Category 5 and 5e cabling utilized does not meet standards and should be upgraded to Category 6A. 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:

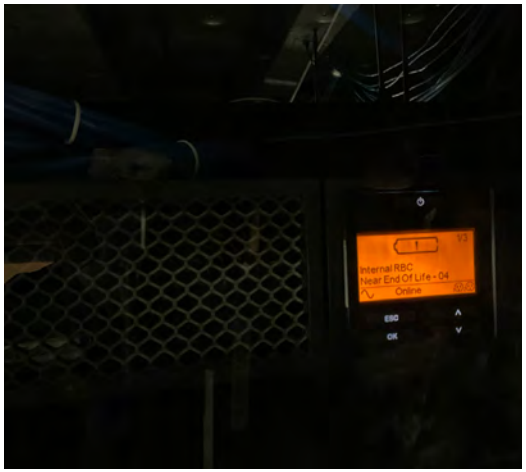
- No dedicated telecommunications room.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal cable support, leading to cables being draped or placed directly on equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Electrical infrastructure does not meet minimum requirements per standards.

Recommendations:

- Provide a dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the Administration Building (Building 65).
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-1-8

Existing Data Patching.



Existing UPS.

Existing Telecom Rack.

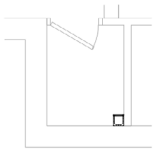
STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

ADMINISTRATION & MEDICAL SERVICES



The Administration & Medical Services contains the administrative and medical offices for the campus.

TELECOMMUNICATIONS ROOM – TR-122A

Telecommunications Room TR-122A contains a single wall mounted rack with patch panels, switches, and a UPS. The room is served by copper backbone only. Existing horizontal cabling is a mix of Category 5e and Category 6A for data applications and Category 5 and 5e for voice applications. The rack is grounded but there is no telecommunications grounding busbar. Dedicated cooling was not observed. The room appears to be a dedicated telecommunications room, but there is no cable management, leading to cables being draped over equipment in the room. There is one dedicated equipment duplex receptacle, not two circuits per standards.

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. While the existing Category 6A horizontal cabling meets current standards, the existing Category 5 and 5e cabling utilized does not meet standards and should be upgraded to Category 6A. 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.
- Minimal cable support, leading to cables being draped or placed directly on equipment.
- No grounding busbar for the telecommunications equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Electrical infrastructure does not meet minimum requirements per standards.

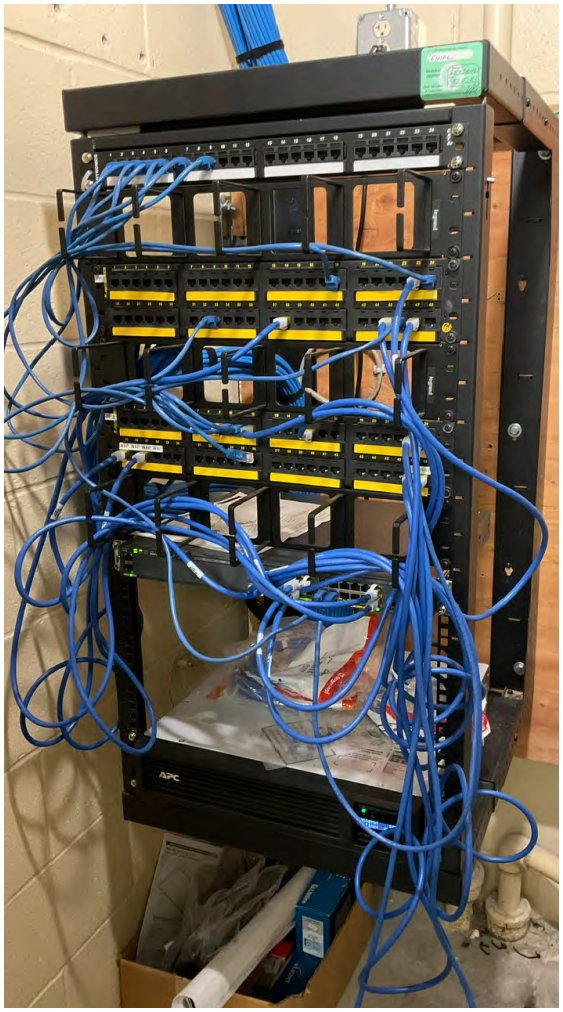
Recommendations:

- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the Administration Building (Building 65).
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

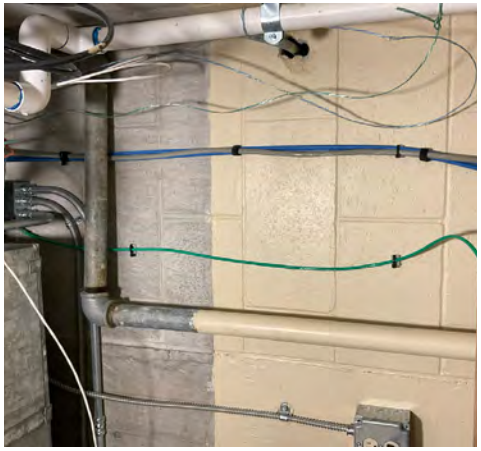
TELECOMMUNICATIONS ROOM – TR-122A

Existing Data Patching.

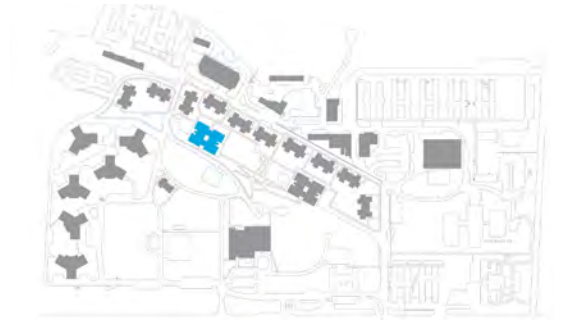
Existing Conduit Pathway.

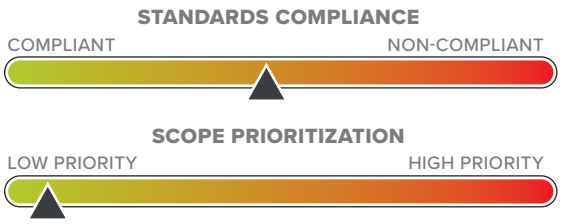


Existing Telecom Rack.

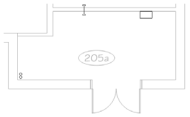


Existing Grounding.





ADMINISTRATION & MEDICAL SERVICES



The Administration & Medical Services contains the administrative and medical offices for the campus.

TELECOMMUNICATIONS ROOM – TR-205A

Telecommunications Room TR-205A contains multiple 110-blocks for voice cross-connect, wall mounted patch panels, wall mounted switches, and a UPS. The room is served by copper backbone only. Existing horizontal cabling is a mix of Category 5e and Category 6A for data applications and Category 5 and 5e for voice applications. Neither a telecommunications grounding busbar nor dedicated cooling were observed within the room. The room is a dedicated telecommunications room, but there is no cable management, leading to cables being draped over equipment in the room. Electrical infrastructure appears standards compliant. There are two dedicated equipment duplex receptacles, circuiting could not be verified.

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. While the existing Category 6A horizontal cabling meets current standards, the existing Category 5 and 5e cabling utilized does not meet standards and should be upgraded to Category 6A. 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.

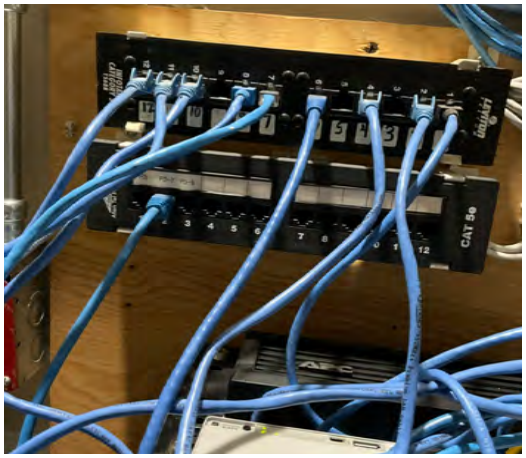
Deficiencies:

- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal cable support, leading to cables being draped or placed directly on equipment.
- No grounding busbar for the telecommunications equipment.
- No dedicated cooling system to maintain temperature of equipment.

Recommendations:

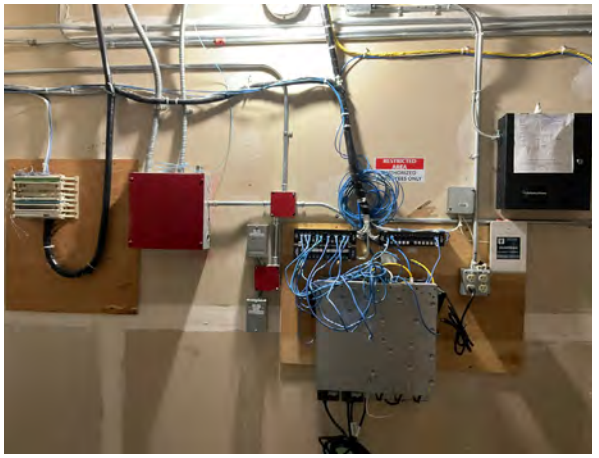
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the Administration Building (Building 65).
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-205A

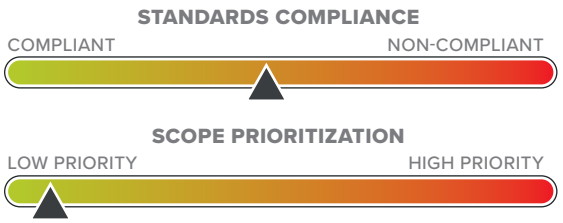


Existing Data Patching.

Existing Voice Patching.



Existing Wall Elevation.



ADMINISTRATION & MEDICAL SERVICES

The Administration & Medical Services contains the administrative and medical offices for the campus.

TELECOMMUNICATIONS ROOM – TR-205B

Telecommunications Room TR-205B contains multiple 110-blocks for voice cross-connect, wall mounted patch panels, wall mounted switches, and a UPS. The room is served by copper backbone only. Existing horizontal cabling is a mix of Category 5e and Category 6A for data applications and Category 5 and 5e for voice applications. Neither a telecommunications grounding busbar nor dedicated cooling were observed within the room. The room appears to be a dedicated telecommunications room, but there is no cable management, leading to cables being draped over equipment in the 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. While the existing Category 6A horizontal cabling meets current standards, the existing Category 5 and 5e cabling utilized does not meet standards and should be upgraded to Category 6A. 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:

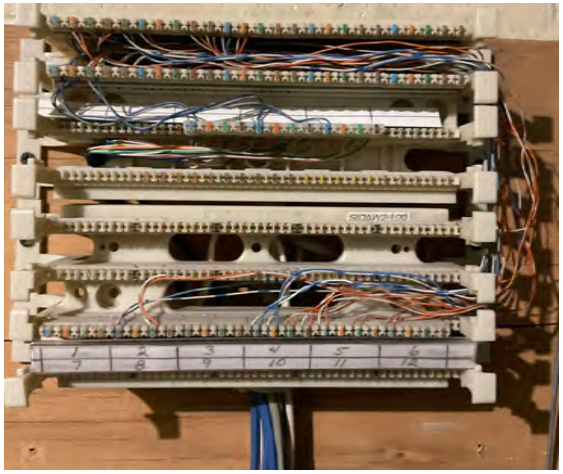
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal cable support, leading to cables being draped or placed directly on equipment.
- No grounding busbar for the telecommunications equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Electrical infrastructure does not meet minimum requirements per standards.

Recommendations:

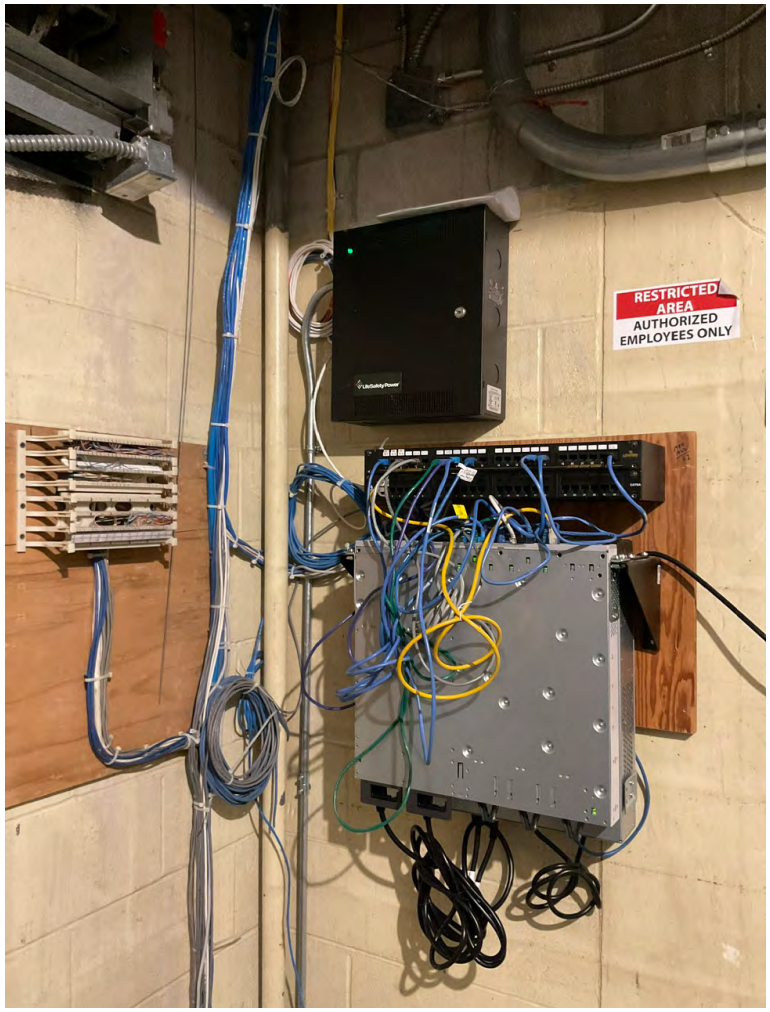
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the Administration Building (Building 65).
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-205B

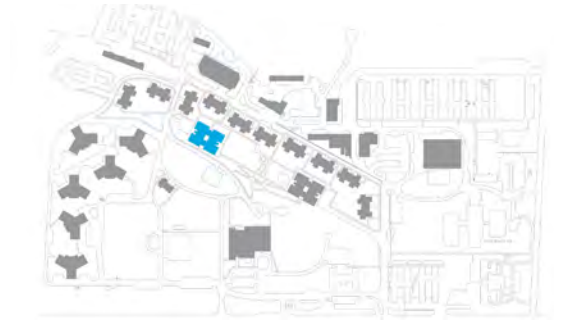
Existing Data Patching.

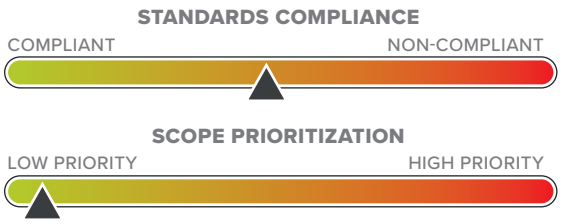


Existing Conduit Pathway.

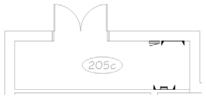


Existing Wall Elevation.





ADMINISTRATION & MEDICAL SERVICES



The Administration & Medical Services contains the administrative and medical offices for the campus.

TELECOMMUNICATIONS ROOM – TR-205C

Telecommunications Room TR-205C contains multiple 110-blocks for voice cross-connect, wall mounted patch panels and wall mounted switches. The room is served by copper backbone only. Existing horizontal cabling is a mix of Category 5e and Category 6A for data applications and Category 5 and 5e for voice applications. Neither a telecommunications grounding busbar nor dedicated cooling were observed within the room. The room is a dedicated telecommunications room, but there is no cable management, leading to cables being draped over equipment in the room. Electrical infrastructure appears standards compliant. There are two dedicated equipment duplex receptacles, circuiting could not be verified.

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. While the existing Category 6A horizontal cabling meets current standards, the existing Category 5 and 5e cabling utilized does not meet standards and should be upgraded to Category 6A. 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:

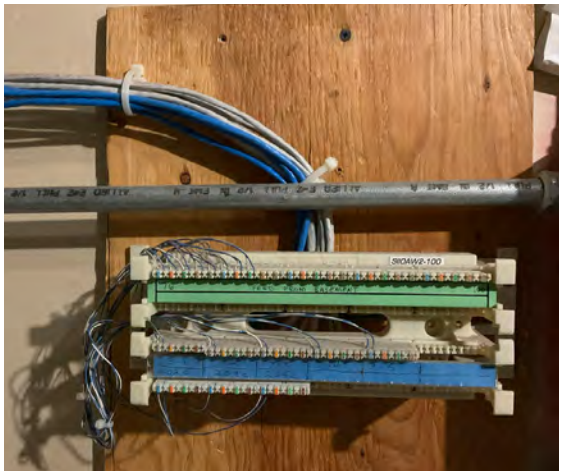
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal cable support, leading to cables being draped or placed directly on equipment.
- No grounding busbar for the telecommunications equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Electrical infrastructure does not meet minimum requirements per standards.

Recommendations:

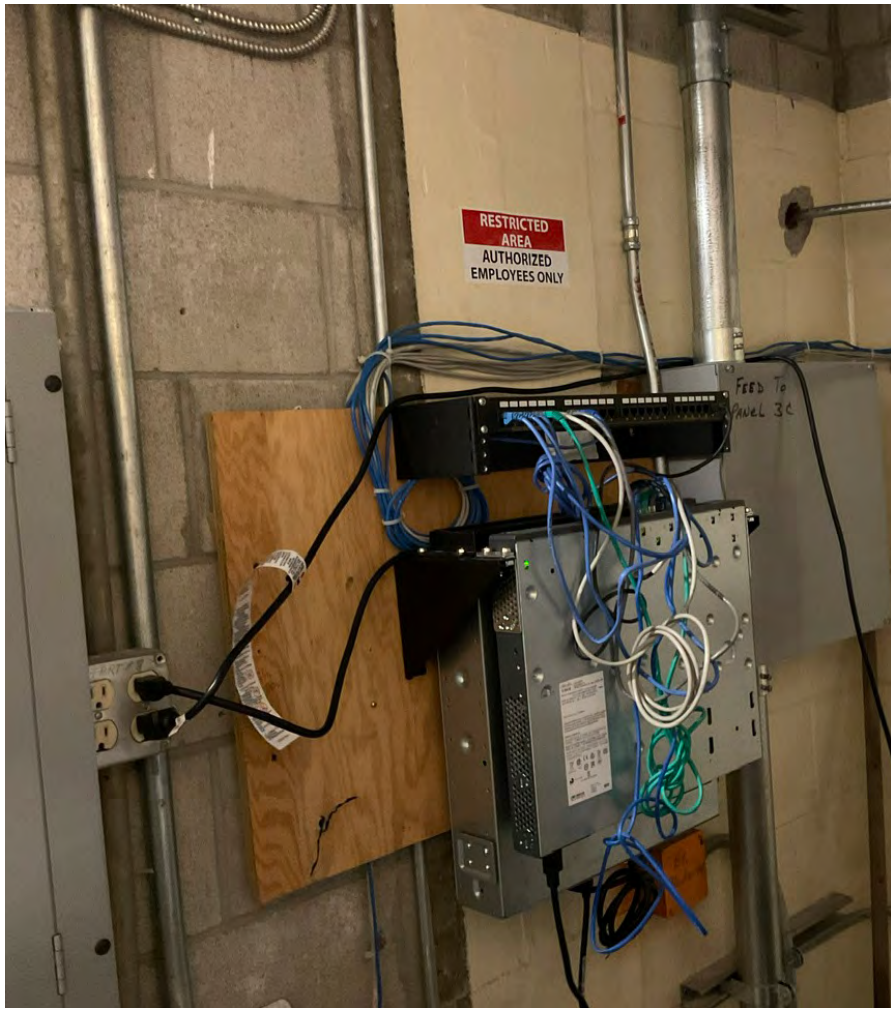
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the Administration Building (Building 65).
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-205C

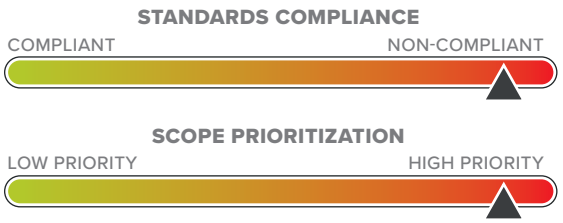
Existing Data Patching.



Existing Voice Patching.



Existing Wall Elevation.



ADMINISTRATION & MEDICAL SERVICES

The Administration & Medical Services contains the administrative and medical offices for the campus.

TELECOMMUNICATIONS ROOM – TR-205D

Telecommunications Room TR-205D used to be a janitor's closet. It contains multiple 110-blocks for voice cross-connect, wall mounted patch panels, wall mounted switch, and a UPS. The room is served by copper backbone only. There is no room for future growth. Existing horizontal cabling is a mix of Category 5e and Category 6A for data applications and Category 5 and 5e for voice applications. Neither a telecommunications grounding busbar nor dedicated cooling were observed within the room. The room is a dedicated telecommunications room, but there is no cable management, leading to cables being draped over equipment in the room.

Due to the room's small size, it is recommended to abandon the telecom room and re-route all cabling to TR-205A.

Deficiencies:

» The telecommunications room is inadequately sized.
» Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
» Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
» Minimal cable support, leading to cables being draped or placed directly on equipment.
» No grounding busbar for the telecommunications equipment.
» No dedicated cooling system to maintain temperature of equipment.
» Electrical infrastructure does not meet minimum requirements per standards.

Recommendations:

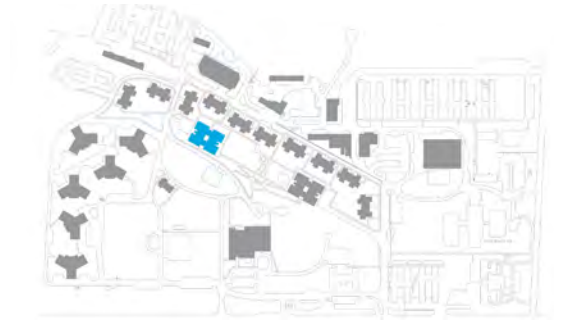
» Abandon the room and re-route all cabling to TR-205A.

TELECOMMUNICATIONS ROOM – TR-205D

Existing Data Patching.

Existing Voice Patching.

Existing Wall Elevation.



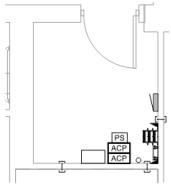
STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

ADMINISTRATION & MEDICAL SERVICES



The Administration & Medical Services contains the administrative and medical offices for the campus.

TELECOMMUNICATIONS ROOM – TR-301C

Telecommunications Room TR-301C contains multiple 110-blocks for voice cross-connect, wall mounted patch panels, a wall mounted switch, and a UPS. There is a grounding busbar present. The room is served by copper backbone only. Existing horizontal cabling is a mix of Category 5e and Category 6A for data applications and Category 5 and 5e for voice applications. Dedicated cooling was observed within the room. The room is a dedicated telecommunications room, but there is no cable management, leading to cables being draped over equipment in the 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. While the existing Category 6A horizontal cabling meets current standards, the existing Category 5 and 5e cabling utilized does not meet standards and should be upgraded to Category 6A. 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.

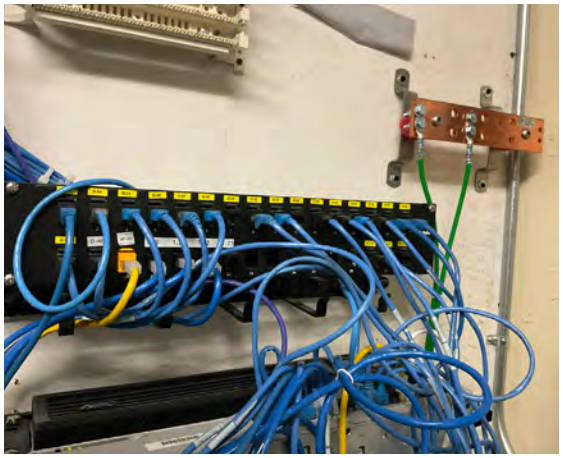
Deficiencies:

» Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
» Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
» Minimal 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.

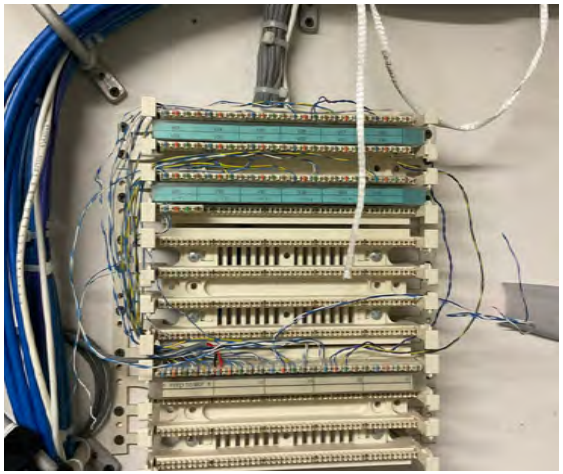
Recommendations:

» Upgrade existing port locations to Category 6A.
» Provide labels for all new cabling and existing cables to remain.
» Add additional Category 6A 8P8C RJ45 ports to meet standards.
» Provide new 12-strand OM4 multi-mode optical fiber backbone from the Administration Building (Building 65).
» Add ladder tray and cable management as needed.
» Add dedicated cooling system.
» Add power circuits and receptacles as needed.
» Control access to authorized individuals.

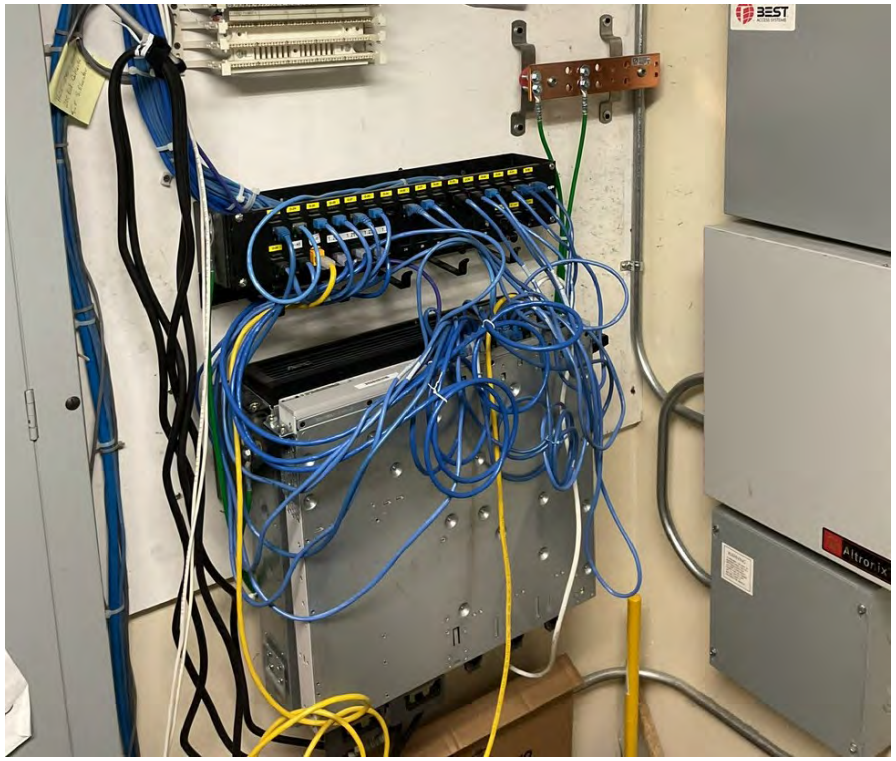
TELECOMMUNICATIONS ROOM – TR-301C



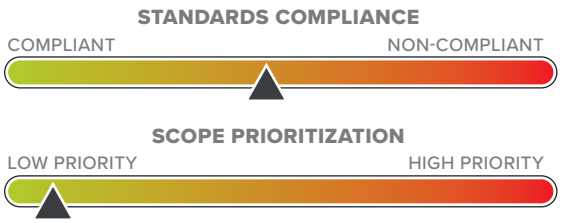
Existing Data Patching.



Existing Voice Patching.



Existing Grounding.



ADMINISTRATION & MEDICAL SERVICES

The Administration & Medical Services contains the administrative and medical offices for the campus.

TELECOMMUNICATIONS ROOM – TR-304A

Telecommunications Room TR-304A contains multiple 110-blocks for voice cross-connect, wall mounted patch panels, a wall mounted switch, and a UPS. The room is served by copper backbone only. Existing horizontal cabling is a mix of Category 5e and Category 6A for data applications and Category 5 and 5e for voice applications. Dedicated cooling was observed within the room. The room is a dedicated telecommunications room, but there is no cable management, leading to cables being draped over equipment in the 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. While the existing Category 6A horizontal cabling meets current standards, the existing Category 5 and 5e cabling utilized does not meet standards and should be upgraded to Category 6A. 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.

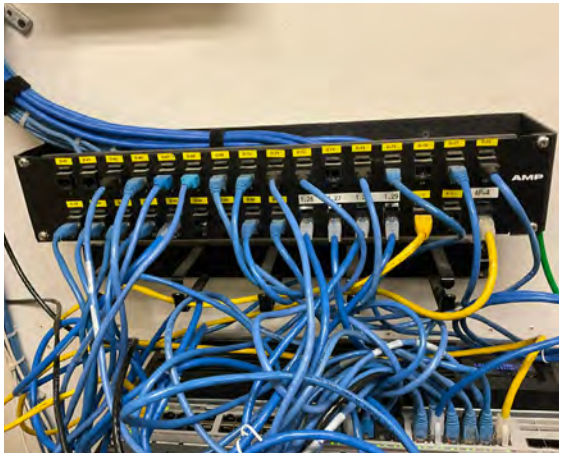
Deficiencies:

» Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
» Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
» Minimal 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.

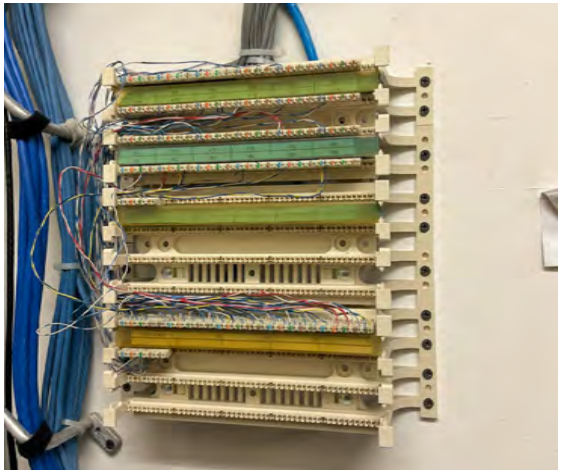
Recommendations:

» Upgrade existing port locations to Category 6A.
» Provide labels for all new cabling and existing cables to remain.
» Add additional Category 6A 8P8C RJ45 ports to meet standards.
» Provide new 12-strand OM4 multi-mode optical fiber backbone from the Administration Building (Building 65).
» Add ladder tray and cable management as needed.
» Add dedicated cooling system.
» Add power circuits and receptacles as needed.
» Control access to authorized individuals.

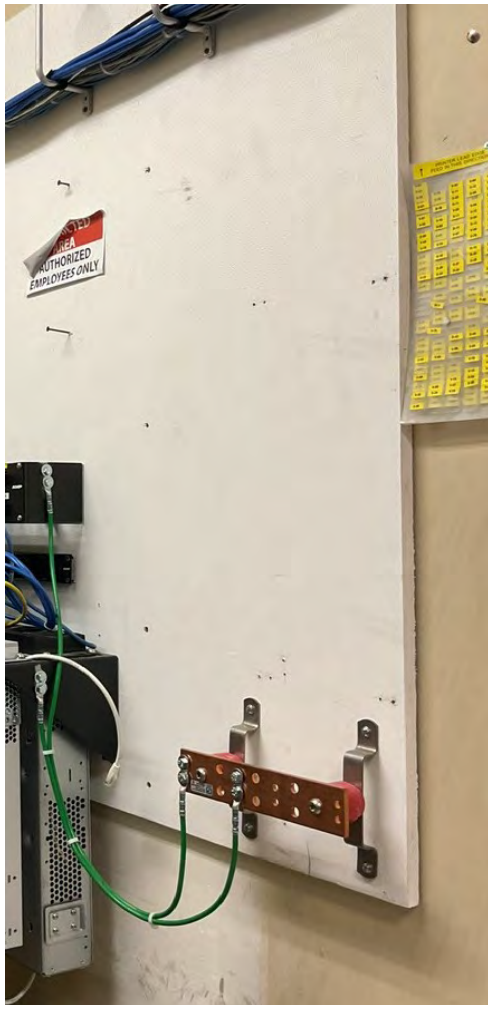
TELECOMMUNICATIONS ROOM – TR-304A



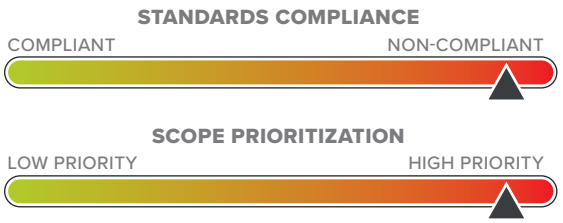
Existing Data Patching.



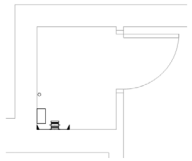
Existing Voice Patching.



Existing Grounding.



ADMINISTRATION & MEDICAL SERVICES



The Administration & Medical Services contains the administrative and medical offices for the campus.

TELECOMMUNICATIONS ROOM – TR-311D

Telecommunications Room TR-311D contains multiple 110-blocks for voice cross-connect, wall mounted patch panels, and a wall mounted switch. There is a grounding busbar available. The room is served by copper backbone only. Existing horizontal cabling is a mix of Category 5e and Category 6A for data applications and Category 5 and 5e for voice applications. Dedicated cooling was observed within the room. There is no cable management, leading to cables being draped over equipment in the room. There is no room for future growth.

Due to the room's small size, it is recommended to abandon the telecom room and re-route all cabling to TR-304A.

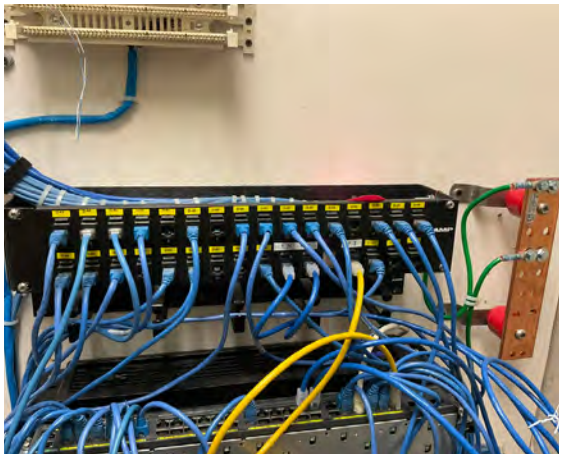
Deficiencies:

- The telecommunications room is inadequately sized.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal cable support, leading to cables being draped or placed directly on equipment.
- No grounding busbar for the telecommunications equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Electrical infrastructure does not meet minimum requirements per standards.

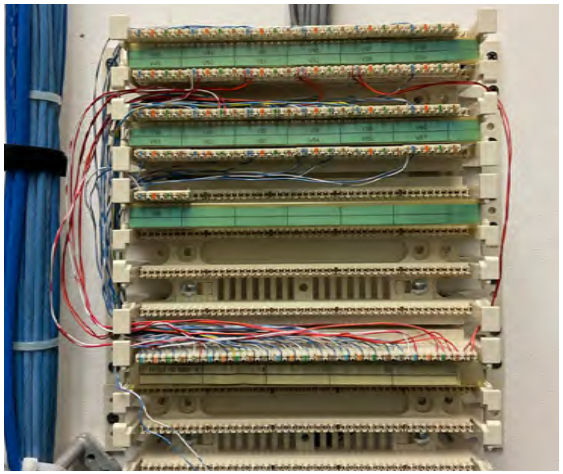
Recommendations:

- Abandon the room and re-route all cabling to TR-304A.

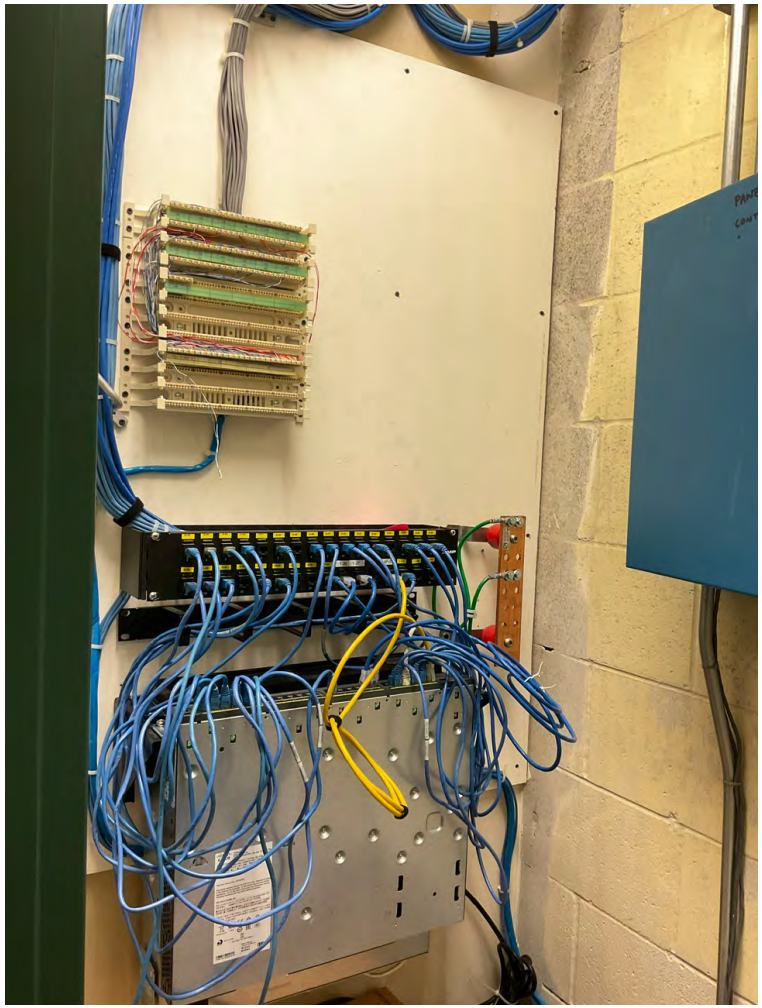
TELECOMMUNICATIONS ROOM – TR-311D



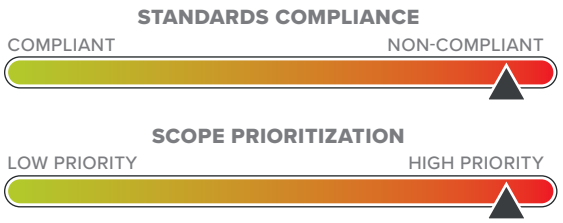
Existing Data Patching.



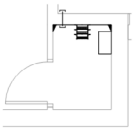
Existing Voice Patching.



Existing Wall Elevation.



ADMINISTRATION & MEDICAL SERVICES



The Administration & Medical Services contains the administrative and medical offices for the campus.

TELECOMMUNICATIONS ROOM – TR-313B

Telecommunications Room TR-313B used to be a janitor's closet. It contains multiple 110-blocks for voice cross-connect, wall mounted patch panels, a wall mounted switch, and a UPS. The room is served by copper backbone only. Existing horizontal cabling is a mix of Category 5e and Category 6A for data applications and Category 5 and 5e for voice applications. Neither a telecommunications grounding busbar nor dedicated cooling were observed within the room. There is no cable management, leading to cables being draped over equipment in the room. There is no room for future growth.

Due to the room's small size, it is recommended to abandon the telecom room and re-route all cabling to TR-304A.

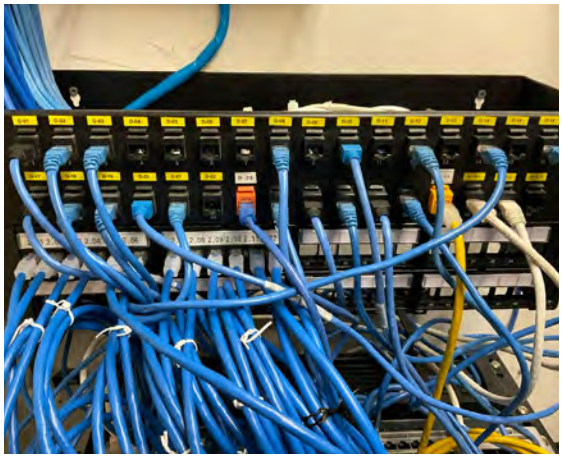
Deficiencies:

» The telecommunications room is inadequately sized.
» Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
» Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
» Minimal cable support, leading to cables being draped or placed directly on equipment.
» No grounding busbar for the telecommunications equipment.
» No dedicated cooling system to maintain temperature of equipment.
» Electrical infrastructure does not meet minimum requirements per standards.

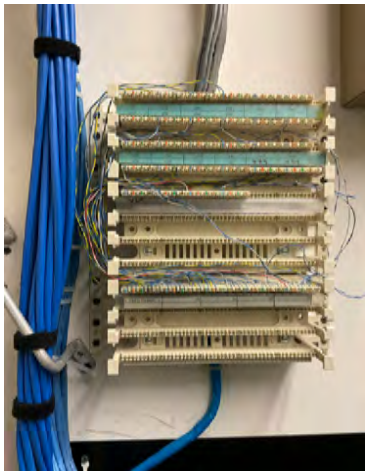
Recommendations:

» Abandon the room and re-route all cabling to TR-301C.

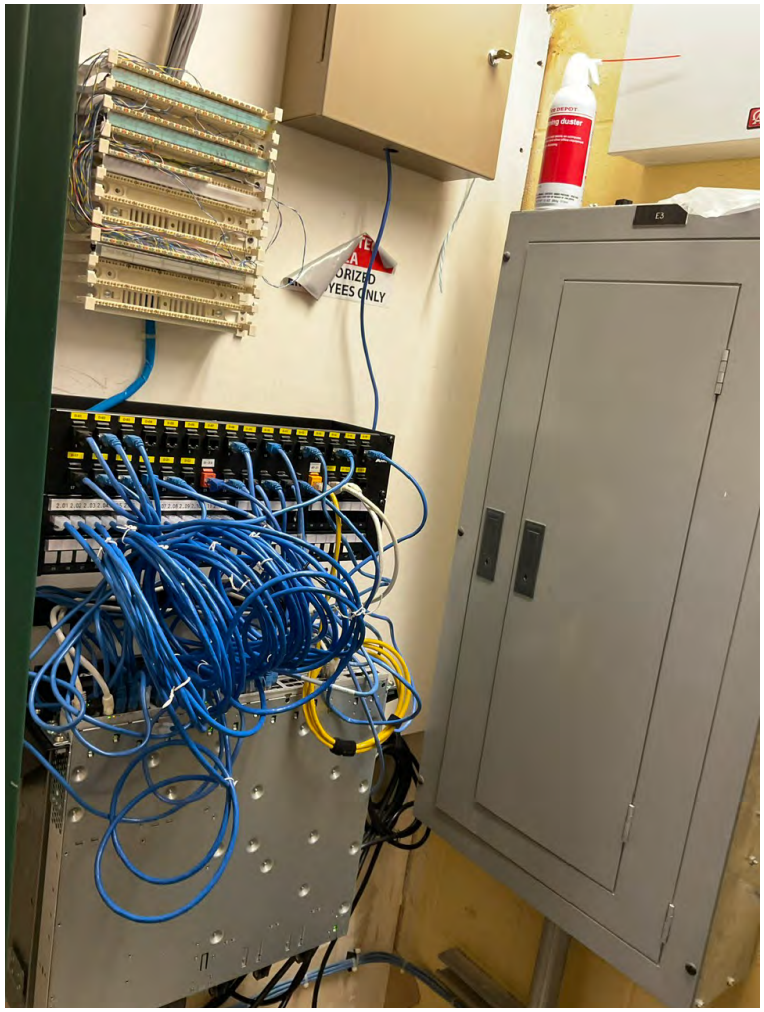
TELECOMMUNICATIONS ROOM – TR-313B



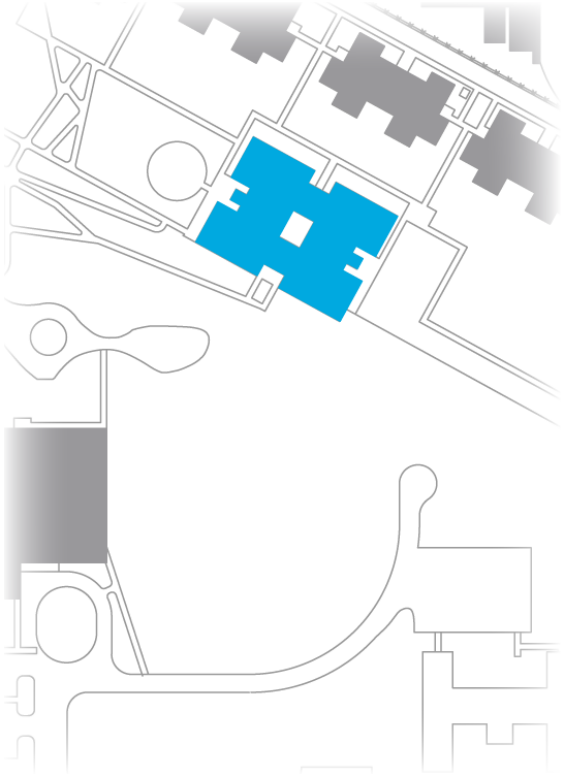
Existing Data Patching.

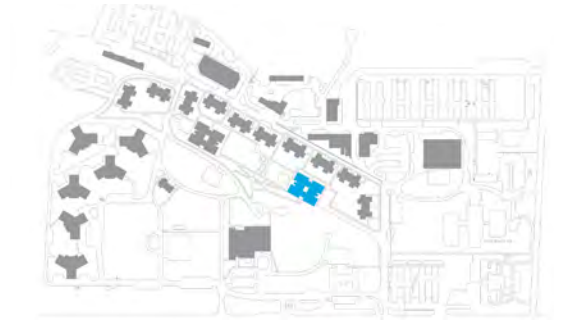


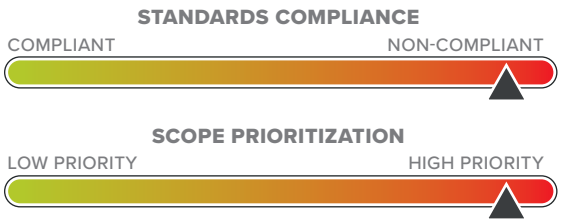
Existing Voice Patching.



Existing Wall Elevation.







200 APARTMENTS

The 200 Apartments contains the Main Equipment Room for the campus. All twisted-pair copper backbone infrastructure for voice service originates from this building.

TELECOMMUNICATIONS ROOM – TR-1-19B

Telecommunications Room TR-1-19B contains multiple 110-blocks for voice cross-connect, wall mounted patch panels, and wall mounted switches. There is a grounding busbar present. The room is served by copper backbone only. Existing horizontal cabling is a mix of Category 5e and Category 6A for data applications and Category 5 and 5e for voice applications. Neither a telecommunications grounding busbar nor dedicated cooling were observed within the room. There is no cable management, leading to cables being draped over equipment in the room. There is no room for future growth.

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. While the existing Category 6A horizontal cabling meets current standards, the existing Category 5 and 5e cabling utilized does not meet standards and should be upgraded to Category 6A. 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.

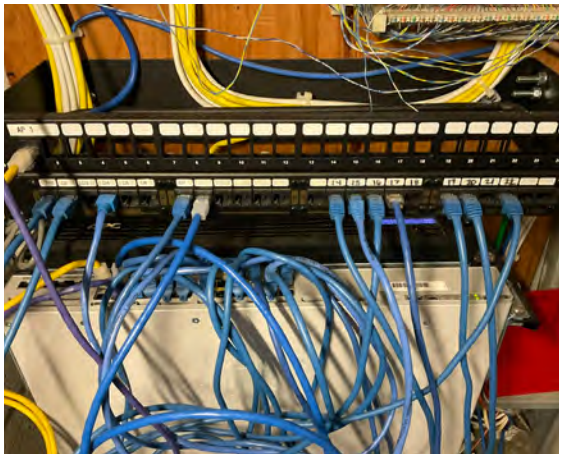
Deficiencies:

- Space is inadequate for future expansion.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal 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.

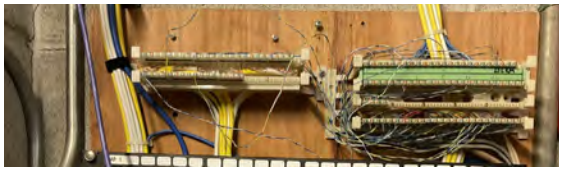
Recommendations:

- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from the 200 Apartments Building (Building 66).
- Add ladder tray and cable management as needed.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

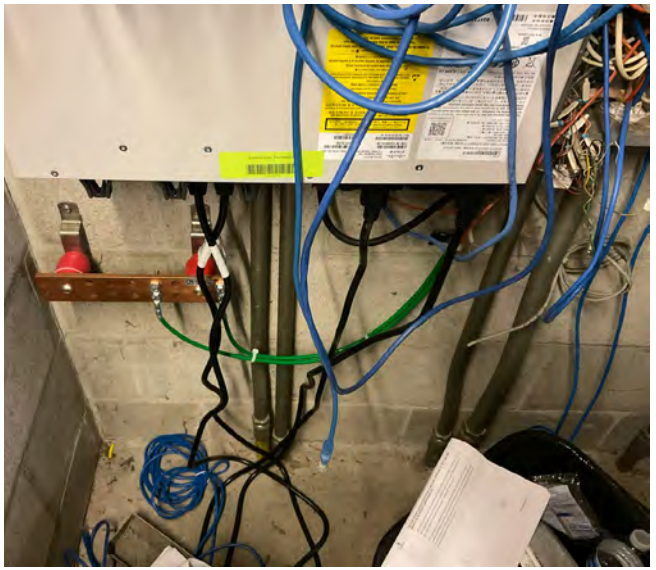
TELECOMMUNICATIONS ROOM – TR-1-19B



Existing Data Patching.

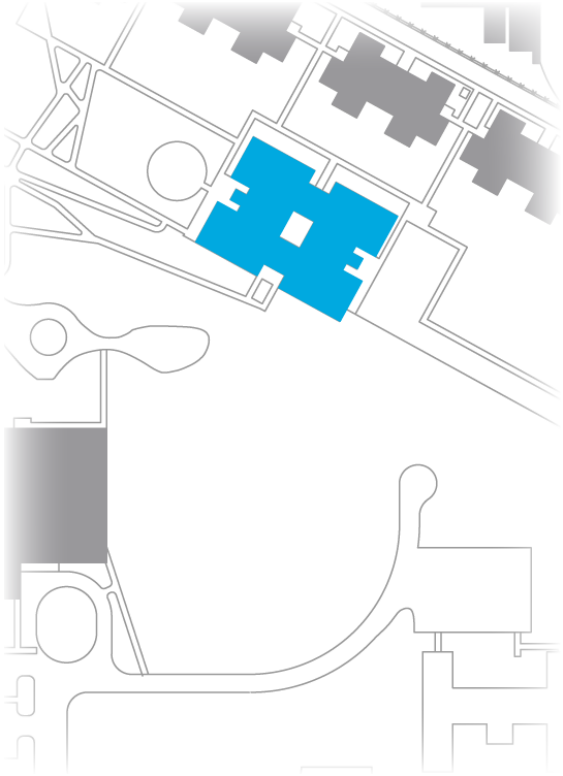


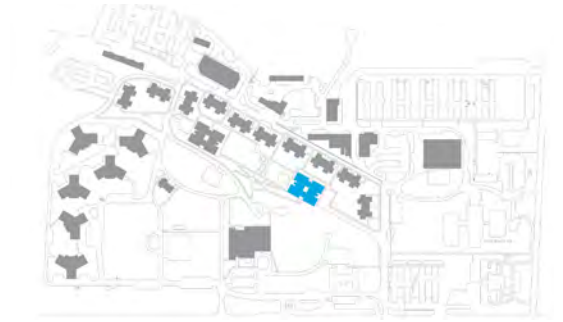
Existing Voice Patching.

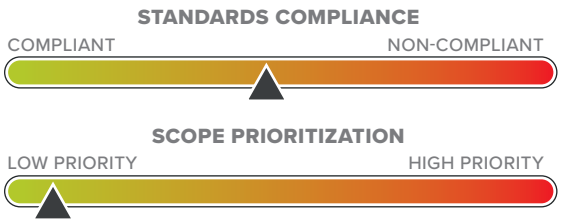


Existing Grounding.

Existing Wall Elevation.

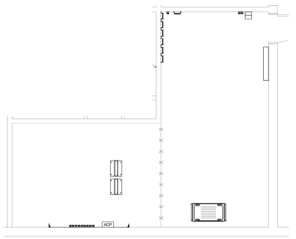






200 APARTMENTS

The 200 Apartments contains the Main Equipment Room for the campus. All twisted-pair copper backbone infrastructure for voice service originates from this building.



MAIN EQUIPMENT ROOM – MER-1-7

The Main Equipment Room contains three telecommunications racks. One rack is dedicated for the phone equipment, while the other two racks contain core switches and rack mount fiber cabinets. The walls contain building entrance protectors for the campus wide twisted-pair copper backbone cable. There are overhead ladder trays for cable management. There is space for additional racks in the room. Existing horizontal cabling is a mix of Category 5e and Category 6A for data applications and Category 5 and 5e for voice applications. The existing fiber optic back bone cable is a combination of OM1 multi-mode and single mode.

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. While the existing Category 6A horizontal cabling meets current standards, the existing Category 5 and 5e cabling utilized does not meet standards and should be upgraded to Category 6A. 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.

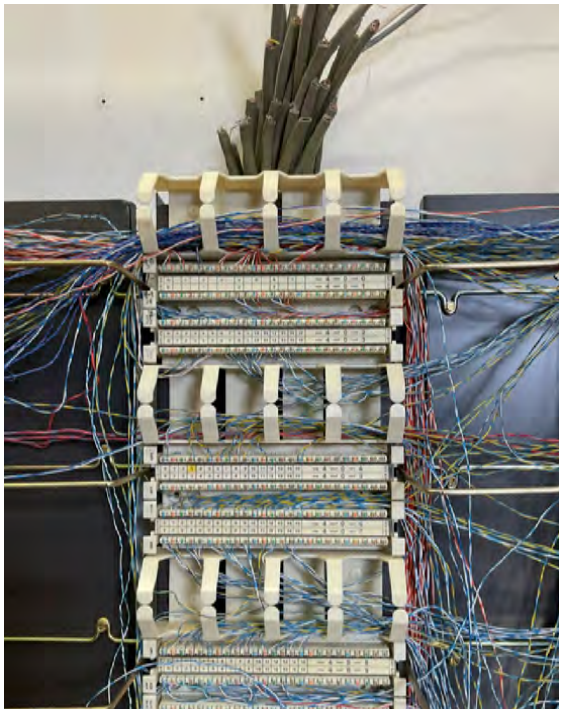
Deficiencies:

- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Telecommunications equipment not bonded to the grounding busbar.
- No dedicated cooling system to maintain temperature of equipment.
- Electrical infrastructure does not meet minimum requirements per standards.

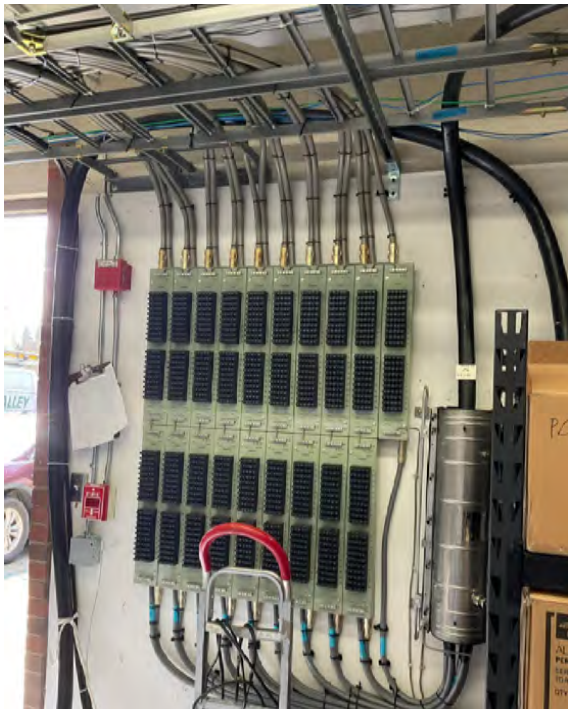
Recommendations:

- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Add cable management as needed.
- Add bonding between telecommunications equipment and Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – MER-1-7

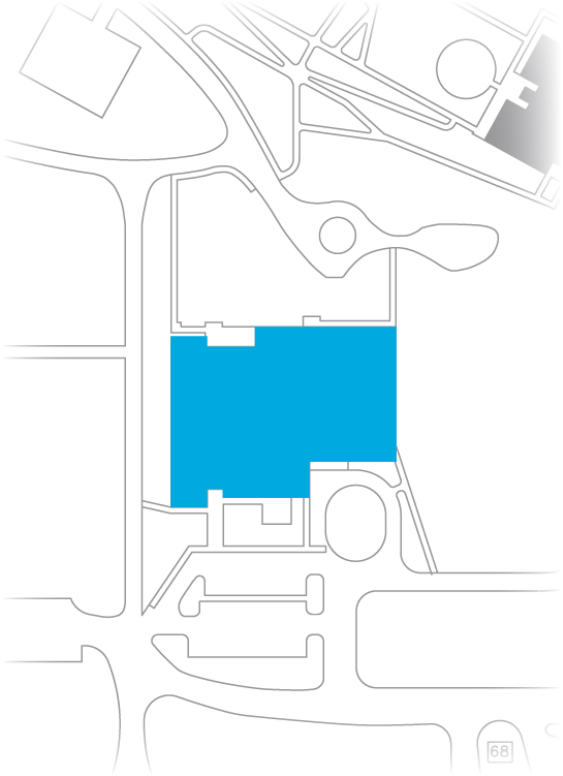


Existing Voice Patching.



Existing Building Entrance Protection.

Existing Fiber Patching.



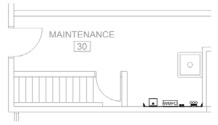
STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

ACTIVITY BUILDING AND SWIMMING



The Activity Building serves as a campus gym, movie theater, and performing arts center. The telecommunications scope in this building is limited.

TELECOMMUNICATIONS ROOM – TR-30

Telecommunication Room TR-30 serves as a maintenance room, storage space, janitor's closet, and the building's telecom room. The telecom equipment is located on the west wall of the maintenance room and includes a wall mounted rack, fiber cabinet, 110 block, and building entrance protectors. The wall mounted rack houses a fiber cabinet, network switch, patch panels, and a UPS. Connectivity is provided by 6-strand OM1 multi-mode optical fiber cables from the Fiber Shed Building (63) and 12-strand single-mode optical fiber cables from the 200 Apartments (66). Voice service is provided by a 25-pair twisted-pair backbone cable from the 200 Apartments (66). Existing horizontal cabling consists of Category 5 cables for data and Category 3 cables for voice applications. Neither a telecommunications grounding busbar nor dedicated cooling were observed within the room. Electrical infrastructure is not standards compliant. There is no 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. While the existing Category 6A horizontal cabling meets current standards, the existing Category 5 and 5e cabling utilized does not meet standards and should be upgraded to Category 6A. 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.

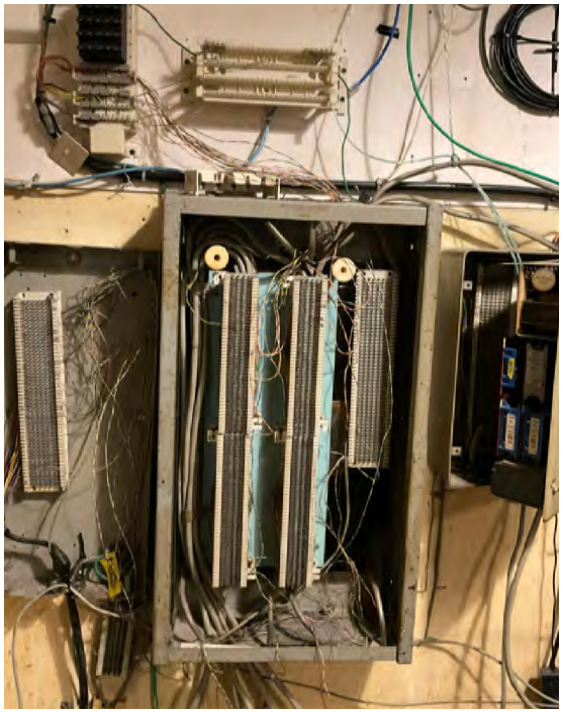
Deficiencies:

- No dedicated telecommunications room.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal cable support, leading to cables being draped or placed directly on equipment.
- No grounding busbar for the telecommunications equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Electrical infrastructure does not meet minimum requirements per standards.

Recommendations:

- Provide a dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from MER in 200 Apartments (Building 66).
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

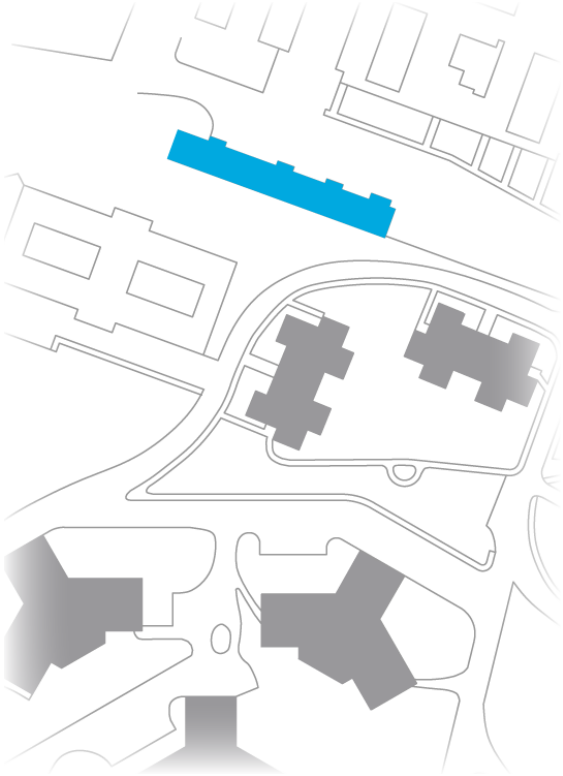
TELECOMMUNICATIONS ROOM – TR-30

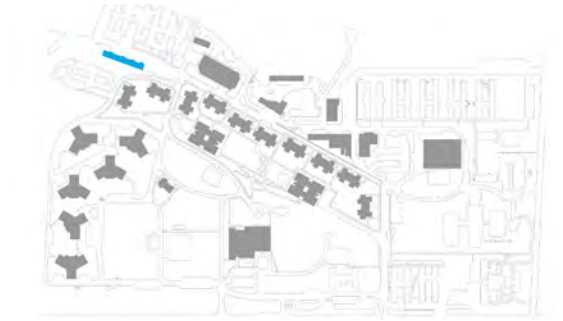


Existing Voice Patching.

Existing Telecom Cabinet.

Existing Patch Panel.





STANDARDS COMPLIANCE

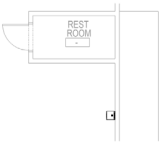
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

WAREHOUSE

Warehouse Building serves as a one of the storage facilities for the campus.



TELECOMMUNICATIONS ROOM – TR-WAREHOUSE

The telecommunications space in the Warehouse is near the east loading platform.
The space consists of a wall mounted rack and a wall mount fiber cabinet. The wall mounted rack contains a rack mount fiber cabinet, a network switch, patch panels, and a UPS. Connectivity is provided by 6-strand OM1 multi-mode and 12-strand single-mode optical fiber backbone cables from the ATP (86). Voice service to the building is provided by a 25-pair twisted-pair backbone cable from the 200 Apartments (66). Existing horizontal cabling is Category 5 for data, and Category 3 for voice applications. A telecommunications grounding busbar was not observed. There is no dedicated cooling for temperature and humidity control, and there is no dedicated telecommunications room.

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. While the existing Category 6A horizontal cabling meets current standards, the existing Category 5 and 5e cabling utilized does not meet standards and should be upgraded to Category 6A. 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:

- No dedicated telecommunications room.
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal cable support, leading to cables being draped or placed directly on equipment.
- No grounding busbar for the telecommunications equipment.
- No dedicated cooling system to maintain temperature of equipment.
- Electrical infrastructure does not meet minimum requirements per standards.

Recommendations:

- Provide a dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OM4 multi-mode optical fiber backbone from MER in 200 Apartments (Building 66).
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add dedicated cooling system.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-WAREHOUSE

Existing Telecom Cabinet.

Existing Fiber & Data Patching.

APPENDIX A: FULL COST OPINIONS

telecommunications **cost opinion**

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376
www.hargis.biz

Telecommunications Infrastructure Assessment Recommendations
Fircrest School

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

telecommunications summary	subtotal	OH&P	total
Building 20 - Food Lifeline Warehouse	$ 143,858	$ 21,579	$ 165,437
Building 24 - Commissary	$ 96,563	$ 14,484	$ 111,047
Building 25 - Plant Mechanic Shop	$ 85,166	$ 12,775	$ 97,941
Building 27 - Garden Shop	$ 86,573	$ 12,986	$ 99,559
Building 28 - Steam Plant	$ 81,183	$ 12,178	$ 93,361
Building 34 - Carpenter & Plumbing Shop	$ 93,102	$ 13,965	$ 107,067
Building 35 - Maintenance Office	$ 120,183	$ 18,027	$ 138,211
Building 39 - Kitchen & Dining	$ 199,228	$ 29,884	$ 229,112
Building 43 - Paint Shop	$ 94,269	$ 14,140	$ 108,409
Building 44 - Duplex 301-302	$ 174,982	$ 26,247	$ 201,229
Building 45 - Duplex 303-304	$ 177,598	$ 26,640	$ 204,238
Building 46 - Duplex 305-306	$ 173,131	$ 25,970	$ 199,100
Building 47 - Duplex 307-308	$ 171,327	$ 25,699	$ 197,026
Building 48 - Duplex 309-310	$ 158,231	$ 23,735	$ 181,966
Building 49 - Duplex 311-312	$ 158,231	$ 23,735	$ 181,966
Building 50 - Duplex 313-314	$ 158,756	$ 23,813	$ 182,569
Building 51 - Duplex 315-316	$ 171,697	$ 25,755	$ 197,452
Building 52 - Duplex 317-318	$ 174,827	$ 26,224	$ 201,051
Building 53 - Duplex 319-320	$ 174,958	$ 26,244	$ 201,201
Building 55 - Hickory	$ 156,158	$ 23,424	$ 179,581
Building 56 - Junkin	$ 153,915	$ 23,087	$ 177,002
Building 57 - Elm Hall	$ 153,915	$ 23,087	$ 177,002
Building 58 - Cherry Hall	$ 156,484	$ 23,473	$ 179,956
Building 59 - Birch Hall	$ 156,484	$ 23,473	$ 179,956

telecommunications **cost opinion**

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

Telecommunications Infrastructure Assessment Recommendations
Fircrest School

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

telecommunications summary	subtotal	OH&P	total
Building 60 - Aspen	$ 153,103	$ 22,965	$ 176,069
Building 63 - Fiber Shed	$ 61,185	$ 9,178	$ 70,362
Building 64 - Chapel	$ 95,825	$ 14,374	$ 110,199
Building 65 - Administration & Medical Services	$ 1,037,846	$ 155,677	$ 1,193,523
Building 66 - 200 Apartments	$ 474,901	$ 71,235	$ 546,136
Building 67 - Activity Building & Swimming	$ 148,768	$ 22,315	$ 171,083
Building 91 - Warehouse	$ 80,028	$ 12,004	$ 92,033
Sub-Total	$ 5,522,475	$ 828,371	$ 6,350,844
General Contractor OH&P **15%**			$ 952,627
Escalation **7%**			$ 66,684
Total			**$ 7,370,154**

EXCLUSIONS

1 - Design contingency

2 - Sales Tax

telecommunications **cost opinion**

Building 20 - Food Lifeline Warehouse

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	1,902	1,902	3,805	3,805	5,707	856	6,563
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	3,883	3,883			3,883	582	4,465
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	2	EA	150	300	50	100	400	60	460
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
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	23	EA	1,100	25,300	474	10,894	36,194	5,429	41,624
Telecommunications Device - 4-Port - Existing	8	EA	1,100	8,800	474	3,789	12,589	1,888	14,478
CAT 6A Quickport Connector	184	EA	36	6,653	25	4,600	11,253	1,688	12,941
CAT 6A Quickport Connector - Existing	64	EA	36	2,314	26	1,664	3,978	597	4,575
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	23	EA	200	4,600	150	3,450	8,050	1,208	9,258
Subtotal Low-Voltage Systems (Divisions 27)							125,291	18,794	144,085

telecommunications **cost opinion**

Building 20 - Food Lifeline Warehouse

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	210	210	419	419	629	94	723
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	390	390			390	59	449
Raceway, Cabling Supports and Outlet Boxes	2	EA	200	400	200	400	800	120	920
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 24 - Commissary

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	1,438	1,438	2,876	2,876	4,314	647	4,961
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	3,023	3,023			3,023	453	3,477
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	2	EA	150	300	50	100	400	60	460
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
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	2,600	LF	1	3,089	.05	130	3,219	483	3,702
Telecommunications Device - 4-Port	14	EA	1,100	15,400	474	6,631	22,031	3,305	25,336
Telecommunications Device - 4-Port - Existing	6	EA	1,100	6,600	474	2,842	9,442	1,416	10,858
CAT 6A Quickport Connector	112	EA	36	4,049	25	2,800	6,849	1,027	7,877
CAT 6A Quickport Connector - Existing	48	EA	36	1,735	26	1,248	2,983	448	3,431
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	14	EA	200	2,800	150	2,100	4,900	735	5,635
Subtotal Low-Voltage Systems (Divisions 27)							96,563	14,484	111,047

telecommunications **cost opinion**

Building 24 - Commissary

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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

telecommunications **cost opinion**

Building 25 - Plant Mechanic Shop

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	1,061	1,061	2,123	2,123	3,184	478	3,662
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	2,288	2,288			2,288	343	2,631
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	2	EA	150	300	50	100	400	60	460
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
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	2,700	LF	1	3,208	.05	135	3,343	501	3,844
Telecommunications Device - 4-Port	8	EA	1,100	8,800	474	3,789	12,589	1,888	14,478
Telecommunications Device - 4-Port - Existing	3	EA	1,100	3,300	474	1,421	4,721	708	5,429
CAT 6A Quickport Connector	64	EA	36	2,314	25	1,600	3,914	587	4,501
CAT 6A Quickport Connector - Existing	24	EA	36	868	26	624	1,492	224	1,716
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	8	EA	200	1,600	150	1,200	2,800	420	3,220
Subtotal Low-Voltage Systems (Divisions 27)							72,461	10,869	83,330

telecommunications **cost opinion**

Building 25 - Plant Mechanic Shop

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138	138	276	276	414	62	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280	280			280	42	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 27 - Garden Shop

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	1,040	1,040	2,080	2,080	3,120	468	3,588
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	2,379	2,379			2,379	357	2,735
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	2	EA	150	300	50	100	400	60	460
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
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	2,700	LF	1	3,208	.05	135	3,343	501	3,844
Telecommunications Device - 4-Port	9	EA	1,100	9,900	474	4,263	14,163	2,124	16,288
Telecommunications Device - 4-Port - Existing	1	EA	1,100	1,100	474	474	1,574	236	1,810
CAT 6A Quickport Connector	72	EA	36	2,603	25	1,800	4,403	660	5,064
CAT 6A Quickport Connector - Existing	8	EA	36	289	26	208	497	75	572
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

telecommunications **cost opinion**

Building 27 - Garden Shop

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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
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	9	EA	200	1,800	150	1,350	3,150	473	3,623
Subtotal Low-Voltage Systems (Divisions 27)							73,868	11,080	84,949
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138	138	276	276	414	62	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280	280			280	42	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 28 - Steam Plant

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	974	974	1,948	1,948	2,922	438	3,360
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	2,194	2,194			2,194	329	2,523
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	2	EA	150	300	50	100	400	60	460
Rack Mount Fiber Cabinet - 2RU	1	EA	300	300	110	110	410	62	472
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	2,500	LF	1	2,970	.05	125	3,095	464	3,559
Telecommunications Device - 4-Port	9	EA	1,100	9,900	474	4,263	14,163	2,124	16,288
Telecommunications Device - 4-Port - Existing	1	EA	1,100	1,100	474	474	1,574	236	1,810
CAT 6A Quickport Connector	72	EA	36	2,603	25	1,800	4,403	660	5,064
CAT 6A Quickport Connector - Existing	8	EA	36	289	26	208	497	75	572
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	9	EA	200	1,800	150	1,350	3,150	473	3,623
Subtotal Low-Voltage Systems (Divisions 27)							68,478	10,272	78,750

telecommunications **cost opinion**

Building 28 - Steam Plant

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138	138	276	276	414	62	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280	280			280	42	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 34 - Carpenter & Plumbing Shop

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	1,179	1,179	2,359	2,359	3,538	531	4,069
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	2,537	2,537			2,537	380	2,917
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	2	EA	150	300	50	100	400	60	460
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
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	3,100	LF	1	3,683	.05	155	3,838	576	4,413
Telecommunications Device - 4-Port	11	EA	1,100	12,100	474	5,210	17,310	2,597	19,907
Telecommunications Device - 4-Port - Existing	2	EA	1,100	2,200	474	947	3,147	472	3,619
CAT 6A Quickport Connector	88	EA	36	3,182	25	2,200	5,382	807	6,189
CAT 6A Quickport Connector - Existing	16	EA	36	578	26	416	994	149	1,144
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	11	EA	200	2,200	150	1,650	3,850	578	4,428
Subtotal Low-Voltage Systems (Divisions 27)							80,397	12,060	92,457

telecommunications **cost opinion**

Building 34 - Carpenter & Plumbing Shop

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138	138	276	276	414	62	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280	280			280	42	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 35 - Maintenance Office

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	1,661	1,661	3,322	3,322	4,983	747	5,730
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	3,299	3,299			3,299	495	3,794
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	2	EA	150	300	50	100	400	60	460
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
Telecommunication Room Demolition	2	EA			2,000	4,000	4,000	600	4,600
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000	2,000	2,000	300	2,300
12 Strand Multimode Outside Plant (OSP) OFC	2,900	LF	1	3,445	.05	145	3,590	539	4,129
Telecommunications Device - 4-Port	12	EA	1,100	13,200	474	5,684	18,884	2,833	21,717
Telecommunications Device - 4-Port - Existing	12	EA	1,100	13,200	474	5,684	18,884	2,833	21,717
CAT 6A Quickport Connector	96	EA	36	3,471	25	2,400	5,871	881	6,752
CAT 6A Quickport Connector - Existing	96	EA	36	3,471	26	2,496	5,967	895	6,862
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	12	EA	200	2,400	150	1,800	4,200	630	4,830
Subtotal Low-Voltage Systems (Divisions 27)							107,478	16,122	123,600

telecommunications **cost opinion**

Building 35 - Maintenance Office

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138	138	276	276	414	62	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280	280			280	42	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 39 - Kitchen & Dining

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	2,837	2,837	5,674	5,674	8,510	1,277	9,787
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	5,775	5,775			5,775	866	6,641
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	2	EA	150	300	50	100	400	60	460
Rack Mount Fiber Cabinet - 2RU	1	EA	300	300	110	110	410	62	472
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	1,500	LF	1	1,782	.05	75	1,857	279	2,136
Telecommunications Device - 4-Port	45	EA	1,100	49,500	474	21,315	70,815	10,622	81,438
Telecommunications Device - 4-Port - Existing	9	EA	1,100	9,900	474	4,263	14,163	2,124	16,288
CAT 6A Quickport Connector	360	EA	36	13,016	25	9,000	22,016	3,302	25,319
CAT 6A Quickport Connector - Existing	72	EA	36	2,603	26	1,872	4,475	671	5,147
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
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	45	EA	200	9,000	150	6,750	15,750	2,363	18,113
Subtotal Low-Voltage Systems (Divisions 27)							186,523	27,978	214,501

telecommunications **cost opinion**

Building 39 - Kitchen & Dining

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138	138	276	276	414	62	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280	280			280	42	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 43 - Paint Shop

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	1,080	1,080	2,159	2,159	3,239	486	3,725
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	2,422	2,422			2,422	363	2,786
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	2	EA	150	300	50	100	400	60	460
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
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	2,100	LF	1	2,495	.05	105	2,600	390	2,990
Telecommunications Device - 4-Port	10	EA	1,100	11,000	474	4,737	15,737	2,361	18,097
Telecommunications Device - 4-Port - Existing	1	EA	1,100	1,100	474	474	1,574	236	1,810
CAT 6A Quickport Connector	80	EA	36	2,892	25	2,000	4,892	734	5,626
CAT 6A Quickport Connector - Existing	8	EA	36	289	26	208	497	75	572
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

telecommunications **cost opinion**

Building 43 - Paint Shop

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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
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	10	EA	200	2,000	150	1,500	3,500	525	4,025
Subtotal Low-Voltage Systems (Divisions 27)							75,701	11,355	87,057
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	210	210	419	419	629	94	723
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	390	390			390	59	449
Raceway, Cabling Supports and Outlet Boxes	2	EA	200	400	200	400	800	120	920
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 44 - Duplex 301-302

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	2,444	2,444	4,888	4,888	7,332	1,100	8,432
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	5,051	5,051			5,051	758	5,808
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	2	EA	150	300	50	100	400	60	460
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
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000	2,000	2,000	300	2,300
12 Strand Multimode Outside Plant (OSP) OFC	400	LF	1	475	.05	20	495	74	569
Telecommunications Device - 4-Port	38	EA	1,100	41,800	474	18,000	59,800	8,970	68,770
Telecommunications Device - 4-Port - Existing	8	EA	1,100	8,800	474	3,789	12,589	1,888	14,478
CAT 6A Quickport Connector	304	EA	36	10,991	25	7,600	18,591	2,789	21,380
CAT 6A Quickport Connector - Existing	64	EA	36	2,314	26	1,664	3,978	597	4,575
CAT 6A Patch Panel	4	EA	320	1,280	150	600	1,880	282	2,163
Copper 6-port Empty Cassette	32	EA	100	3,200	50	1,600	4,800	720	5,520
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	38	EA	200	7,600	150	5,700	13,300	1,995	15,295
Subtotal Low-Voltage Systems (Divisions 27)							162,277	24,342	186,619

telecommunications **cost opinion**

Building 44 - Duplex 301-302

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138	138	276	276	414	62	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280	280			280	42	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 45 - Duplex 303-304

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	2,485	2,485	4,971	4,971	7,456	1,118	8,574
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	5,130	5,130			5,130	770	5,900
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	2	EA	150	300	50	100	400	60	460
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
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000	2,000	2,000	300	2,300
12 Strand Multimode Outside Plant (OSP) OFC	400	LF	1	475	.05	20	495	74	569
Telecommunications Device - 4-Port	39	EA	1,100	42,900	474	18,473	61,373	9,206	70,579
Telecommunications Device - 4-Port - Existing	8	EA	1,100	8,800	474	3,789	12,589	1,888	14,478
CAT 6A Quickport Connector	312	EA	36	11,281	25	7,800	19,081	2,862	21,943
CAT 6A Quickport Connector - Existing	64	EA	36	2,314	26	1,664	3,978	597	4,575
CAT 6A Patch Panel	4	EA	320	1,280	150	600	1,880	282	2,163
Copper 6-port Empty Cassette	32	EA	100	3,200	50	1,600	4,800	720	5,520
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	39	EA	200	7,800	150	5,850	13,650	2,048	15,698
Subtotal Low-Voltage Systems (Divisions 27)							164,893	24,734	189,627

telecommunications **cost opinion**

Building 45 - Duplex 303-304

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138	138	276	276	414	62	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280	280			280	42	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 46 - Duplex 305-306

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	2,411	2,411	4,822	4,822	7,232	1,085	8,317
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	4,999	4,999			4,999	750	5,749
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	2	EA	150	300	50	100	400	60	460
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
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000	2,000	2,000	300	2,300
12 Strand Multimode Outside Plant (OSP) OFC	700	LF	1	832		35	867	130	997
Telecommunications Device - 4-Port	38	EA	1,100	41,800	474	18,000	59,800	8,970	68,770
Telecommunications Device - 4-Port - Existing	7	EA	1,100	7,700	474	3,316	11,016	1,652	12,668
CAT 6A Quickport Connector	304	EA	36	10,991	25	7,600	18,591	2,789	21,380
CAT 6A Quickport Connector - Existing	56	EA	36	2,025	26	1,456	3,481	522	4,003
CAT 6A Patch Panel	4	EA	320	1,280	150	600	1,880	282	2,163
Copper 6-port Empty Cassette	32	EA	100	3,200	50	1,600	4,800	720	5,520
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	38	EA	200	7,600	150	5,700	13,300	1,995	15,295
Subtotal Low-Voltage Systems (Divisions 27)							160,426	24,064	184,490

telecommunications **cost opinion**

Building 46 - Duplex 305-306

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138	138	276	276	414	62	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280	280			280	42	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 47 - Duplex 307-308

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	2,384	2,384	4,768	4,768	7,152	1,073	8,225
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	4,942	4,942			4,942	741	5,684
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	2	EA	150	300	50	100	400	60	460
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
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000	2,000	2,000	300	2,300
12 Strand Multimode Outside Plant (OSP) OFC	750	LF	1	891	.05	38	929	139	1,068
Telecommunications Device - 4-Port	39	EA	1,100	42,900	474	18,473	61,373	9,206	70,579
Telecommunications Device - 4-Port - Existing	5	EA	1,100	5,500	474	2,368	7,868	1,180	9,049
CAT 6A Quickport Connector	312	EA	36	11,281	25	7,800	19,081	2,862	21,943
CAT 6A Quickport Connector - Existing	40	EA	36	1,446	26	1,040	2,486	373	2,859
CAT 6A Patch Panel	4	EA	320	1,280	150	600	1,880	282	2,163
Copper 6-port Empty Cassette	32	EA	100	3,200	50	1,600	4,800	720	5,520
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	39	EA	200	7,800	150	5,850	13,650	2,048	15,698
Subtotal Low-Voltage Systems (Divisions 27)							158,622	23,793	182,415

telecommunications **cost opinion**

Building 47 - Duplex 307-308

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138	138	276	276	414	62	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280	280			280	42	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 48 - Duplex 309-310

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	2,181	2,181	4,362	4,362	6,542	981	7,524
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	4,541	4,541			4,541	681	5,223
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	2	EA	150	300	50	100	400	60	460
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
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000	2,000	2,000	300	2,300
12 Strand Multimode Outside Plant (OSP) OFC	1,000	LF	1	1,188	.05	50	1,238	186	1,424
Telecommunications Device - 4-Port	38	EA	1,100	41,800	474	18,000	59,800	8,970	68,770
CAT 6A Quickport Connector	304	EA	36	10,991	25	7,600	18,591	2,789	21,380
CAT 6A Quickport Connector - Existing	6	EA	36	217	26	156	373	56	429
CAT 6A Patch Panel	4	EA	320	1,280	150	600	1,880	282	2,163
Copper 6-port Empty Cassette	32	EA	100	3,200	50	1,600	4,800	720	5,520
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	38	EA	200	7,600	150	5,700	13,300	1,995	15,295
Subtotal Low-Voltage Systems (Divisions 27)							145,526	21,829	167,355

telecommunications **cost opinion**

Building 48 - Duplex 309-310

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138	138	276	276	414	62	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280	280			280	42	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 49 - Duplex 311-312

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	2,181	2,181	4,362	4,362	6,542	981	7,524
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	4,541	4,541			4,541	681	5,223
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	2	EA	150	300	50	100	400	60	460
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
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000	2,000	2,000	300	2,300
12 Strand Multimode Outside Plant (OSP) OFC	1,000	LF	1	1,188	.05	50	1,238	186	1,424
Telecommunications Device - 4-Port	38	EA	1,100	41,800	474	18,000	59,800	8,970	68,770
CAT 6A Quickport Connector	304	EA	36	10,991	25	7,600	18,591	2,789	21,380
CAT 6A Quickport Connector - Existing	6	EA	36	217	26	156	373	56	429
CAT 6A Patch Panel	4	EA	320	1,280	150	600	1,880	282	2,163
Copper 6-port Empty Cassette	32	EA	100	3,200	50	1,600	4,800	720	5,520
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	38	EA	200	7,600	150	5,700	13,300	1,995	15,295
Subtotal Low-Voltage Systems (Divisions 27)							145,526	21,829	167,355

telecommunications **cost opinion**

Building 49 - Duplex 311-312

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138	138	276	276	414	62	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280	280			280	42	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 50 - Duplex 313-314

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	2,183	2,183	4,366	4,366	6,549	982	7,531
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	4,564	4,564			4,564	685	5,249
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	2	EA	150	300	50	100	400	60	460
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
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000	2,000	2,000	300	2,300
12 Strand Multimode Outside Plant (OSP) OFC	1,350	LF	1	1,604	.05	68	1,671	251	1,922
Telecommunications Device - 4-Port	38	EA	1,100	41,800	474	18,000	59,800	8,970	68,770
CAT 6A Quickport Connector	304	EA	36	10,991	25	7,600	18,591	2,789	21,380
CAT 6A Quickport Connector - Existing	7	EA	36	253	26	182	435	65	500
CAT 6A Patch Panel	4	EA	320	1,280	150	600	1,880	282	2,163
Copper 6-port Empty Cassette	32	EA	100	3,200	50	1,600	4,800	720	5,520
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	38	EA	200	7,600	150	5,700	13,300	1,995	15,295
Subtotal Low-Voltage Systems (Divisions 27)							146,051	21,908	167,958

telecommunications **cost opinion**

Building 50 - Duplex 313-314

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138	138	276	276	414	62	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280	280			280	42	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 51 - Duplex 315-316

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	2,378	2,378	4,757	4,757	7,135	1,070	8,205
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	4,966	4,966			4,966	745	5,711
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	2	EA	150	300	50	100	400	60	460
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
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000	2,000	2,000	300	2,300
12 Strand Multimode Outside Plant (OSP) OFC	1,320	LF	1	1,568	.05	66	1,634	245	1,879
Telecommunications Device - 4-Port	38	EA	1,100	41,800	474	18,000	59,800	8,970	68,770
Telecommunications Device - 4-Port - Existing	6	EA	1,100	6,600	474	2,842	9,442	1,416	10,858
CAT 6A Quickport Connector	304	EA	36	10,991	25	7,600	18,591	2,789	21,380
CAT 6A Quickport Connector - Existing	48	EA	36	1,735	26	1,248	2,983	448	3,431
CAT 6A Patch Panel	4	EA	320	1,280	150	600	1,880	282	2,163
Copper 6-port Empty Cassette	32	EA	100	3,200	50	1,600	4,800	720	5,520
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	38	EA	200	7,600	150	5,700	13,300	1,995	15,295
Subtotal Low-Voltage Systems (Divisions 27)							158,992	23,849	182,841

telecommunications **cost opinion**

Building 51 - Duplex 315-316

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138	138	276	276	414	62	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280	280			280	42	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 52 - Duplex 317-318

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	2,414	2,414	4,828	4,828	7,242	1,086	8,329
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	5,076	5,076			5,076	761	5,838
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	2	EA	150	300	50	100	400	60	460
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
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000	2,000	2,000	300	2,300
12 Strand Multimode Outside Plant (OSP) OFC	2,000	LF	1	2,376	.05	100	2,476	371	2,847
Telecommunications Device - 4-Port	38	EA	1,100	41,800	474	18,000	59,800	8,970	68,770
Telecommunications Device - 4-Port - Existing	7	EA	1,100	7,700	474	3,316	11,016	1,652	12,668
CAT 6A Quickport Connector	304	EA	36	10,991	25	7,600	18,591	2,789	21,380
CAT 6A Quickport Connector - Existing	56	EA	36	2,025	26	1,456	3,481	522	4,003
CAT 6A Patch Panel	4	EA	320	1,280	150	600	1,880	282	2,163
Copper 6-port Empty Cassette	32	EA	100	3,200	50	1,600	4,800	720	5,520
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	38	EA	200	7,600	150	5,700	13,300	1,995	15,295
Subtotal Low-Voltage Systems (Divisions 27)							162,122	24,318	186,441

telecommunications **cost opinion**

Building 52 - Duplex 317-318

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138	138	276	276	414	62	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280	280			280	42	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 53 - Duplex 319-320

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	2,414	2,414	4,829	4,829	7,243	1,086	8,329
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	5,082	5,082			5,082	762	5,844
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	2	EA	150	300	50	100	400	60	460
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
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000	2,000	2,000	300	2,300
12 Strand Multimode Outside Plant (OSP) OFC	2,100	LF	1	2,495	.05	105	2,600	390	2,990
Telecommunications Device - 4-Port	38	EA	1,100	41,800	474	18,000	59,800	8,970	68,770
Telecommunications Device - 4-Port - Existing	7	EA	1,100	7,700	474	3,316	11,016	1,652	12,668
CAT 6A Quickport Connector	304	EA	36	10,991	25	7,600	18,591	2,789	21,380
CAT 6A Quickport Connector - Existing	56	EA	36	2,025	26	1,456	3,481	522	4,003
CAT 6A Patch Panel	4	EA	320	1,280	150	600	1,880	282	2,163
Copper 6-port Empty Cassette	32	EA	100	3,200	50	1,600	4,800	720	5,520
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	38	EA	200	7,600	150	5,700	13,300	1,995	15,295
Subtotal Low-Voltage Systems (Divisions 27)							162,253	24,338	186,591

telecommunications **cost opinion**

Building 53 - Duplex 319-320

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138	138	276	276	414	62	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280	280			280	42	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 55 - Hickory

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	1,947	1,947	3,893	3,893	5,840	876	6,716
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	4,102	4,102			4,102	615	4,717
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	2	EA	150	300	50	100	400	60	460
Rack Mount Fiber Cabinet - 2RU	1	EA	300	300	110	110	410	62	472
Ladder Rack	100	LF	8	750	20	2,000	2,750	413	3,163
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000	2,000	2,000	300	2,300
12 Strand Multimode Outside Plant (OSP) OFC	2,000	LF	1	2,376	.05	100	2,476	371	2,847
Telecommunications Device - 4-Port	28	EA	1,100	30,800	474	13,263	44,063	6,609	50,672
Telecommunications Device - 4-Port - Existing	5	EA	1,100	5,500	474	2,368	7,868	1,180	9,049
CAT 6A Quickport Connector	224	EA	36	8,099	25	5,600	13,699	2,055	15,754
CAT 6A Quickport Connector - Existing	40	EA	36	1,446	26	1,040	2,486	373	2,859
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	28	EA	200	5,600	150	4,200	9,800	1,470	11,270
Subtotal Low-Voltage Systems (Divisions 27)							130,904	19,636	150,540

telecommunications **cost opinion**

Building 55 - Hickory

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	289	289	577	577	866	130	996
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	522	522			522	78	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 56 - Junkin

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	1,912	1,912	3,825	3,825	5,737	861	6,598
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	4,032	4,032			4,032	605	4,637
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	2	EA	150	300	50	100	400	60	460
Rack Mount Fiber Cabinet - 2RU	1	EA	300	300	110	110	410	62	472
Ladder Rack	100	LF	8	750	20	2,000	2,750	413	3,163
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000	2,000	2,000	300	2,300
12 Strand Multimode Outside Plant (OSP) OFC	2,000	LF	1	2,376	.05	100	2,476	371	2,847
Telecommunications Device - 4-Port	28	EA	1,100	30,800	474	13,263	44,063	6,609	50,672
Telecommunications Device - 4-Port - Existing	4	EA	1,100	4,400	474	1,895	6,295	944	7,239
CAT 6A Quickport Connector	224	EA	36	8,099	25	5,600	13,699	2,055	15,754
CAT 6A Quickport Connector - Existing	32	EA	36	1,157	26	832	1,989	298	2,287
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	28	EA	200	5,600	150	4,200	9,800	1,470	11,270
Subtotal Low-Voltage Systems (Divisions 27)							128,661	19,299	147,961

telecommunications **cost opinion**

Building 56 - Junkin

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	289	289	577	577	866	130	996
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	522	522			522	78	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 57 - Elm Hall

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	1,912	1,912	3,825	3,825	5,737	861	6,598
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	4,032	4,032			4,032	605	4,637
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	2	EA	150	300	50	100	400	60	460
Rack Mount Fiber Cabinet - 2RU	1	EA	300	300	110	110	410	62	472
Ladder Rack	100	LF	8	750	20	2,000	2,750	413	3,163
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000	2,000	2,000	300	2,300
12 Strand Multimode Outside Plant (OSP) OFC	2,000	LF	1	2,376	.05	100	2,476	371	2,847
Telecommunications Device - 4-Port	28	EA	1,100	30,800	474	13,263	44,063	6,609	50,672
Telecommunications Device - 4-Port - Existing	4	EA	1,100	4,400	474	1,895	6,295	944	7,239
CAT 6A Quickport Connector	224	EA	36	8,099	25	5,600	13,699	2,055	15,754
CAT 6A Quickport Connector - Existing	32	EA	36	1,157	26	832	1,989	298	2,287
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	28	EA	200	5,600	150	4,200	9,800	1,470	11,270
Subtotal Low-Voltage Systems (Divisions 27)							128,661	19,299	147,961

telecommunications **cost opinion**

Building 57 - Elm Hall

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	289	289	577	577	866	130	996
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	522	522			522	78	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 58 - Cherry Hall

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	1,947	1,947	3,894	3,894	5,842	876	6,718
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	4,116	4,116			4,116	617	4,734
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	2	EA	150	300	50	100	400	60	460
Rack Mount Fiber Cabinet - 2RU	1	EA	300	300	110	110	410	62	472
Ladder Rack	100	LF	8	750	20	2,000	2,750	413	3,163
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000	2,000	2,000	300	2,300
12 Strand Multimode Outside Plant (OSP) OFC	2,250	LF	1	2,673	.05	113	2,786	418	3,203
Telecommunications Device - 4-Port	28	EA	1,100	30,800	474	13,263	44,063	6,609	50,672
Telecommunications Device - 4-Port - Existing	5	EA	1,100	5,500	474	2,368	7,868	1,180	9,049
CAT 6A Quickport Connector	224	EA	36	8,099	25	5,600	13,699	2,055	15,754
CAT 6A Quickport Connector - Existing	40	EA	36	1,446	26	1,040	2,486	373	2,859
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	28	EA	200	5,600	150	4,200	9,800	1,470	11,270
Subtotal Low-Voltage Systems (Divisions 27)							131,230	19,685	150,915

telecommunications **cost opinion**

Building 58 - Cherry Hall

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	289	289	577	577	866	130	996
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	522	522			522	78	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 59 - Birch Hall

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	1,947	1,947	3,894	3,894	5,842	876	6,718
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	4,116	4,116			4,116	617	4,734
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	2	EA	150	300	50	100	400	60	460
Rack Mount Fiber Cabinet - 2RU	1	EA	300	300	110	110	410	62	472
Ladder Rack	100	LF	8	750	20	2,000	2,750	413	3,163
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000	2,000	2,000	300	2,300
12 Strand Multimode Outside Plant (OSP) OFC	2,250	LF	1	2,673	.05	113	2,786	418	3,203
Telecommunications Device - 4-Port	28	EA	1,100	30,800	474	13,263	44,063	6,609	50,672
Telecommunications Device - 4-Port - Existing	5	EA	1,100	5,500	474	2,368	7,868	1,180	9,049
CAT 6A Quickport Connector	224	EA	36	8,099	25	5,600	13,699	2,055	15,754
CAT 6A Quickport Connector - Existing	40	EA	36	1,446	26	1,040	2,486	373	2,859
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	28	EA	200	5,600	150	4,200	9,800	1,470	11,270
Subtotal Low-Voltage Systems (Divisions 27)							131,230	19,685	150,915

telecommunications **cost opinion**

Building 59 - Birch Hall

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	289	289	577	577	866	130	996
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	522	522			522	78	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 60 - Aspen

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	1,898	1,898	3,796	3,796	5,694	854	6,549
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	4,009	4,009			4,009	601	4,611
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	2	EA	150	300	50	100	400	60	460
Rack Mount Fiber Cabinet - 2RU	1	EA	300	300	110	110	410	62	472
Ladder Rack	100	LF	8	750	20	2,000	2,750	413	3,163
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000	2,000	2,000	300	2,300
12 Strand Multimode Outside Plant (OSP) OFC	1,950	LF	1	2,317	.05	98	2,414	362	2,776
Telecommunications Device - 4-Port	26	EA	1,100	28,600	474	12,316	40,916	6,137	47,053
Telecommunications Device - 4-Port - Existing	6	EA	1,100	6,600	474	2,842	9,442	1,416	10,858
CAT 6A Quickport Connector	208	EA	36	7,520	25	5,200	12,720	1,908	14,629
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	26	EA	200	5,200	150	3,900	9,100	1,365	10,465
Subtotal Low-Voltage Systems (Divisions 27)							127,850	19,177	147,027

telecommunications **cost opinion**

Building 60 - Aspen

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	289	289	577	577	866	130	996
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	522	522			522	78	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 63 - Fiber Shed

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	643	643	1,287	1,287	1,930	289	2,219
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	1,604	1,604			1,604	241	1,845
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	2	EA	150	300	50	100	400	60	460
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
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000	2,000	2,000	300	2,300
12 Strand Multimode Outside Plant (OSP) OFC	1,550	LF	1	1,841	.05	78	1,919	288	2,207
Telecommunications Device - 4-Port	2	EA	1,100	2,200	474	947	3,147	472	3,619
Telecommunications Device - 4-Port - Existing	1	EA	1,100	1,100	474	474	1,574	236	1,810
CAT 6A Quickport Connector	16	EA	36	578	25	400	978	147	1,125
CAT 6A Quickport Connector - Existing	8	EA	36	289	26	208	497	75	572
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	2	EA	200	400	150	300	700	105	805
Subtotal Low-Voltage Systems (Divisions 27)							48,480	7,272	55,752

telecommunications **cost opinion**

Building 63 - Fiber Shed

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138	138	276	276	414	62	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280	280			280	42	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 64 - Chapel

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	944	944	1,889	1,889	2,833	425	3,258
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	2,326	2,326			2,326	349	2,675
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	2	EA	150	300	50	100	400	60	460
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 Multimode Outside Plant (OSP) OFC	1,650	LF	1	1,960	.05	83	2,043	306	2,349
Telecommunications Device - 4-Port	10	EA	1,100	11,000	474	4,737	15,737	2,361	18,097
CAT 6A Quickport Connector	80	EA	36	2,892	25	2,000	4,892	734	5,626
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	10	EA	200	2,000	150	1,500	3,500	525	4,025
Subtotal Low-Voltage Systems (Divisions 27)							70,572	10,586	81,157

telecommunications **cost opinion**

Building 64 - Chapel

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	289	289	577	577	866	130	996
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	522	522			522	78	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 65 - Administration & Medical Services

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	14,234	14,234	28,468	28,468	42,703	6,405	49,108
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	30,167	30,167			30,167	4,525	34,693
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	11	EA	12,000	132,000	2,500	27,500	159,500	23,925	183,425
Adaptor Plates - LC ACP	22	EA	150	3,300	50	1,100	4,400	660	5,060
Rack Mount Fiber Cabinet - 2RU	11	EA	300	3,300	110	1,210	4,510	677	5,187
Ladder Rack	660	LF	8	4,950	20	13,200	18,150	2,723	20,873
Telecommunication Room Demolition	5	EA			2,000	10,000	10,000	1,500	11,500
Demolish Defunct Infrastructure After System Cutover	1	LS			22,000	22,000	22,000	3,300	25,300
12 Strand Multimode Outside Plant (OSP) OFC	1,350	LF	1	1,604	.05	68	1,671	251	1,922
12 Strand Singlemode Plenum Rated OFC	1,450	LF	1	1,357	.05	73	1,430	214	1,644
12 Strand Multimode Plenum Rated OFC	1,450	LF	1	1,813	.05	73	1,885	283	2,168
Telecommunications Device - 4-Port	97	EA	1,100	106,700	474	45,946	152,646	22,897	175,543
Telecommunications Device - 4-Port - Existing	111	EA	1,100	122,100	474	52,578	174,678	26,202	200,879
CAT 6A Quickport Connector	776	EA	36	28,057	25	19,400	47,457	7,119	54,576
CAT 6A Quickport Connector - Existing	888	EA	36	32,107	26	23,088	55,195	8,279	63,474
CAT 6A Patch Panel	18	EA	320	5,762	150	2,700	8,462	1,269	9,731
Copper 6-port Empty Cassette	144	EA	100	14,400	50	7,200	21,600	3,240	24,840

telecommunications **cost opinion**

Building 65 - Administration & Medical Services

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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
Telecom Room - Electrical Improvements	11	EA	4,000	44,000	2,500	27,500	71,500	10,725	82,225
Telecom Room - HVAC - Ductless Split System	11	EA	7,500	82,500	1,500	16,500	99,000	14,850	113,850
Pathway per Drop	97	EA	200	19,400	150	14,550	33,950	5,093	39,043
Subtotal Low-Voltage Systems (Divisions 27)							960,904	144,136	1,105,039
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	903	903	1,806	1,806	2,709	406	3,115
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	1,528	1,528			1,528	229	1,758
Raceway, Cabling Supports and Outlet Boxes	11	EA	200	2,200	200	2,200	4,400	660	5,060
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	6	EA	535	3,210	85	510	3,720	558	4,278
Power Supply 10A/24V - 16-Door	1	EA	1,950	1,950	255	255	2,205	331	2,536
Portal Licenses	11	EA	100	1,100	50	550	1,650	248	1,898
Card Reader	11	EA	325	3,575	128	1,403	4,978	747	5,724
Electrified Hardware (Electrified Lock and Power Transfer)	11	EA	1,800	19,800	600	6,600	26,400	3,960	30,360
Request To Exit (REX)	11	EA	125	1,375	85	935	2,310	347	2,657
Wiring - Per Access Control Door	11	EA	400	4,400	700	7,700	12,100	1,815	13,915
Programming	1	LS			7,642	7,642	7,642	1,146	8,788
Engineering	1	LS			3,821	3,821	3,821	573	4,394
Subtotal Life Safety and Security Systems (Divisions 28)							76,942	11,541	88,484

telecommunications **cost opinion**

Building 66 - 200 Apartments

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	7,246	7,246	14,493	14,493	21,739	3,261	25,000
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	13,794	13,794			13,794	2,069	15,863
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	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	3	EA			2,000	6,000	6,000	900	6,900
Demolish Defunct Infrastructure After System Cutover	1	LS			4,000	4,000	4,000	600	4,600
12 Strand Singlemode Plenum Rated OFC	150	LF	1	140	.05	8	148	22	170
12 Strand Multimode Plenum Rated OFC	150	LF	1	188	.05	8	195	29	224
Telecommunications Device - 4-Port	127	EA	1,100	139,700	474	60,156	199,856	29,978	229,835
Telecommunications Device - 4-Port - Existing	17	EA	1,100	18,700	474	8,052	26,752	4,013	30,765
CAT 6A Quickport Connector	1,016	EA	36	36,734	25	25,400	62,134	9,320	71,455
CAT 6A Quickport Connector - Existing	136	EA	36	4,917	26	3,536	8,453	1,268	9,721
CAT 6A Patch Panel	12	EA	320	3,841	150	1,800	5,641	846	6,488
Copper 6-port Empty Cassette	96	EA	100	9,600	50	4,800	14,400	2,160	16,560

telecommunications **cost opinion**

Building 66 - 200 Apartments

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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
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	127	EA	200	25,400	150	19,050	44,450	6,668	51,118
Subtotal Low-Voltage Systems (Divisions 27)							456,334	68,450	524,784
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	210	210	419	419	629	94	723
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	390	390			390	59	449
Raceway, Cabling Supports and Outlet Boxes	2	EA	200	400	200	400	800	120	920
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 67 - Activity Building & Swimming

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	2,074	2,074	4,148	4,148	6,222	933	7,155
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	4,208	4,208			4,208	631	4,839
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	2	EA	150	300	50	100	400	60	460
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
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	1,700	LF	1	2,020	.05	85	2,105	316	2,420
Telecommunications Device - 4-Port	28	EA	1,100	30,800	474	13,263	44,063	6,609	50,672
Telecommunications Device - 4-Port - Existing	7	EA	1,100	7,700	474	3,316	11,016	1,652	12,668
CAT 6A Quickport Connector	224	EA	36	8,099	25	5,600	13,699	2,055	15,754
CAT 6A Quickport Connector - Existing	56	EA	36	2,025	26	1,456	3,481	522	4,003
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	28	EA	200	5,600	150	4,200	9,800	1,470	11,270
Subtotal Low-Voltage Systems (Divisions 27)							136,063	20,409	156,472

telecommunications **cost opinion**

Building 67 - Activity Building & Swimming

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138	138	276	276	414	62	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280	280			280	42	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 91 - Warehouse

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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	992	992	1,984	1,984	2,976	446	3,423
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	2,119	2,119			2,119	318	2,437
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	2	EA	150	300	50	100	400	60	460
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
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	2,200	LF	1	2,614	.05	110	2,724	409	3,132
Telecommunications Device - 4-Port	8	EA	1,100	8,800	474	3,789	12,589	1,888	14,478
Telecommunications Device - 4-Port - Existing	1	EA	1,100	1,100	474	474	1,574	236	1,810
CAT 6A Quickport Connector	64	EA	36	2,314	25	1,600	3,914	587	4,501
CAT 6A Quickport Connector - Existing	8	EA	36	289	26	208	497	75	572
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	8	EA	200	1,600	150	1,200	2,800	420	3,220
Subtotal Low-Voltage Systems (Divisions 27)							67,324	10,099	77,422

telecommunications **cost opinion**

Building 91 - Warehouse

Telecommunications Infrastructure Assessment Recommendations

Fircrest School

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
206.448.3376

www.hargis.biz

BASIS OF OPINION Pre-Design **PREPARED BY** Tin Vo **DATE** September 3, 2024

JOB NUMBER 24048 **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 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138	138	276	276	414	62	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280	280			280	42	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