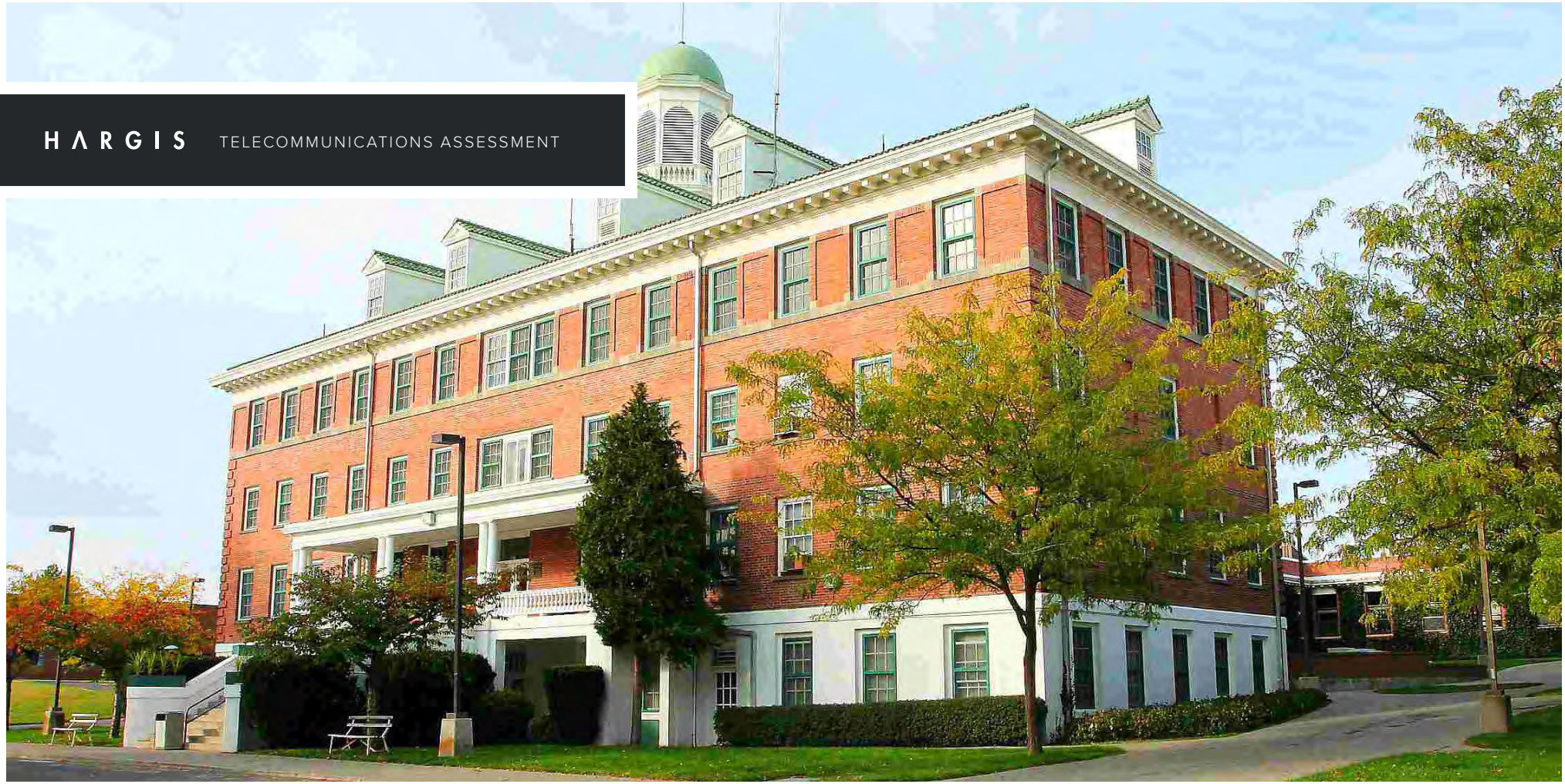
HARGIS TELECOMMUNICATIONS ASSESSMENT



DSHS

LAKELAND VILLAGE

WA STATE PROJECT NUMBER: 2024-429 S (6)

EXECUTIVE SUMMARY

OVERVIEW

Lakeland Village (LLV), originally established in 1914 as a school for individuals with intellectual and developmental disabilities in the City of Medical Lake, has transitioned over the years into a 93-bed nursing facility and 190 bed intermediate care facility. It is part of the Developmental Disabilities Administration (DDA) of the Department of Social and Health Services (DSHS). The facility provides comprehensive and individualized care, including occupational and physical therapy, recreation, medical, and nursing services. The LLV facility also comprises a significant portion of the overall Medical Lake Campus.

The LLV facility includes housing, admin, pharmacy, therapy, treatment, kitchen, dining, and support spaces. The facility includes a main hospital building along with some larger ancillary buildings along with multiple "cottages" which provide a residential style housing and treatment 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

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current industry standards specific to this facility type. Excluded from the assessment were electronic systems, applications, and hardware, such as the network switches and servers. Buildings that have been planned for demolition, have been decommissioned, or included potential hazards have also been excluded from the assessment.

The existing campus telecommunications cabling backbone infrastructure includes inter-building optical fiber cabling and twisted-pair copper backbone cabling installed from the Admin Building. The existing backbone cabling has been installed and modified several times over many years. The existing optical fiber backbone is obsolete and does not meet current industry standards. At several buildings, there is no optical fiber backbone. The twisted pair copper backbone cabling, rated for traditional telephony service, is antiquated and is not able to support the deployment of new technologies nor does it comply with current industry standards.

The existing horizontal cabling within buildings includes unshielded twisted pair copper cabling to provide connectivity to computers, telephones, printers, and other devices. Like the backbone cabling, the horizontal cabling has been installed over time and the condition of the cabling varies. The horizontal cabling is a blend of non-category rated cabling, Category 3 cabling, and Category 5 cabling, which does not meet current industry infrastructure standards. There are also many unmanaged “dumb” switches dispersed throughout the facility which have been used to allow for more devices to connect when the existing infrastructure was not available or sufficient.

Based on physical inspection and review of existing documentation, it is the determination of the team that the existing IT infrastructure does not comply with any of the current industry standards and that it will not support evolutions to modern and/or future technologies. The existing optical fiber infrastructure is obsolete, consisting mostly of OM1 62.5-micron multi-mode optical fiber cable. Improving the IP backbone connectivity will be a fundamental component to creating an environment that will permit LLV and DSHS to identify, adapt, and implement new technologies that contribute to safety and operational improvements.

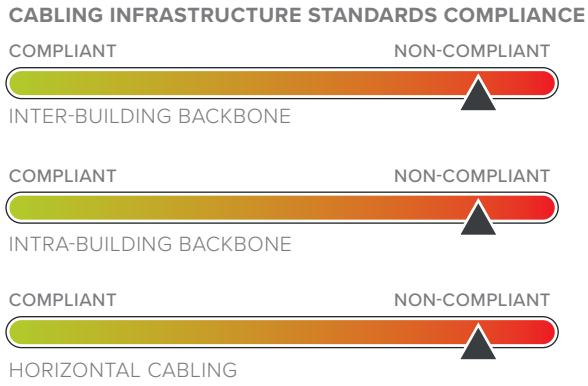
Existing horizontal cabling is not compliant with current TIA standards for this facility type. Upgrading category cabling requires a replacement of the complete channel to include horizontal cabling, patch cords, patch panels, and work area outlets. At LLV, this upgrade also requires installation of 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 room is required on every floor to support the horizontal cabling infrastructure. Complying with the standard will require new/additional telecommunications rooms to be built on floors that do not currently have a telecommunication room. The additional telecommunications rooms will need to be equipped with supporting systems to include grounding, conduit sleeves, temperature control, and physical security of the space.

OBJECTIVES

The project objectives are as follows:

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



PROJECT APPROACH

Hargis conducted a site visit to review existing conditions including:

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

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

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

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

STANDARDS & CODES

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

PROJECT APPROACH

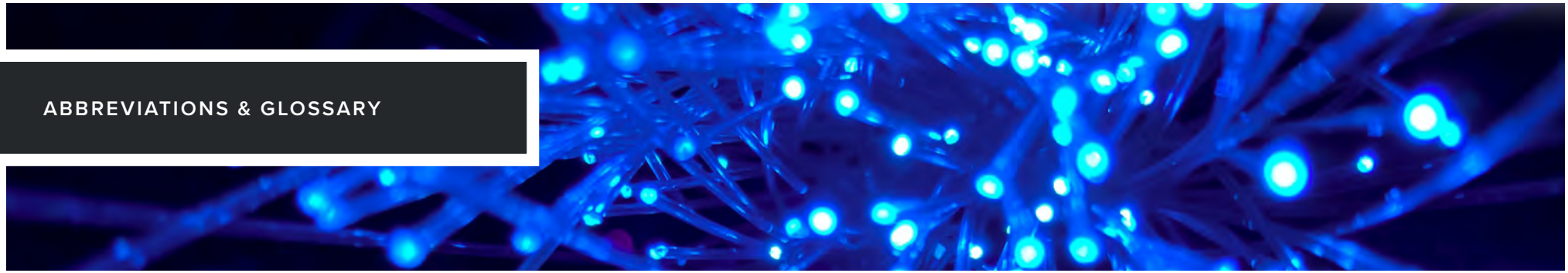
Review, assess and evaluate systems in each building

Identify the capabilities, deficiencies and vulnerabilities of each system

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

Develop a rough order of magnitude for the recommended improvement

Chart a migration path to optimize capital investments



ABBREVIATIONS & GLOSSARY

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

» A WAP is also known as a hotspot.

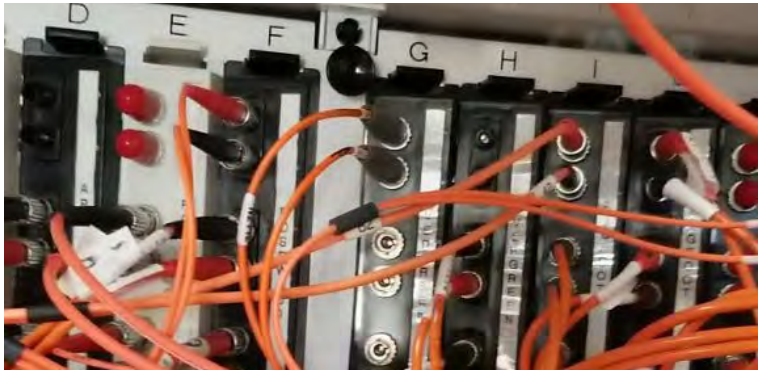
SEQUENCING & RECOMMENDATIONS			
Phase	*Prerequisites*	*Scope*	*ROM Cost Opinion*
PHYSICAL CONSTRUCTION OF NEW TELECOMMUNICATIONS			
1	N/A	» Retrofit Telecommunications Rooms In Buildings 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 23, 26, 30, 31, 32, 33, 34, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48 & 49 - 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 system 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.)	$2,757,000
INSTALL BACKBONE OFC TO NEW TELECOM SPACES			
2	N/A	» Pull 12 st OS2 and 12 st OM4 OFC from MER in Building 31 to each telecom room in Buildings 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 23, 26, 30, 32, 33, 34, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, & 49 - Terminate OFC Cabling if RMFC is installed.	$901,000
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.	$4,091,000
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.	$902,000
DEMOLISH DEFUNCT INFRASTRUCTURE			
6	1-5	» Demolish OSP cable. - Demolish OM1 Multi-mode OSP OFC to from Building 2 to Buildings 1, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 31, 32, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, & 49 - Demolish OM1 Multi-mode OSP OFC to from Building 1 to Buildings 26 & 5 - Demolish OM1 Multi-mode OSP OFC to from Building 31 to Buildings 1, 3, 30, 32, 26, 33, & 38 - Demolish Copper twisted pair OSP Backbone cabling between Building 1 and Buildings 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 23, 26, 30, 31, 32, 33, 34, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, & 49 » Demolish Building 31 backbone cabling - Demolish OM1 Multi-mode OFC between MER and TR. » Demolish Defunct telecommmunications rooms. - Remove any salvageable equipment from TR's. - Remove the remaining equipment and dispose of it.	$180,000

EXISTING COMMUNICATIONS INFRASTRUCTURE

BACKBONE CABLING

Service Provider Connections

Existing telephone service connection is at a service pedestal located at the northwest side of the facility. There is a single-mode outside plant optical fiber cable connection from Eastern State Hospital that terminates on the east side of the facility across the road.



Existing Fiber Cabinet.

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

Existing Interbuilding Backbone Cabline in Tunnel.

Existing Interbuilding Backbone Cabling.

Existing Interbuilding Voice Backbone.

INTER-BUILDING/CAMPUS BACKBONE CABLING

There are two sets of inter-building infrastructure currently supporting the facility. The original backbone which was installed over the life of the facility along with a recent update that provided core inter-building conduit and cabling. The original backbone is composed mostly of twisted-pair copper cabling with a small amount of fiber optic cabling. Much of this infrastructure has been abandoned over time or has limited connectivity.

The updated communications infrastructure providing connectivity to the facility is provided through multiple fiber optic connections. The existing backbone is composed of both MM and SM cabling. Inter-campus connectivity to Lakeland Village is provided by a 72-strand SM cable and connectivity to Pine Lodge is provided by a 24-strand SM cable. Existing backbone from Eastern State Hospital originates at the MER, ER-009A, within the Administration building.

The existing ethernet network is supported by multi-mode optical fiber backbones between buildings. The current OM1 fiber backbone is extremely limited in bandwidth and data speeds. OM1 fiber is obsolete, is not readily available through distribution, and is not being manufactured in great quantity. TIA standards for healthcare facilities also 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 meet current standards, it is recommended that the existing OM1 optical fiber backbone be replaced with an optical fiber backbone utilizing a minimum of 12-strands of OS2 single-mode outside plant optical fiber cable and a minimum of 12-strands of OM4 multi-mode outside plant optical fiber cable supporting each building.

INTRA-BUILDING BACKBONE CABLING

Category 3 twisted pair copper backbone cabling originating from the Admin Building MER is utilized throughout the campus. The cabling terminates on 110 blocks in telecommunications rooms and is patched to station cabling providing connection to the workstation outlets. Category 3 cabling is standards compliant and is not sufficient to support evolving technologies. The voice network should be collapsed to a single converged IP based network, and the existing Category 3 cabling should be demolished to align with current standards.

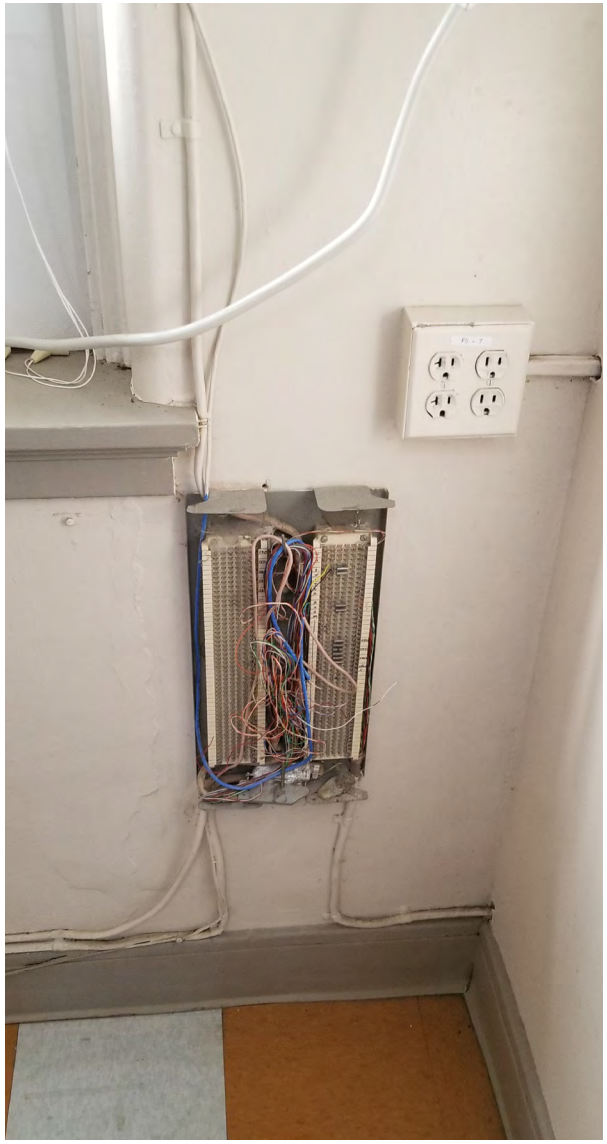
Facility buildings are supported by a mixture of 6-strand, 12 strand, and 24 strand OM1 multi-mode optical fiber cables between the MER and TR rooms within each building. OM1 cabling is several generations old and does not have sufficient bandwidth to support evolving technologies. To meet TIA standards, the backbone fiber cabling should be upgraded to a minimum of OM4 multi-mode and augmented with the addition of single-mode optical fiber cable. Providing 12-strand OS2 single-mode and 12-strand OM4 multi-mode optical fiber cables will provide an optical fiber backbone that is compliant with current industry standards.

Intrabuilding Voice 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



Existing Category 3 Cabling.

VOICE HORIZONTAL CABLING

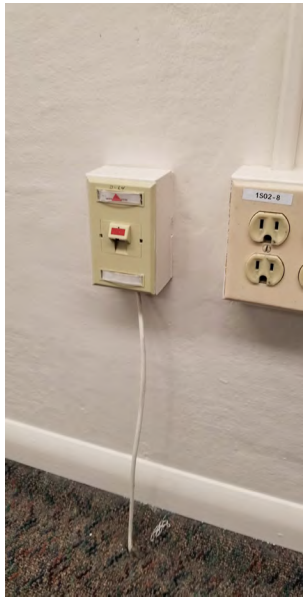
Upon review of the voice infrastructure, it was found to be inadequate to serve the current and future needs of LLV. The current phone system utilizes Category 3 cabling, patched at multiple points to provide phone service to the user. 66 and 110 blocks are used to patch the cable. 66 and 110 blocks are types of cable termination blocks used to interconnect runs of on-premises wiring in a structured cabling system. The service enters each of the buildings, patches on building entrance protectors, then patches again from 66 blocks to 110 blocks to be distributed to the appropriate floor. Once on the respective floor, the cable is patched again on 110 blocks to the workstation cabling.

At the workstation, many of the Category 3 cabling was split to serve two phone jacks, with each phone outlet getting two conductor pairs. Splitting pairs like that works fine for traditional analog phones but does not support PoE or Ethernet, which rely on all four conductor pairs to work properly. The overall effect of the multiple patches is a degradation of the signal and introduction of noise, resulting in grainy, poor-quality audio. Within the Admin building there are multiple RJ21 cables for ITT phones. RJ21 connectors are no longer used and are not standards compliant.

Category 3 cabling does not meet TIA-1179 standards for horizontal cabling. Industry wide, its use has been on a rapid decline for years as it is not manufactured to meet current bandwidth or data rate standards. The existing voice cabling is in such poor condition that it is barely supporting the existing phone system. After years of modifications and multiple generations of cabling it is nearly impossible to maintain. It is recommended that all Category 3 cabling be removed, and the voice network be collapsed onto a converged network infrastructure utilizing standards compliant Category 6A cabling.

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



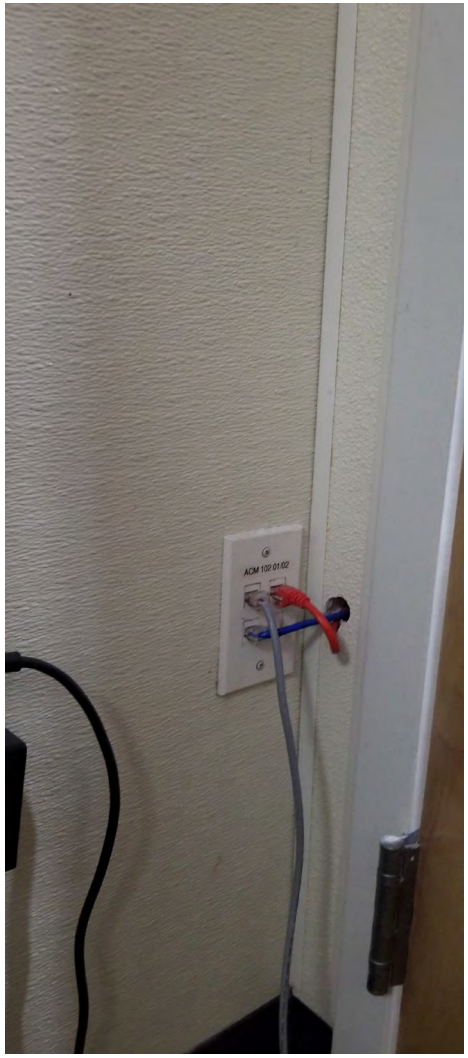
Existing Data Port.

ETHERNET HORIZONTAL CABLING

The existing ethernet network is comprised of Category 5, Category 5e, and Category 6 cabling. As can be seen in the Category Cable Comparison, Category 5 cabling is limited to 100 Mbps and is no longer recognized by the standards bodies as a viable infrastructure. The existing patch panels, connectors, and patch panels meet Category 5e standards. Limited wireless access point deployment has occurred throughout the facility with only a select few buildings receiving wireless infrastructure.

The existing Category 3, and Category 5 infrastructure is not adequate to meet the current and future needs of EHS. The Category 5 cabling is not in compliance with TIA standards for infrastructure. It is recommended that the existing cabling infrastructure be replaced with a new Category 6A cabling infrastructure.

Meeting TIA-1179 standards will require the entire channel to be Category 6A certified. Meeting this requirement 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.



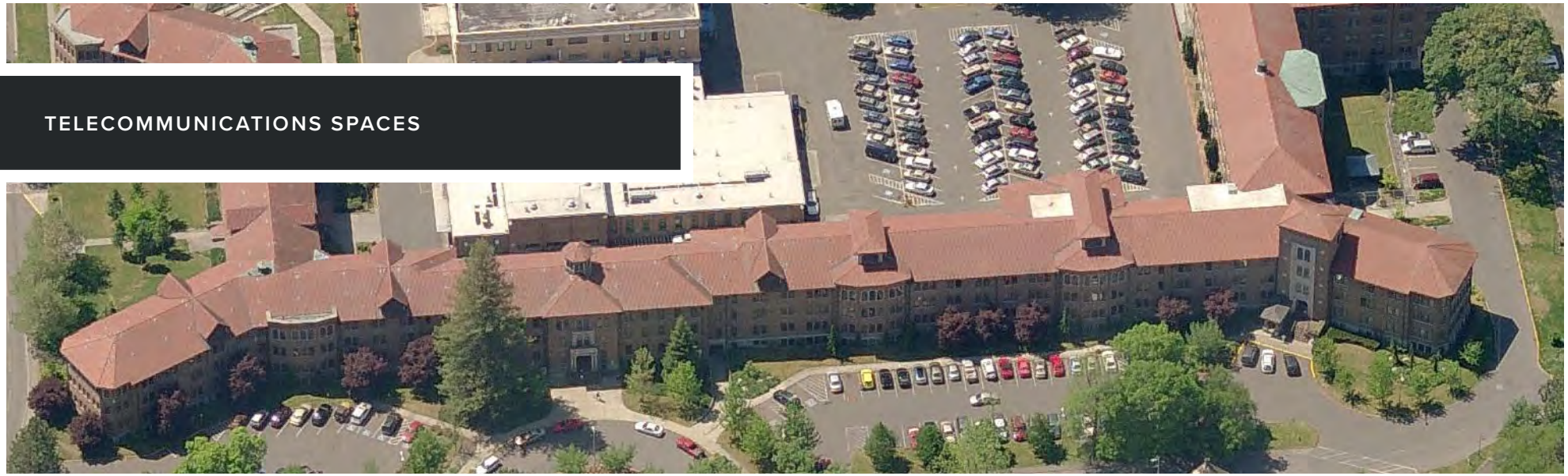
Existing Data Cable Through Wall.

Existing 4-Port Switch.

CAMPUS MAP

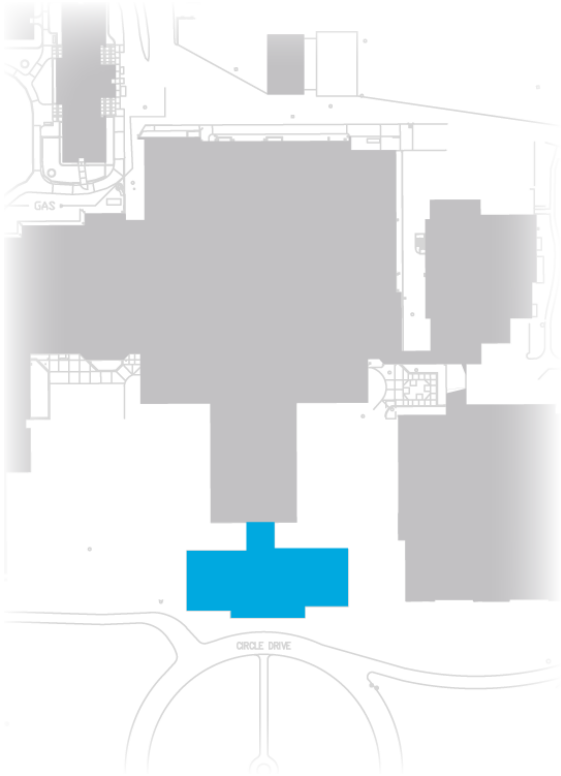
HARGIS

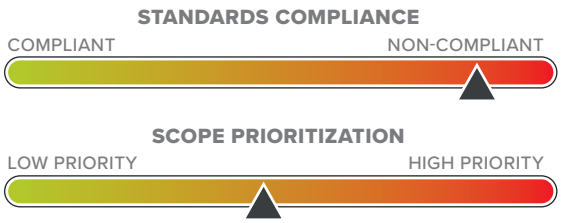
EVALUATION CRITERIA FOR TELECOMMUNICATIONS ROOMS		
Room/Space	»	Quantity, Location, and Size of Telecommunications Room.
	»	Available space to install and terminate new cabling and rack space to mount new equipment
	»	Adequate working clearances to access and maintain additional equipment and cabling
	»	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

To support future expanded infrastructure and meet industry standards, it is recommended to build dedicated telecommunications rooms throughout the facility. Creating telecommunications rooms in these spaces will require power upgrades to provide convenience receptacles, and dedicated equipment receptacles. In addition to the capacity need, the existing infrastructure is antiquated and in some ways degrading past the point of basic functionality. Many of the existing TRs are located within closets or severely constrained on available space that may be needed for expansion. Most of the existing spaces are also without any dedicated environmental controls and may only have passive ventilation into the general space to control temperature. Within the cottages the TR cabinets are placed within spaces dedicated to laundry equipment which is not recommended for the long-term viability of telecommunications equipment. While a large portion of the TR spaces included Uninterruptible Power Supplies (UPS) several spaces lacked UPS support or the size of the UPS may not be sufficient to provide the required power output and/or run time duration The vast majority of telecommunications spaces supporting the facility also include only key controls for the space with no identity verification, tracking, or authentication in order to gain access to space. To comply with the Health Insurance Portability and Accountability Act (HIPAA) and meet telecommunications standards, 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 entity 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 for 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.





ADMINISTRATION BUILDING

A historic four-story building comprising the center portion of the facility. This building is interconnected with the Habilitation Center.

TELECOMMUNICATIONS ROOM – TR-014

Dedicated Telecommunications Room for the building and primary telecommunications room for some of the facility. Located on the lower level of the building, this space includes rack capacity for switch equipment along with an Avaya Telephone Exchange and ancillary equipment. Additional small unmanaged switches are spread throughout the building to allow for expanded local connections where there is insufficient existing infrastructure. The third and fourth floors of this building are unused currently and do not include network infrastructure but do include legacy telephone outlets.

To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

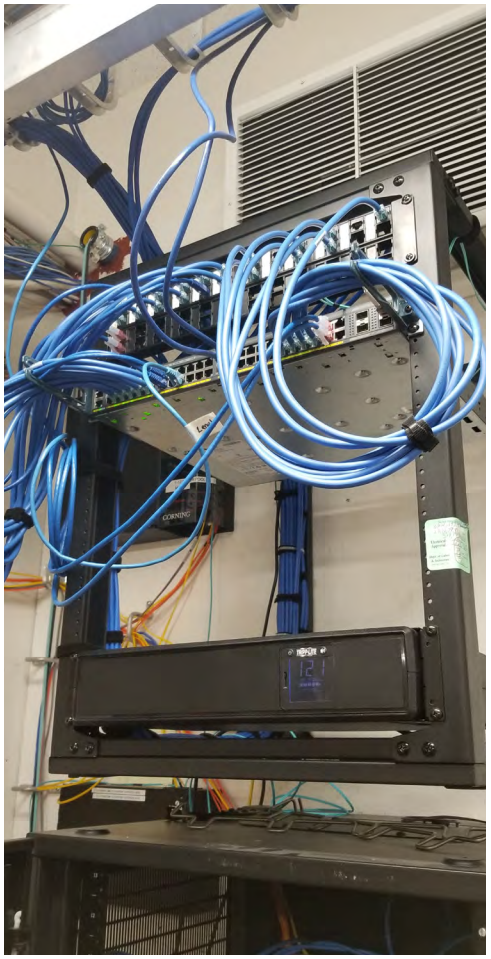
Deficiencies:

- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Electrical infrastructure does not meet minimum requirements per standards.
- Minimal cable support, leading to cables being draped or placed directly on equipment.
- No identity verification.

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 OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-014

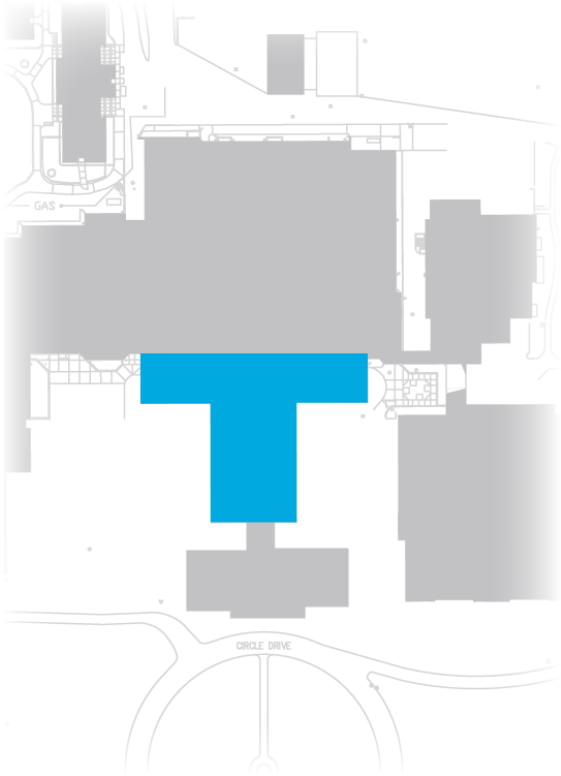


Existing Data Patching.

Existing Voice Patching.

Existing Telecom Rack.

Existing Fiber Cabinet.



STANDARDS COMPLIANCE

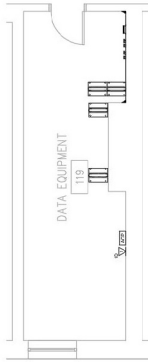
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

PROGRAM AREA

Connected to Building 1 to the East and Building 5 to the west this two-story building (Basement, Level 1 and a small Level 2 on the east side).



TELECOMMUNICATIONS ROOM – TR-119

Telecommunications Room for the east side of building 2. Includes multiple full height racks which house multiple switches for copper and fiber. Multiple patch panels along with copper 110 blocks. The first rack includes a rack mount fiber cabinet a the top and the multiple copper switches at mid height along with a UPS at the bottom. The second rack next to the first includes multiple copper patch panels and cable management and a fiber optic switch at mid height. The third rack which is located behind the other racks includes multiple rack mount fiber cabinet occupying the top section of the rack and a UPS below. The fourth rack located behind the third includes multiple rack mount fiber cabinets at the top with a network switch below along with specialized communication units and a rack mounted monitor and keyboard and a server.

To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. Ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

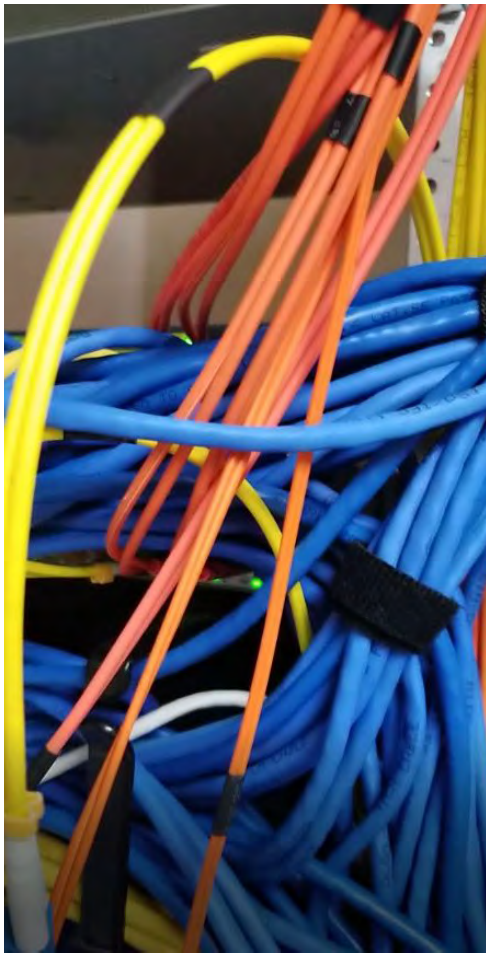
Deficiencies:

- 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.
- Electrical infrastructure does not meet minimum requirements per standards.

Recommendations:

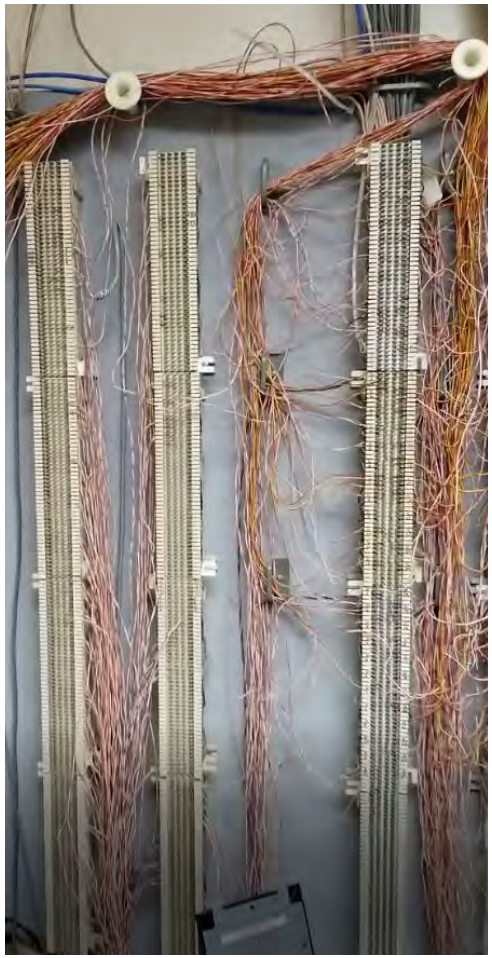
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add power circuits and receptacles as needed.

TELECOMMUNICATIONS ROOM – TR-119

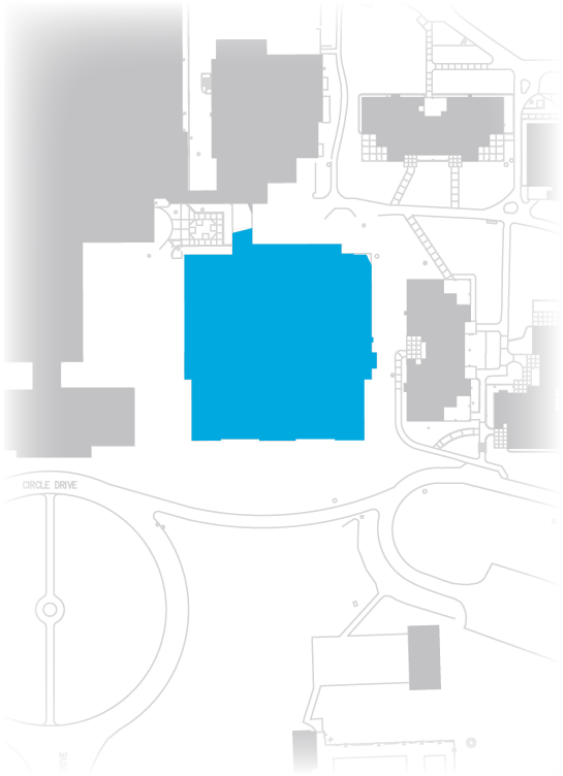


Existing Fiber & Data Patching.

Existing Telecom Rack.



Existing 66 & 110-Blocks for Voice Patching.



STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

SCHOOL / GYM

This single-story building includes classrooms along with a gym.
It is connected to Building 32 to the west.

TELECOMMUNICATIONS ROOM – TR-217

Telecommunications Room 217 is located on the west side of the gym in a mechanical room. A half height rack is installed and includes a copper patch panel, a network switch, and a UPS. Behind the rack are a wall mounted fiber cabinet and copper patch panels. There are 110 blocks for patching voice cabling located in the area outside of the room wall mounted to plywood backboard.

To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

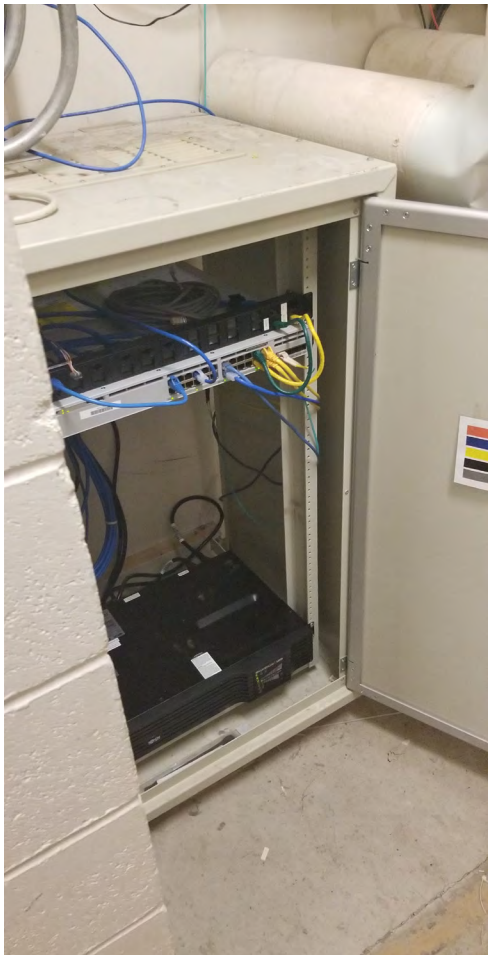
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal cable support, leading to cables being draped or placed directly on equipment.
- No grounding busbar for the telecommunications equipment.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

Recommendations:

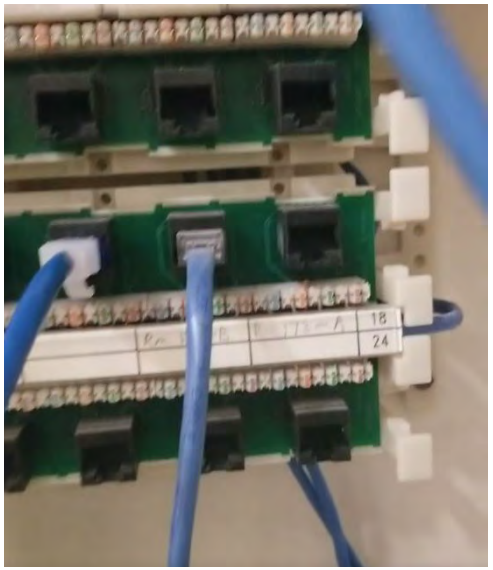
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals

TELECOMMUNICATIONS ROOM – TR-217

Existing Voice Patching.



Existing Voice Patching.



Existing Telecom Rack.

TELECOMMUNICATIONS ROOM – TR-225 – STORAGE

Small Telecommunications Room located in a storage room. This space contains only a set of 66 blocks.

It is recommended to abandon this telecommunications space consolidate all telecommunications infrastructure in TR-217. Existing Category cabling and 66 blocks for the voice system should be demolished. All new cabling should be routed to TR-217.

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.

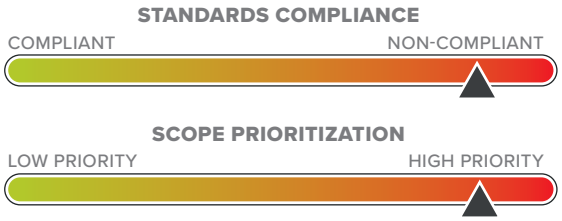
» No grounding busbar for the telecommunications equipment.

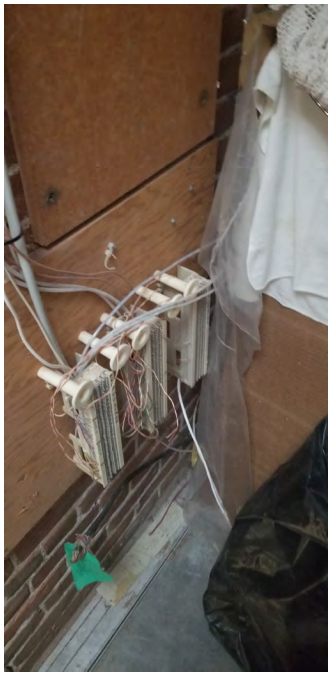
» No dedicated cooling system to maintain temperature of equipment.

» Electrical infrastructure does not meet minimum requirements per standards.

Recommendations:

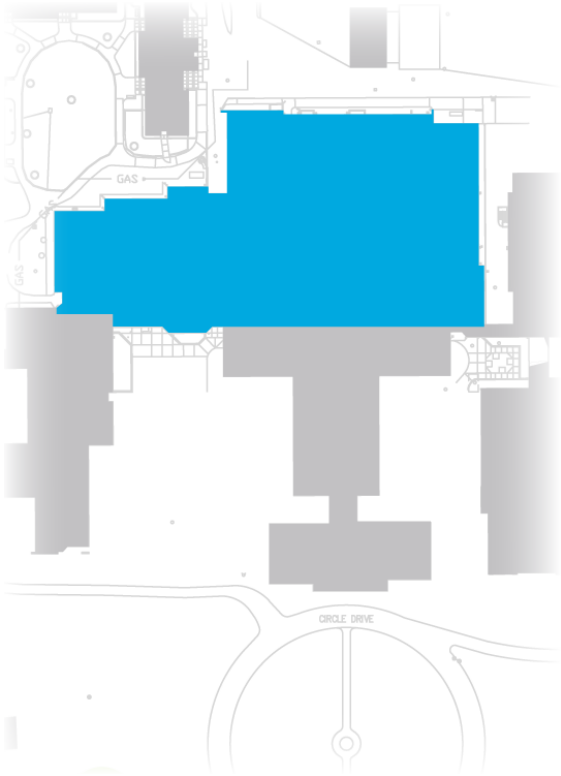
» Abandon telecommunications space and demolish existing infrastructure.





Existing 66 Blocks.

Existing Category 3 Cabling.



STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

HABILITATION CENTER

Connected to Building 2 to the East this two-story building (Basement and Level 01).

TELECOMMUNICATIONS ROOM – TR-B2

Telecommunications Room for the building. Located on the basement level and shared with electrical equipment. A wall mounted half rack is present and includes a rack mount fiber cabniet at the top with copper patch panels and cable management, the network switch, additional copper patch panels, and the UPS at the bottom. 110 blocks are located on the wall behind the rack. This TR services the western section of Building 5.

To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

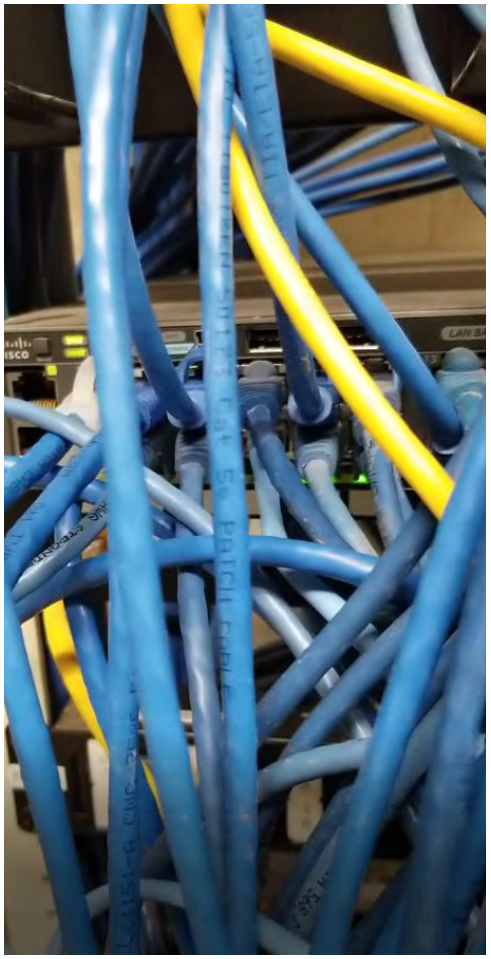
Deficiencies:

- 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.
- No identity verification.

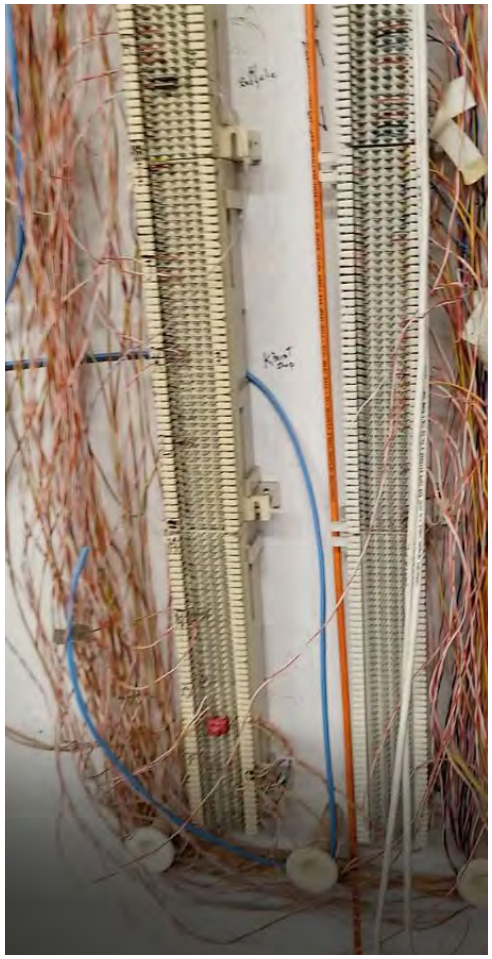
Recommendations:

- 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 OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-B2

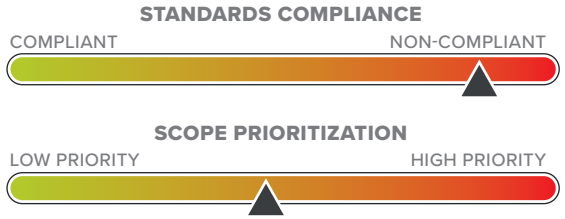


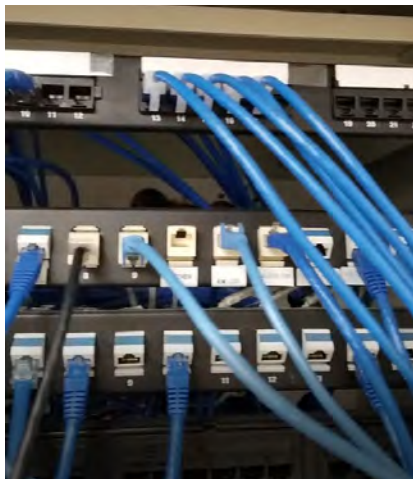
Existing Data Patching.



Existing Voice Patching.

Existing Telecom Rack.





Existing Data Patching.

Existing Telecom Cabinet.

TELECOMMUNICATIONS ROOM – TR-153

Telecommunications Room located on the main level in a repurposed conference room. A wall mounted half rack cabinet is present and includes multiple copper patch panels with cable management at the top, a network switch, a rack mount fiber cabinet, and a UPS below.

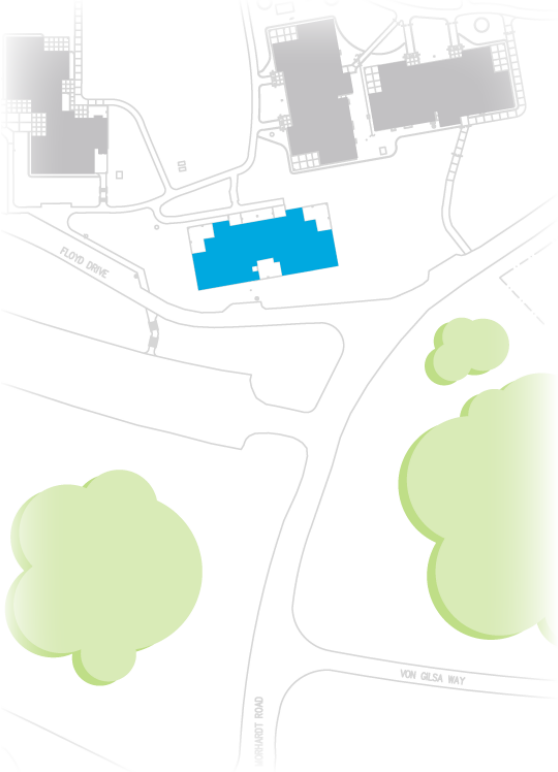
To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

- 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.
- No identity verification.

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 OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit if needed.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.



STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

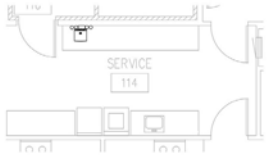
SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

RAINBOW WAY COTTAGE

This building is a part of the north side cottages. It is currently inactive.

TELECOMMUNICATIONS ROOM – TR-114



Telecommunications Room TR-114 is located within the service room. It is a mixed-use room primarily devoted to laundry functions. Due to the inactive status of the building the TR is composed of a wall mounted half rack with a rack mount fiber cabinet. Connectivity is provided by a 12-strand OM1 OFC.

To meet industry standards, it is recommended to relocate the telecommunications room to a dedicated room. The new telecommunications room should be provided with upgraded backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

- 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.
- No identity verification.

Recommendations:

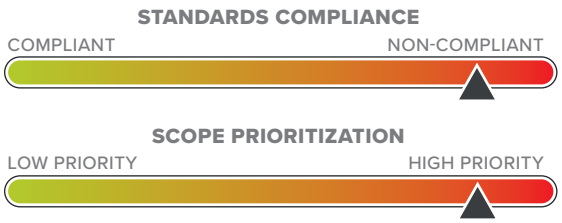
- Relocate TR to a dedicated room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-114

Existing Fiber Patching.

Existing Cabling Pathways.

Existing Telecom Cabinet.



CASCADE WAY COTTAGE

This building is a part of the north side cottages and provides housing, recreation, and dining for patients.

TELECOMMUNICATIONS ROOM – TR-114

Telecommunications Room TR-114 is located within the service room. It is a mixed-use room primarily devoted to laundry functions. The TR is composed of a wall mounted half rack with a rack mount fiber cabinet, copper patch panel, a network switch, and a UPS. The rack is mounted directly above laundry machines. Connectivity is provided by a 12-strand OM1 OFC.

To meet industry standards, it is recommended to relocate the telecommunications room to a dedicated room. The new telecommunications room should be provided with upgraded backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

- 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.
- No identity verification.

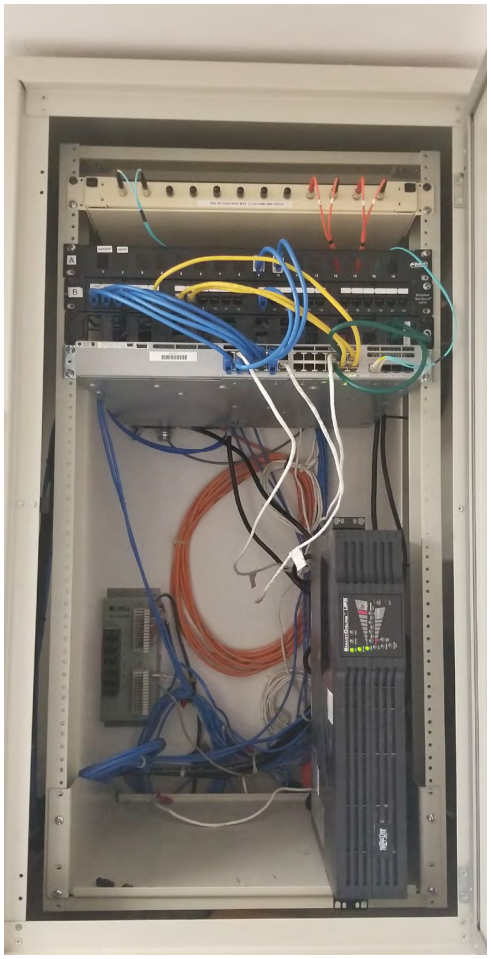
Recommendations:

- Relocate TR to a dedicated 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 OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-114

Existing Fiber Patching Mismatch.

Existing Category 5E Patch Panel.



Existing Telecom Cabinet.

STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

WILDROSE WAY COTTAGE

This building is a part of the north side cottages and provides housing, recreation, and dining for patients.

TELECOMMUNICATIONS ROOM – TR-114

Telecommunications Room TR-114 is located within the service room. It is a mixed-use room primarily devoted to laundry functions. Due to the inactive status of the building the TR is composed of a wall mounted half rack with a rack mount fiber cabinet, copper patch panel, a network switch, and a UPS. The rack is mounted directly above laundry machines. Connectivity is provided by a 12-strand OM1 OFC.

To meet industry standards, it is recommended to relocate the telecommunications room to a dedicated room. The new telecommunications room should be provided with upgraded backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

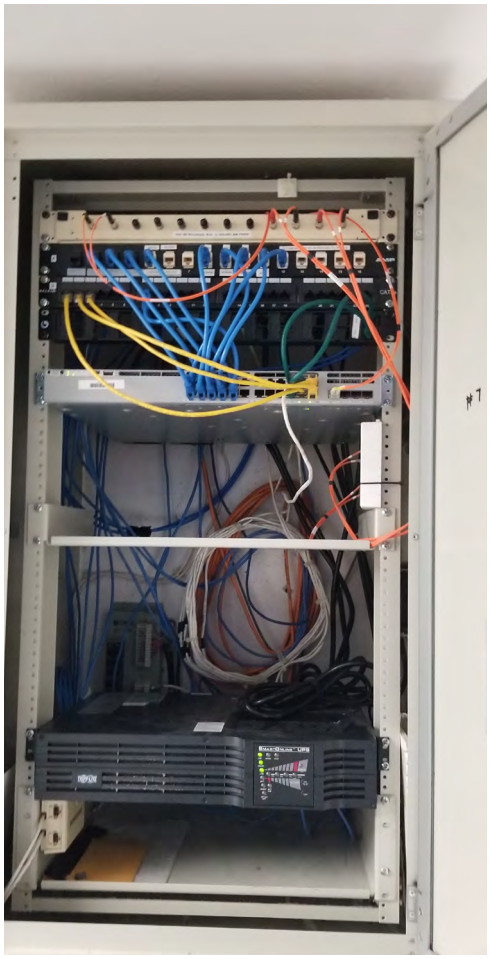
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal cable support, leading to cables being draped or placed directly on equipment.
- No grounding busbar for the telecommunications equipment.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

Recommendations:

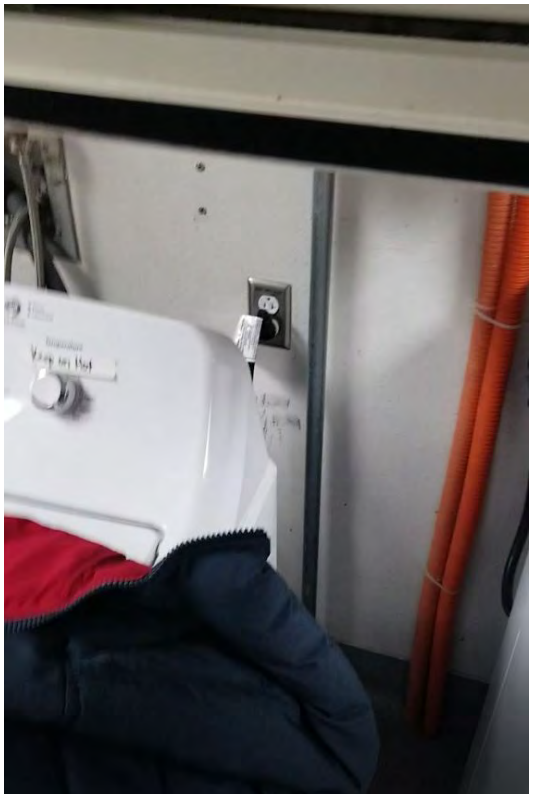
- Relocate TR to a dedicated room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-114

Existing Fiber Patching Mismatch.



Existing Telecom Cabinet.



Existing Washing Machine.

STANDARDS COMPLIANCE

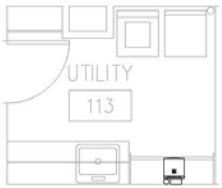
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

APPLE COURT COTTAGE

This building is a part of the north side cottages and provides housing, recreation, and dining for patients.



TELECOMMUNICATIONS ROOM – TR-113

Telecommunications Room TR-113 is located within the service room. It is a mixed-use room primarily devoted to laundry functions. The TR is composed of a wall mounted half rack with a rack mount fiber cabinet, copper patch panel, a network switch, and a UPS. The rack is mounted directly above laundry machines. Connectivity is provided by a 12-strand OM1 OFC.

To meet industry standards, it is recommended to relocate the telecommunications room to a dedicated room. The new telecommunications room should be provided with upgraded backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

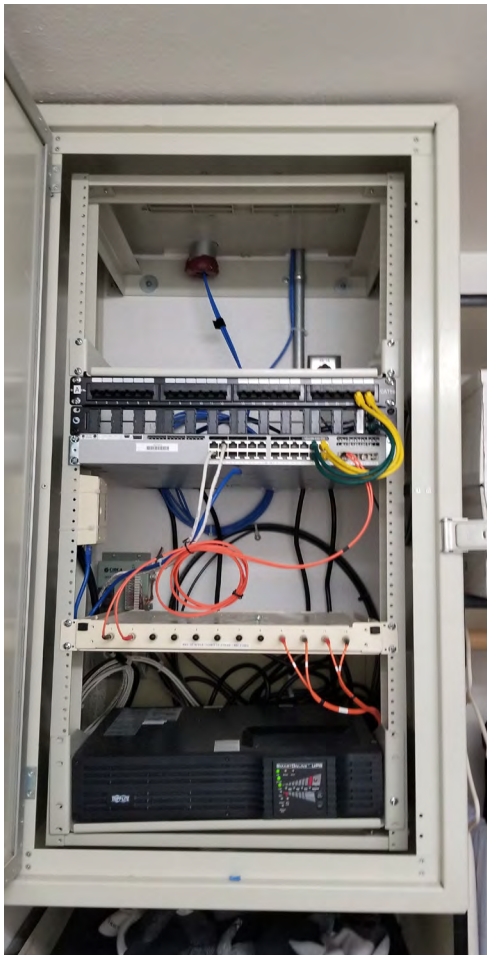
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal cable support, leading to cables being draped or placed directly on equipment.
- No grounding busbar for the telecommunications equipment.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

Recommendations:

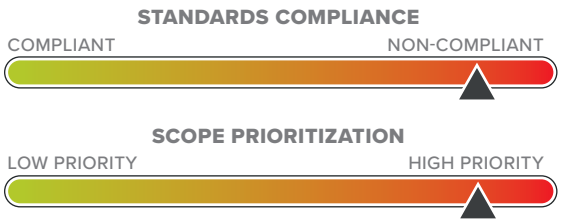
- Relocate TR to a dedicated room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-113

Existing Data Patching.

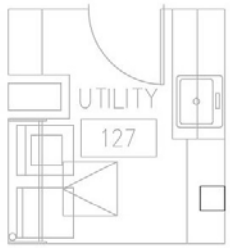


Existing Telecom Cabinet.



BIGFOOT WAY COTTAGE

This building is a part of the north side cottages and provides housing, recreation, and dining for patients.



TELECOMMUNICATIONS ROOM – TR-127

Telecommunications Room TR-127 is located within the service room. It is a mixed-use room primarily devoted to laundry functions. The TR is composed of a small casework cabinet with a compact rack mount fiber cabinet, a copper patch panel, a 110 block, a network switch, and a UPS. Connectivity is provided by a 12-strand OM1 OFC.

To meet industry standards, it is recommended to relocate the telecommunications room to a dedicated room. The new telecommunications room should be provided with upgraded backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

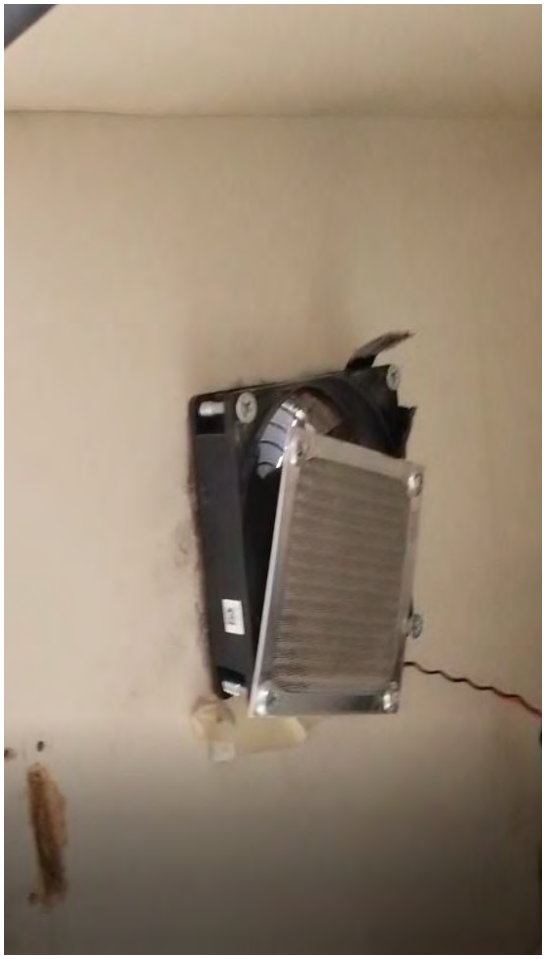
Deficiencies:

- 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.
- No identity verification.

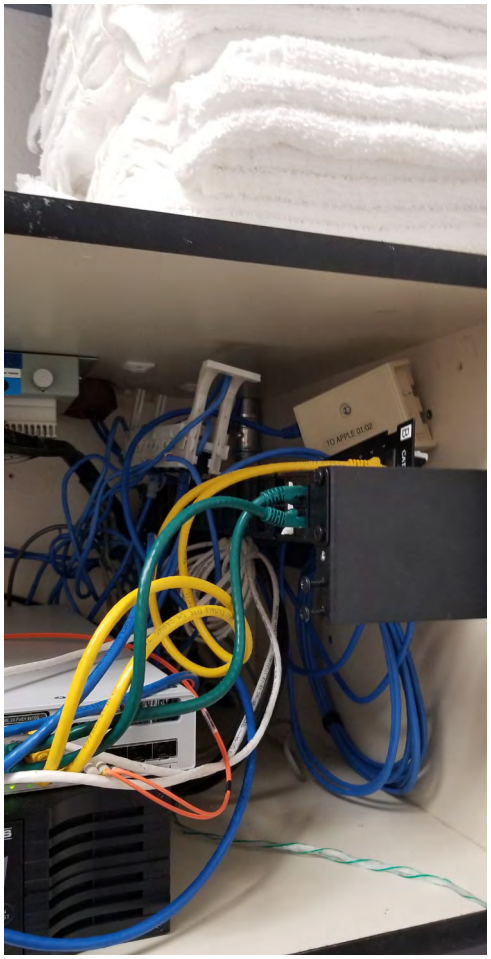
Recommendations:

- Relocate TR to a dedicated 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 OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals

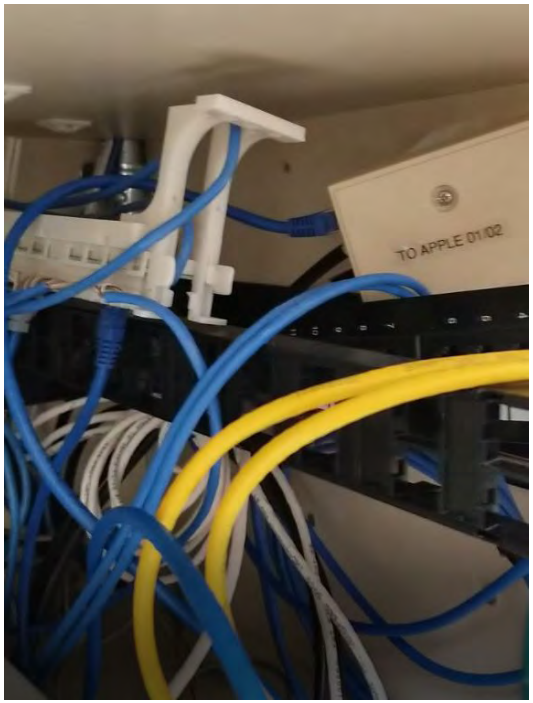
TELECOMMUNICATIONS ROOM – TR-127



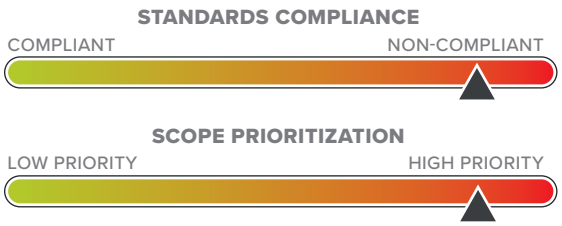
Existing Cabinet Cooling Fan.



Existing Telecom Cabinet.

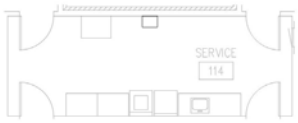


Existing Data & Voice Patching.



BIGFOOT WAY COTTAGE

This building is a part of the north side cottages and provides housing, recreation, and dining for patients. This cottage was inactive at the time of the survey.



TELECOMMUNICATIONS ROOM – TR-114

Telecommunications Room TR-114 is located within the service room. It is a mixed-use room primarily devoted to laundry functions. The TR is composed of a small casework cabinet with a few small wall mount fiber cabinets, and a media converter. Connectivity is provided by a (2) 12-strand OM1 OFCs and a 6-strand OM1 OFC.

To meet industry standards, it is recommended to relocate the telecommunications room to a dedicated room. The new telecommunications room should be provided with upgraded backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

- 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.
- No identity verification.

Recommendations:

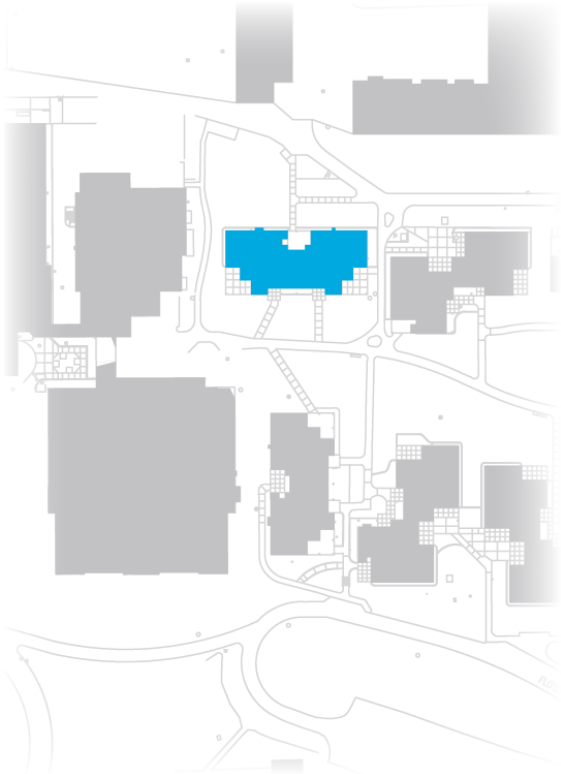
- Relocate TR to a dedicated room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals

TELECOMMUNICATIONS ROOM – TR-114

Existing Building Entrance Protection.

Existing Fiber Cabinet.

Existing Telecom Cabinet.



STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

CASCADE WAY COTTAGE

This building is a part of the north side cottages and provides housing, recreation, and dining for patients.

TELECOMMUNICATIONS ROOM – TR-114

Telecommunications Room TR-114 is located within the service room. It is a mixed-use room primarily devoted to laundry functions. The TR is composed of a wall mounted half rack with a rack mount fiber cabinet, copper patch panel, a network switch, and a UPS. Connectivity is provided by a 12-strand OM1 OFC.

To meet industry standards, it is recommended to relocate the telecommunications room to a dedicated room. The new telecommunications room should be provided with upgraded backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

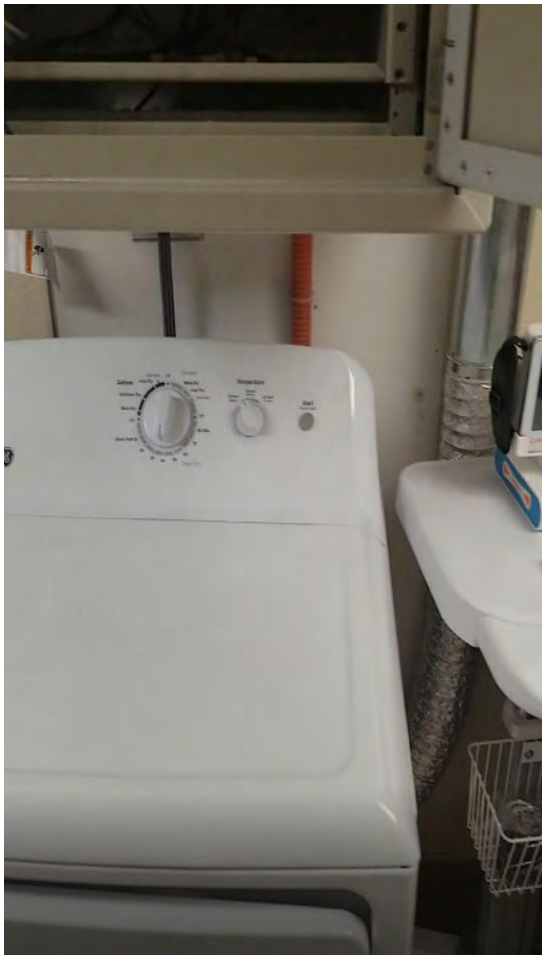
Deficiencies:

- 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.
- No identity verification.

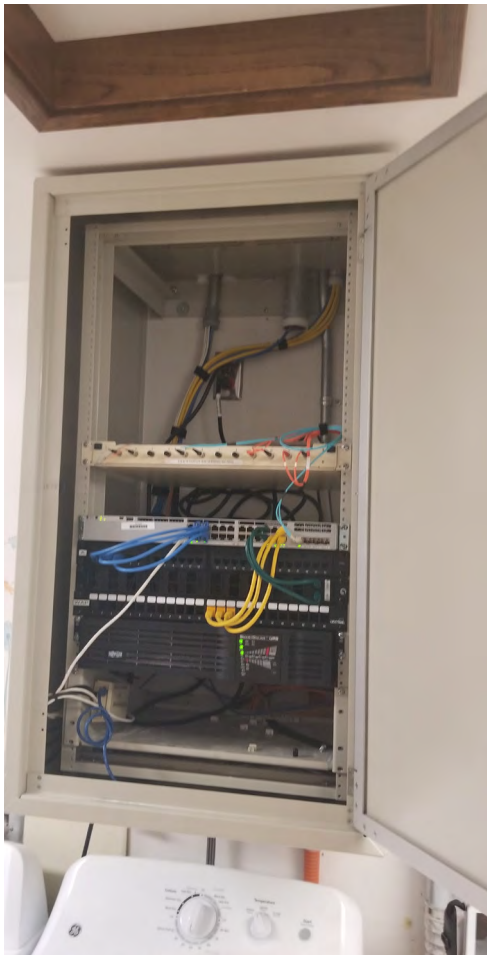
Recommendations:

- Relocate TR to a dedicated 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 OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals

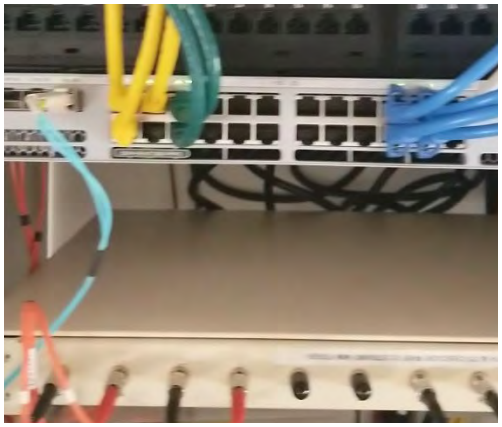
TELECOMMUNICATIONS ROOM – TR-114



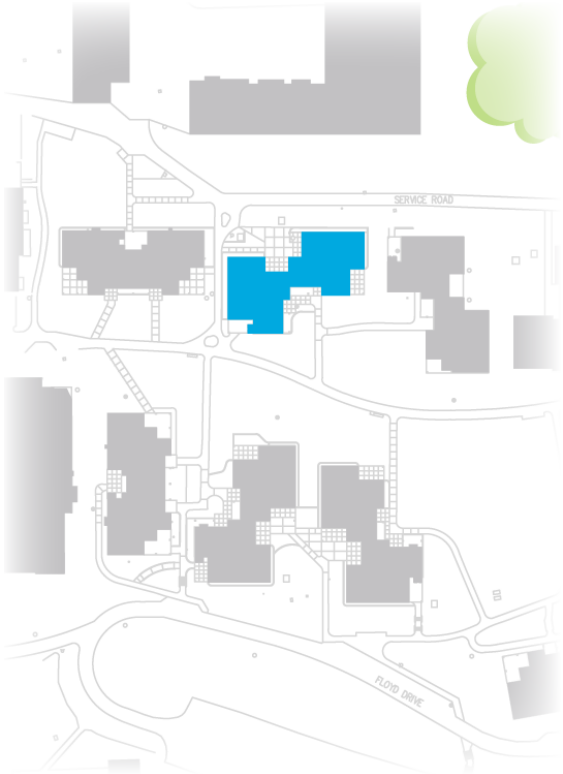
Existing Washer.



Existing Telecom Cabinet Above Washer.



Existing Fiber Patching Mismatch.



STANDARDS COMPLIANCE

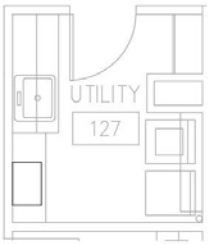
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

WILLOW COURT COTTAGE

This building is a part of the north side cottages and provides housing, recreation, and dining for patients. This cottage was inactive at the time of the survey.



TELECOMMUNICATIONS ROOM – TR-127

Telecommunications Room TR-127 is located within the service room. It is a mixed-use room primarily devoted to laundry functions. The TR is composed of a wall mounted half rack with a wall mount fiber cabinet and a copper patch panel. Connectivity is provided by a 4-strand OM1 OFC.

To meet industry standards, it is recommended to relocate the telecommunications room to a dedicated room. The new telecommunications room should be provided with upgraded backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

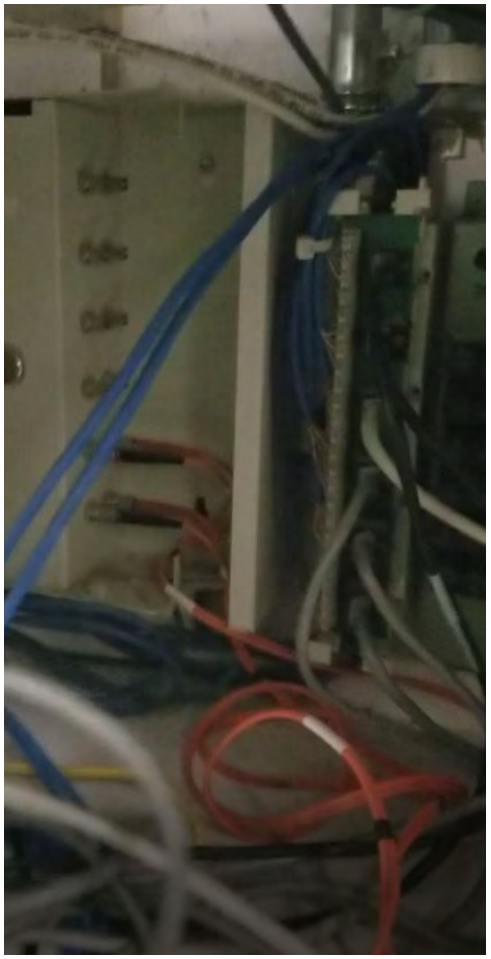
Deficiencies:

- 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.
- No identity verification.

Recommendations:

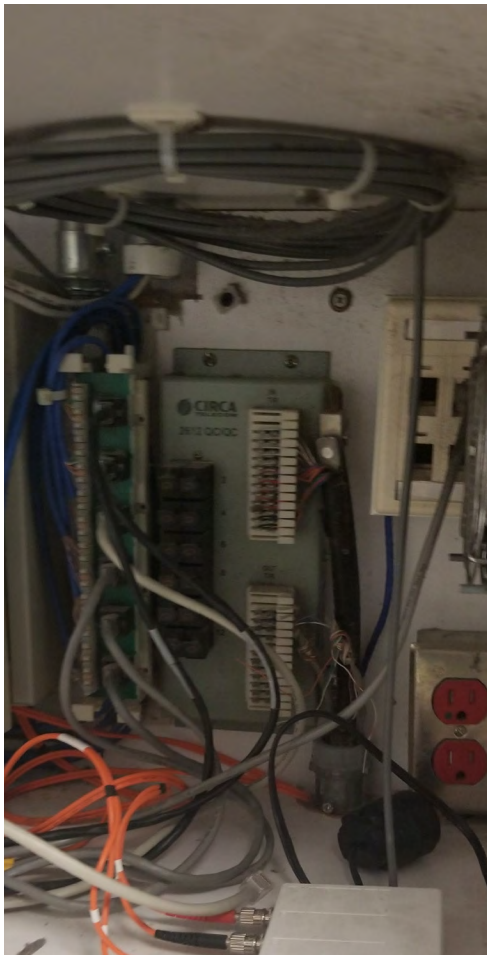
- Relocate TR to a dedicated room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals

TELECOMMUNICATIONS ROOM – TR-127



Existing Fiber Cabinet.

Existing Data & Voice Patching.



Existing Telecom Cabinet.

STANDARDS COMPLIANCE

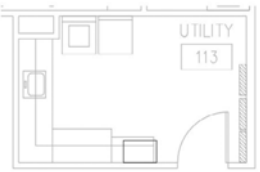
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

WILLOW COURT COTTAGE

This building is a part of the north side cottages and provides housing, recreation, and dining for patients.



TELECOMMUNICATIONS ROOM – TR-113

Telecommunications Room TR-113 is located within the service room. It is a mixed-use room primarily devoted to laundry functions. The TR is composed of a small casework cabinet with a wall mount fiber cabinet, copper patch panel, a network switch, and a UPS. Connectivity is provided by a 12-strand OM1 OFC.

To meet industry standards, it is recommended to relocate the telecommunications room to a dedicated room. The new telecommunications room should be provided with upgraded backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

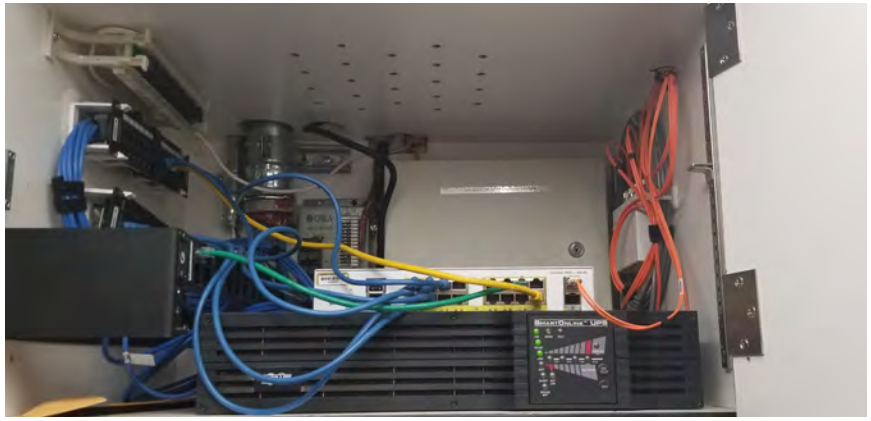
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal cable support, leading to cables being draped or placed directly on equipment.
- No grounding busbar for the telecommunications equipment.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

Recommendations:

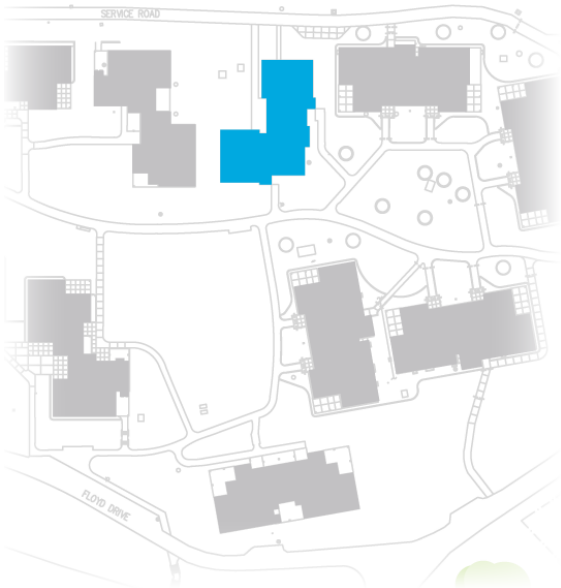
- Relocate TR to a dedicated room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals

TELECOMMUNICATIONS ROOM – TR-113

Existing Data & Voice Patching.



Existing Telecom Cabinet.



STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

SUNRISE COURT COTTAGE

This building is a part of the north side cottages and provides housing, recreation, and dining for patients. This cottage was inactive at the time of the survey. No telecommunications space was observed during the site survey.

To meet industry standards, it is recommended to provide a new dedicated telecommunications room. The new telecommunications room should be provided with standards compliant backbone and horizontal cabling. Category 6A data ports meeting port density specified in standards are recommended. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space. The building may be scheduled for demolition or renovation.

Deficiencies:

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

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 OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

SUNRISE COURT COTTAGE

This building is a part of the north side cottages and provides housing, recreation, and dining for patients.

TELECOMMUNICATIONS ROOM – TR-114

Telecommunications Room TR-114 is located within the service room. It is a mixed-use room primarily devoted to laundry functions. The TR is composed of a wall mounted half rack with a rack mount fiber cabinet, copper patch panel, a network switch, and a UPS. Connectivity is provided by a 12-strand OM1 OFC.

To meet industry standards, it is recommended to relocate the telecommunications room to a dedicated room. The new telecommunications room should be provided with upgraded backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

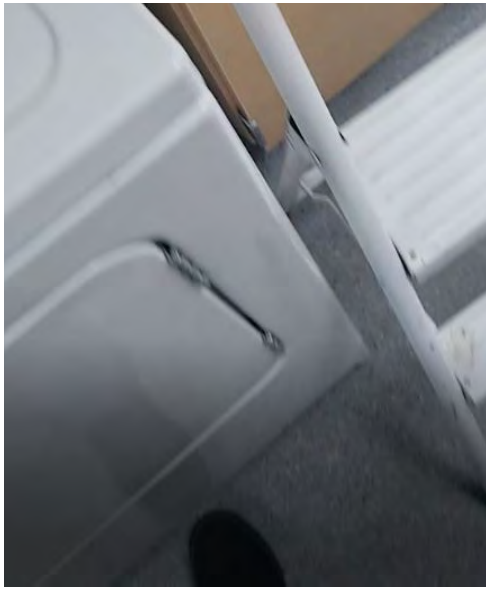
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal cable support, leading to cables being draped or placed directly on equipment.
- No grounding busbar for the telecommunications equipment.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

Recommendations:

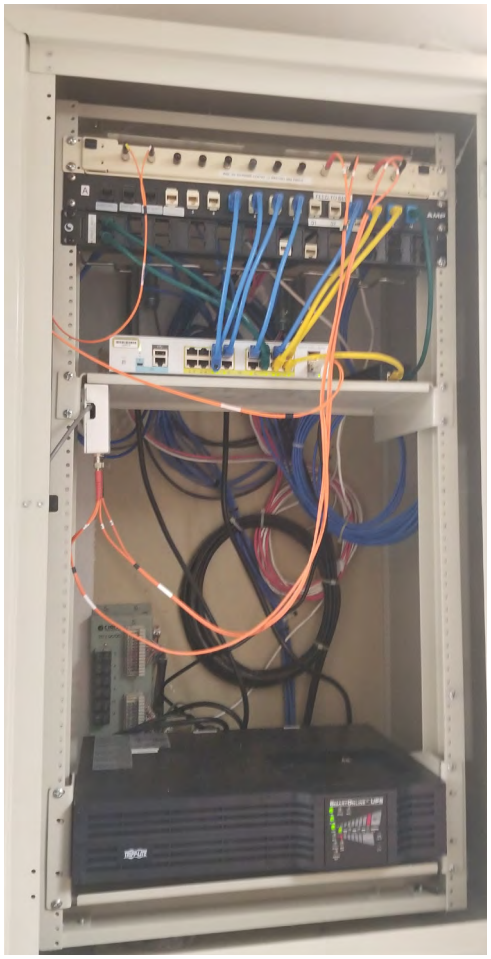
- Relocate TR to a dedicated room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals

TELECOMMUNICATIONS ROOM – TR-114

Existing Data Patching.



Existing Dryer Below Telecom Cabinet.



Existing Telecom Cabinet.

STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

SUNRISE COURT COTTAGE

This building is a part of the north side cottages and provides housing, recreation, and dining for patients.

TELECOMMUNICATIONS ROOM – TR-114

Telecommunications Room TR-114 is located within the service room. It is a mixed-use room primarily devoted to laundry functions. The TR is composed of a wall mounted half rack with a rack mount fiber cabinet, copper patch panel, a network switch, and a UPS. Connectivity is provided by a 12-strand OM1 OFC.

To meet industry standards, it is recommended to relocate the telecommunications room to a dedicated room. The new telecommunications room should be provided with upgraded backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

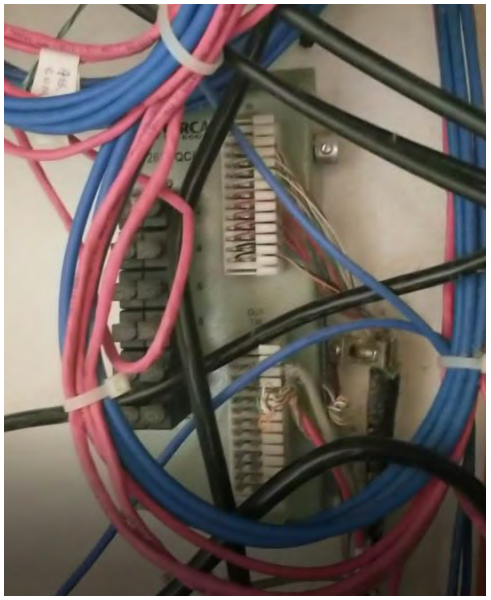
Deficiencies:

- 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.
- No identity verification.

Recommendations:

- Relocate TR to a dedicated 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 OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals

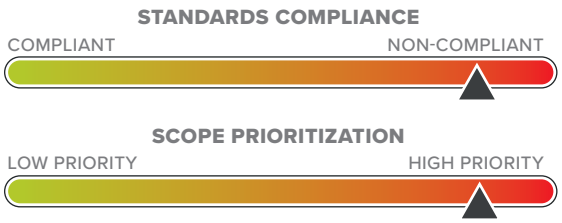
TELECOMMUNICATIONS ROOM – TR-114 TR



Existing Building Entrance Protection.

Existing Washer.

Existing Telecom Cabinet.



CARPENTER AND PAINT SHOP

This is a support building on the northwest side of campus. It houses the carpentry and paint maintenance departments. Currently, there is no telecommunications room in the building. The infrastructure is limited to Category 3 voice cabling patched at a 66 block on the wall.

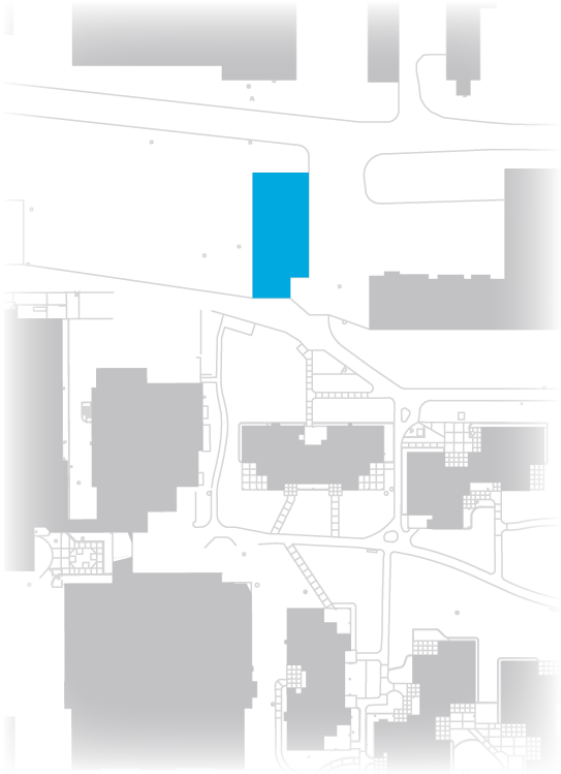
To meet industry standards, it is recommended to relocate the telecommunications room to a dedicated room. The new telecommunications room should be provided with upgraded backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

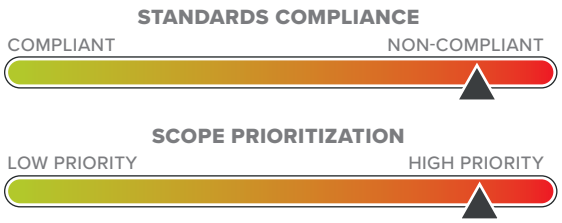
Deficiencies:

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

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 OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.





REPAIR GARAGE

This is a support building on the northwest side of campus.

TELECOMMUNICATIONS ROOM – TR-04

The telecommunications room for the building is on the first floor. A full height two post rack is present and includes two rack mount fiber cabinets, copper patch panels, a network switch, and a UPS. Connectivity is provided by a 12-strand SM and 12-strand OM1 OFC to Housekeeping. There are two twisted-pair copper cables providing analog voice backbone, a 6-pair, and a 12-pair. They land on building entrance protectors.

To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. 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. New standards compliant backbone and horizontal cabling are recommended. The addition of card-based access control is recommended to control and track access to the space.

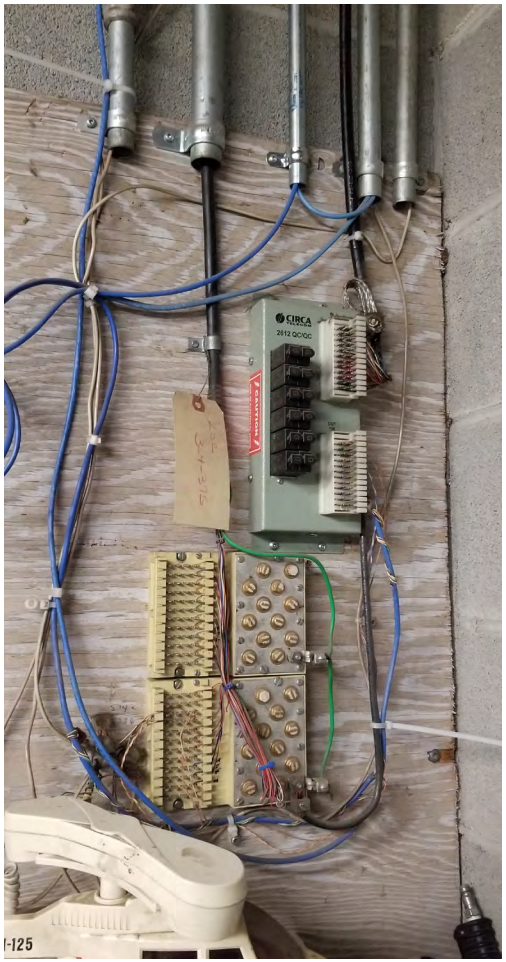
Deficiencies:

- 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.
- No identity verification.

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 OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-04

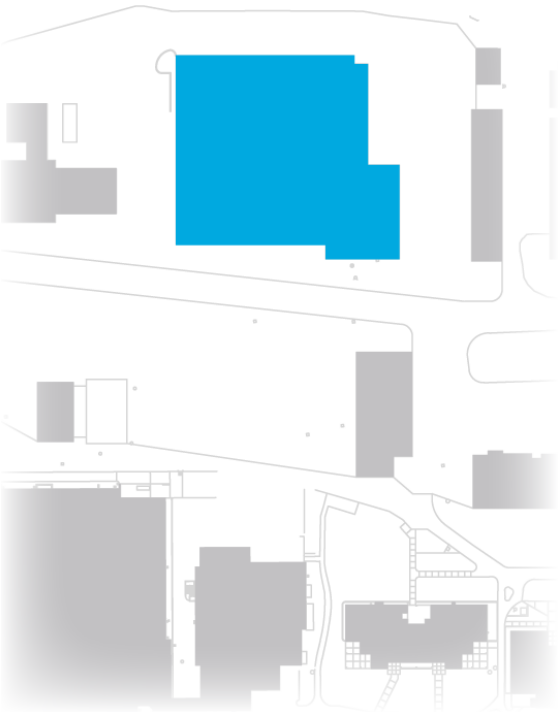


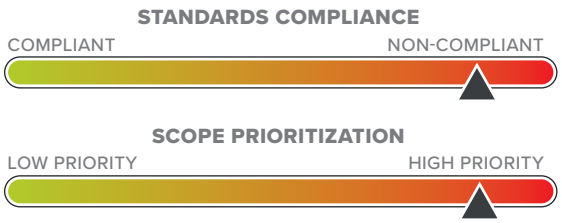
Category 3 Cabling Building Entrance Protection.

Damaged Data Outlet.

Existing MM Rack Mount Fiber Cabinet.

Existing SM Rack Mount Fiber Cabinet.





LAUNDRY

This is a support building on the northwest side of campus.

TELECOMMUNICATIONS ROOM – TR-9

The telecommunications room for the building is in a utility room. A full height two post rack is present and includes three rack mount fiber cabinets, copper patch panels, a network switch, and a UPS. Connectivity is provided by a 12-strand SM and 12-strand OM3 OFC to Support Services, a 6-strand OM1 to the fire alarm panel, and a 12-strand OM1 to Building 2.

To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. 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. New standards compliant backbone and horizontal cabling are recommended. The addition of card-based access control is recommended to control and track access to the space.

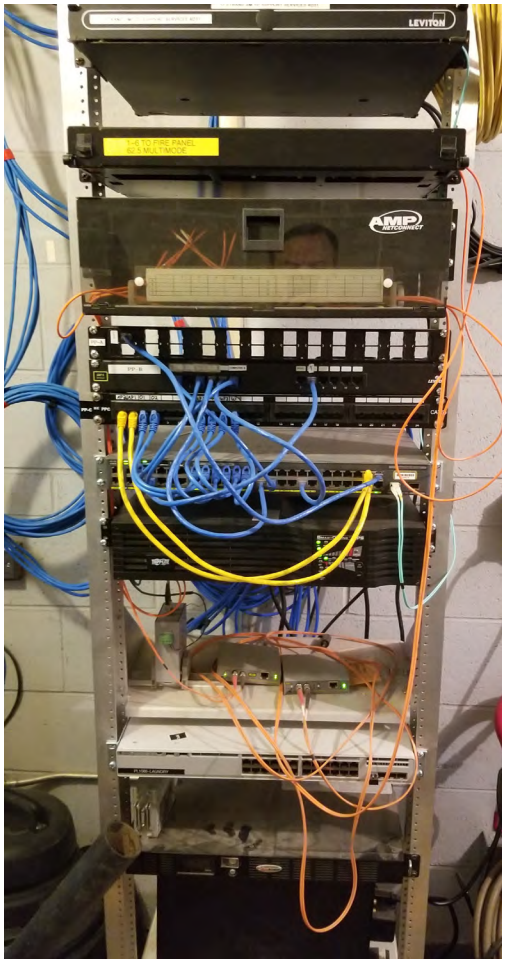
Deficiencies:

- 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.
- No identity verification.

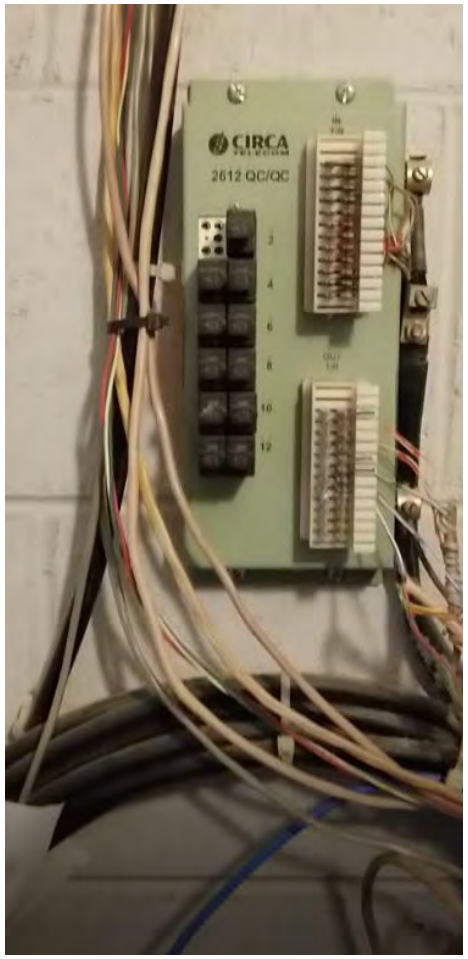
Recommendations:

- 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 OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

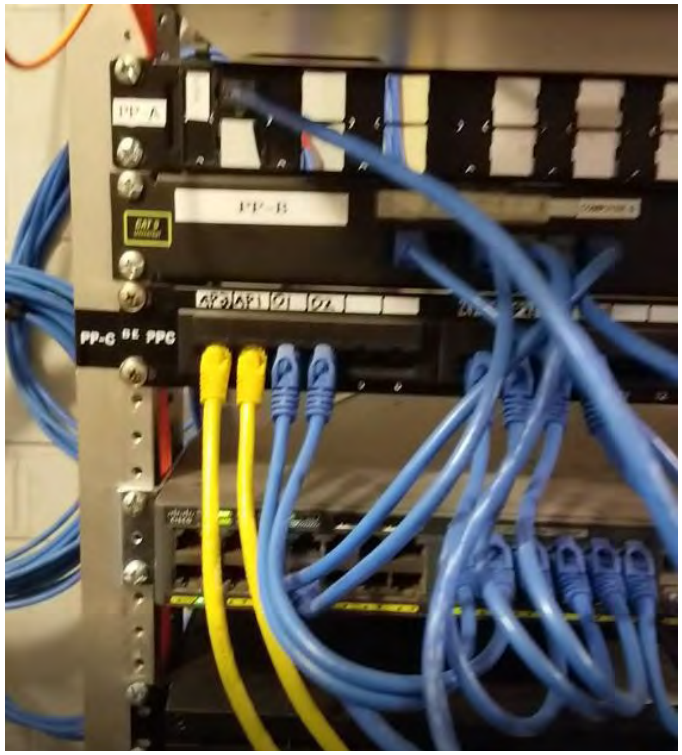
TELECOMMUNICATIONS ROOM – TR-9



Existing Telecom Rack.



Existing Building Entrance Protection.



Existing Data Patching.

STANDARDS COMPLIANCE

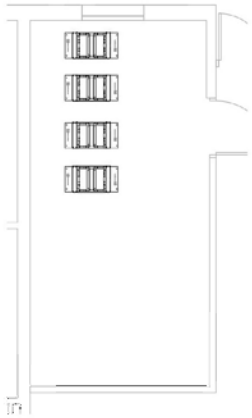
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

SUPPORT SERVICES

Located north of the main building this building includes the offices for the Consolidated Support Services team along with some storage and ancillary spaces.



MAIN EQUIPMENT ROOM – MER-13A

13A is the Main Equipment Room (MER) for the facility. The MER includes multiple full height server racks with ladder rack above and multiple grounding busbars. The first rack includes multiple productions servers and a UPS. The second rack includes multiple network switches, multiple production servers, and UPS equipment. The third rack includes multiple rack mount fiber cabinets and cable management. The fourth rack includes a Radio repeater and associated equipment. There appears to be room for expansion amongst the racks. This room also includes a workstation.

To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. 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. New standards compliant backbone and horizontal cabling are recommended. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

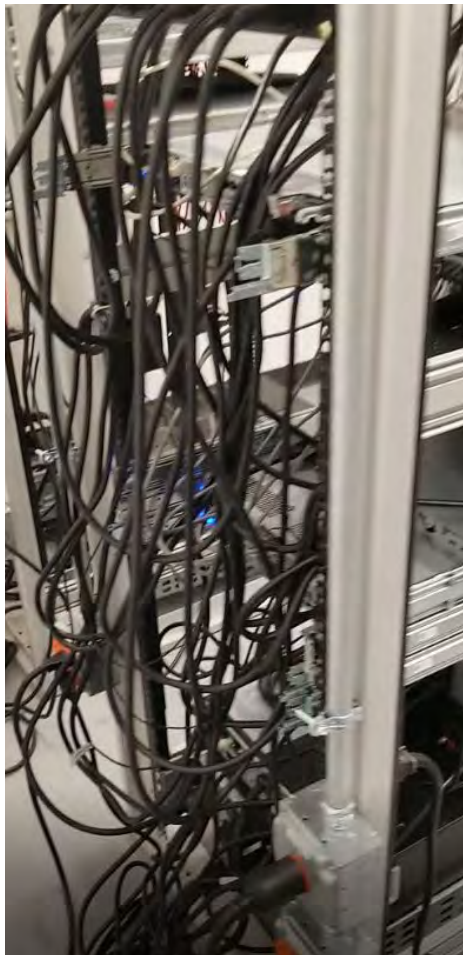
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.

Recommendations:

- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Control access to authorized individuals if needed.

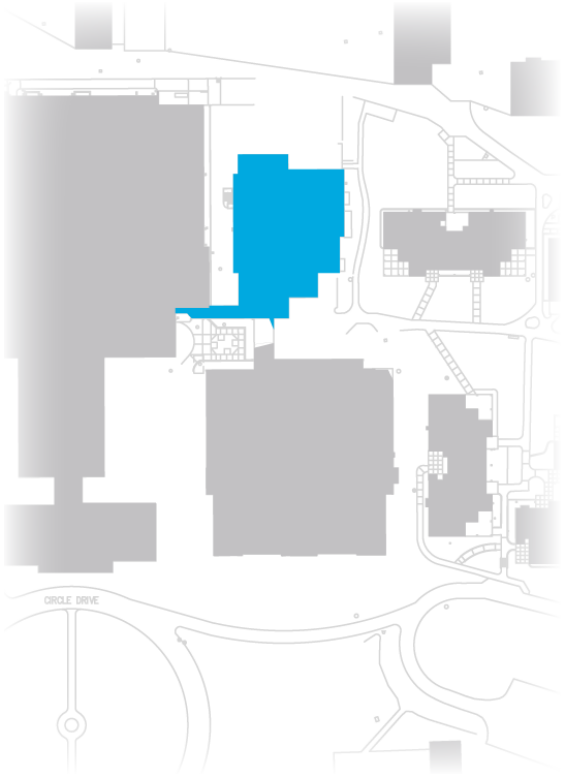
TELECOMMUNICATIONS ROOM – TR-13A

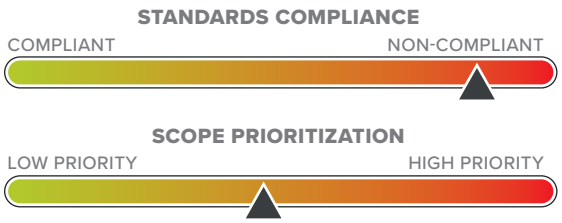
Existing Server Equipment.



Existing Telecom Racks.

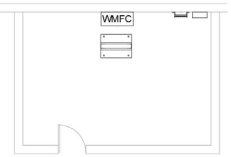
Existing Fiber Patching.





FOOD SERVICE

This two-story building (Basement and Level 01) contains the main kitchen that supports the facility along with some dining space. It is connected to Building 5 to the south. A small basement provides pantry storage.



TELECOMMUNICATIONS ROOM – TR-BASEMENT

The telecommunications room for the building is on the basement level. The room is shared with electrical equipment. A full height two post rack is present and includes a rack mount fiber cabinet, copper patch panels, a network switch, and a UPS. Behind the rack on the wall are multiple 110 blocks, a wall mount fiber cabinet, and a copper grounding busbar.

To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

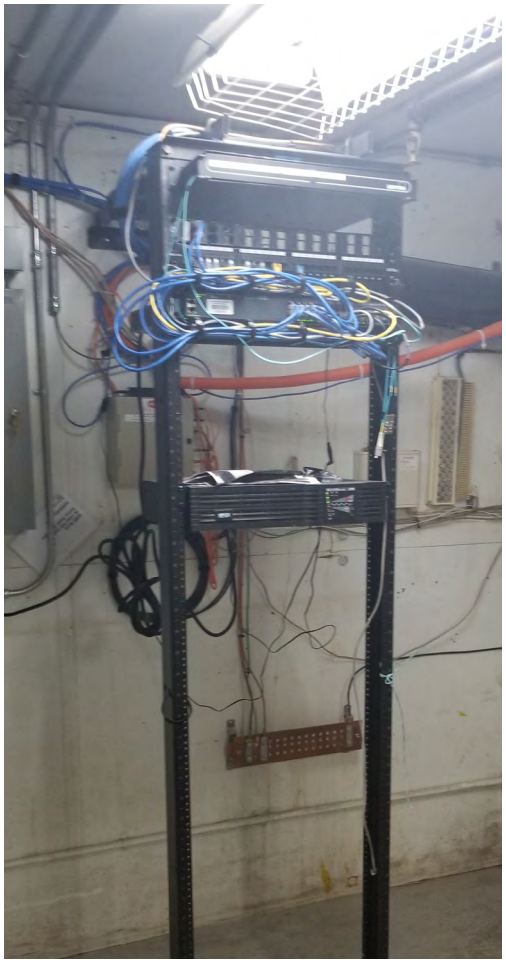
Deficiencies:

- 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.

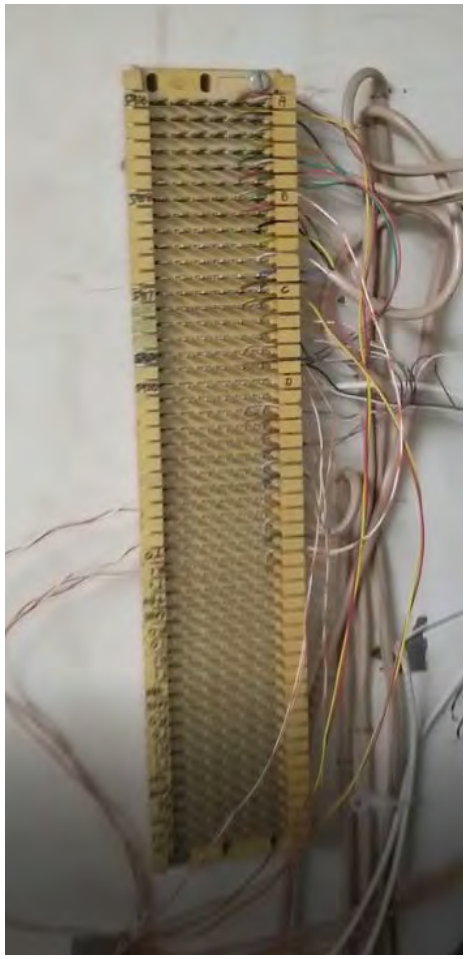
Recommendations:

- 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 OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals as needed.

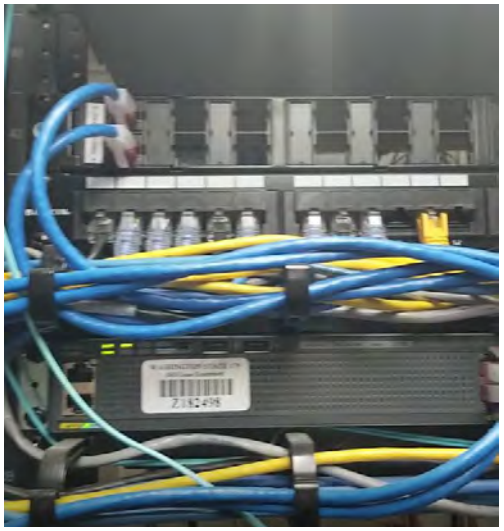
TELECOMMUNICATIONS ROOM – TR-BASEMENT



Existing Telecom Rack.



Existing Voice Patching.



Existing Data Patching.

STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

CHAPEL

This is a support building on the east side of campus. The chapel provides a place to worship and has a kitchen/multi-purpose room. The infrastructure is limited to a single phone connection.

TELECOMMUNICATIONS ROOM – TR-003

The telecommunications room for the building is in the Storage room. There is a wall mount fiber cabinet and a building entrance protector. Connectivity is provided by a 12-strand SM and 12-strand OM3 OFC to Support Services and a 12 strand Category 3 OSP.

To meet industry standards, it is recommended to provide a new dedicated telecommunications room. The new telecommunications room should be provided with standards compliant backbone and horizontal cabling. Category 6A data ports meeting port density specified in standards are recommended. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

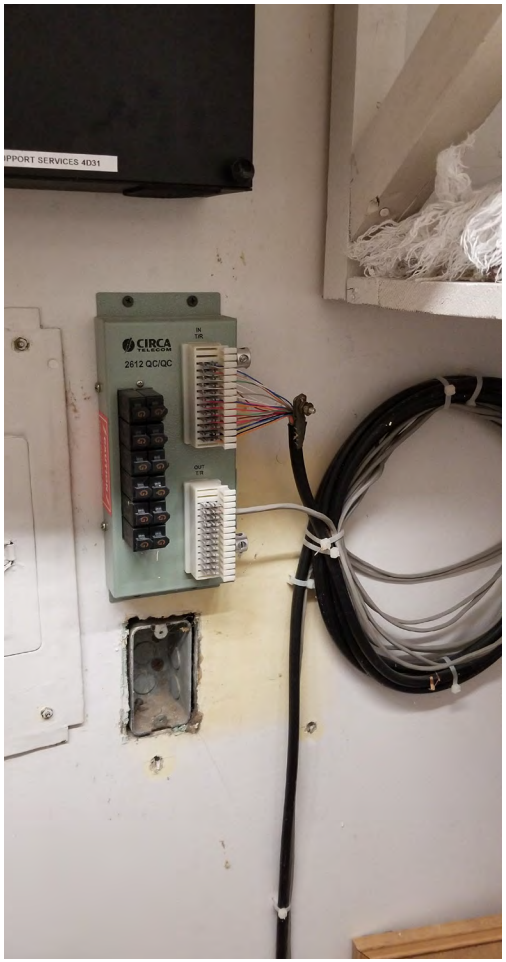
Deficiencies:

- 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.
- No identity verification.

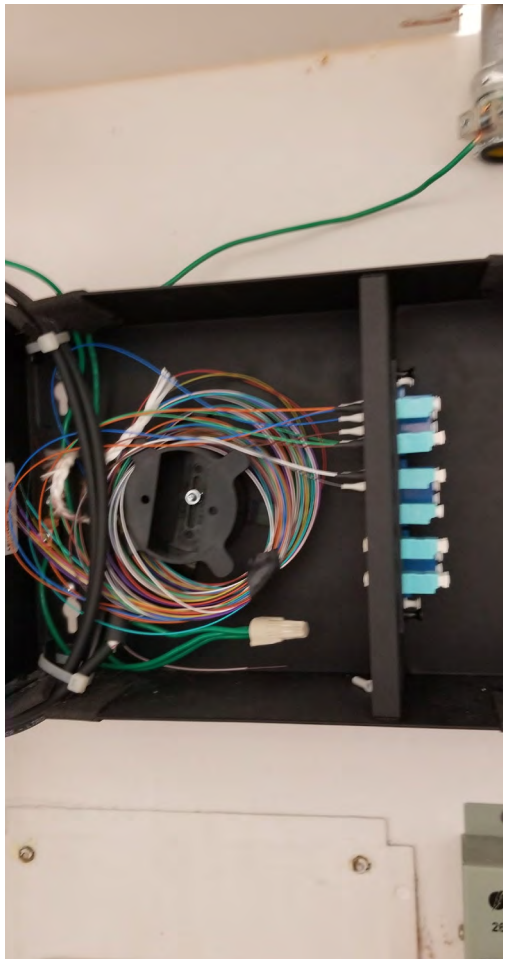
Recommendations:

- 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 OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-003

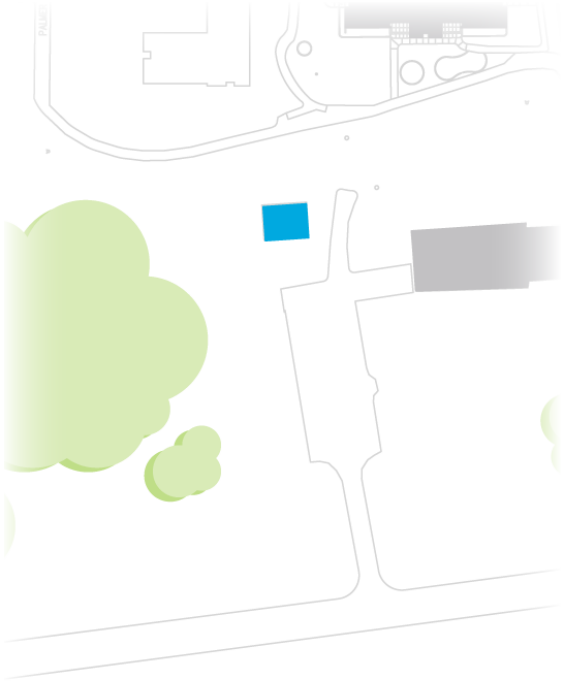


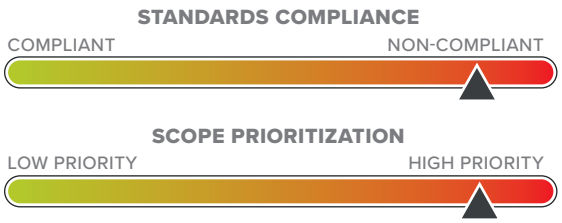
Existing Building Entrance Protection.



Existing Fiber Patching.

Existing Voice Patching.





MUSEUM (SENIOR CITIZEN CENTER)

This is a support building on the east side of campus. Currently, there is no telecommunications room in the building. There is no telecommunications infrastructure. No telecommunications space was observed during the site survey.

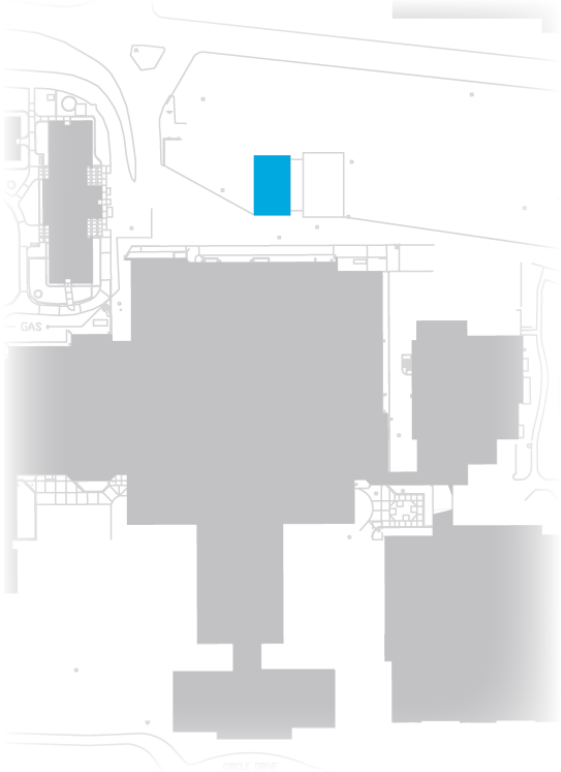
To meet industry standards, it is recommended to provide a new dedicated telecommunications room. The new telecommunications room should be provided with standards compliant backbone and horizontal cabling. Category 6A data ports meeting port density specified in standards are recommended. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

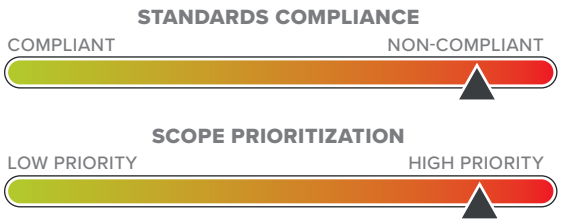
Deficiencies:

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

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 OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.





CHILLER PLANT

This is a support building on the east side of campus. Currently, there is no telecommunications room in the building. There is no telecommunications infrastructure. No telecommuncations space was observed during the site survey.

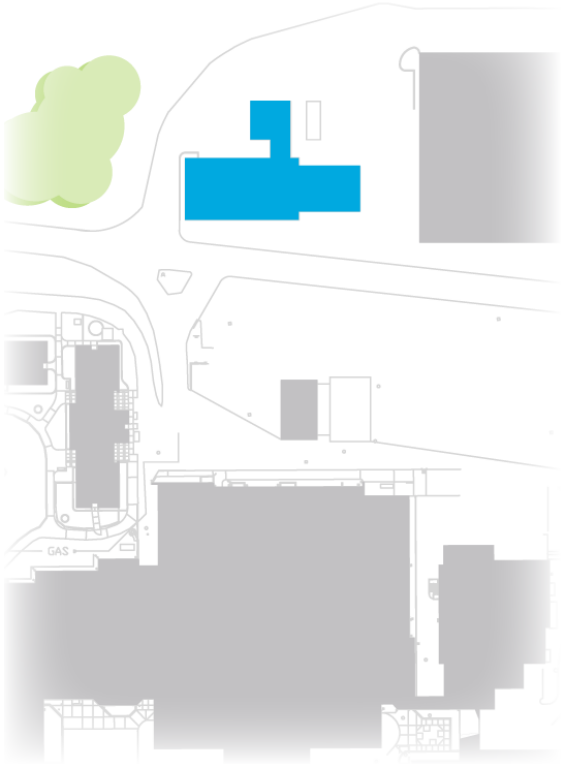
To meet industry standards, it is recommended to provide a new dedicated telecommunications room. The new telecommunications room should be provided with standards compliant backbone and horizontal cabling. Category 6A data ports meeting port density specified in standards are recommended. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

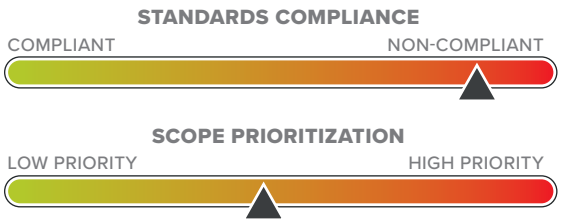
Deficiencies:

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

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 OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.





BOILER PLANT

This is a support building on the northwest side of campus. It houses the carpentry and paint maintenance departments. Currently, there is no telecommunications room in the building. The infrastructure is limited to Category 3 voice cabling patched at a 66 block on the wall.

TELECOMMUNICATIONS ROOM – TR-BASEMENT

The telecommunications room for the building is on the basement level. A full height two post rack is present and includes three rack mount fiber cabinets and some media converters. Connectivity is provided by a 12-strand SM and 12-strand OM3 OFC to Support Services, a 6-strand OM1 to the fire alarm panel, and a 12-strand OM1 to Building 2.

To meet industry standards, it is recommended to provide a new dedicated telecommunications room. The new telecommunications room should be provided with standards compliant backbone and horizontal cabling. Category 6A data ports meeting port density specified in standards are recommended. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

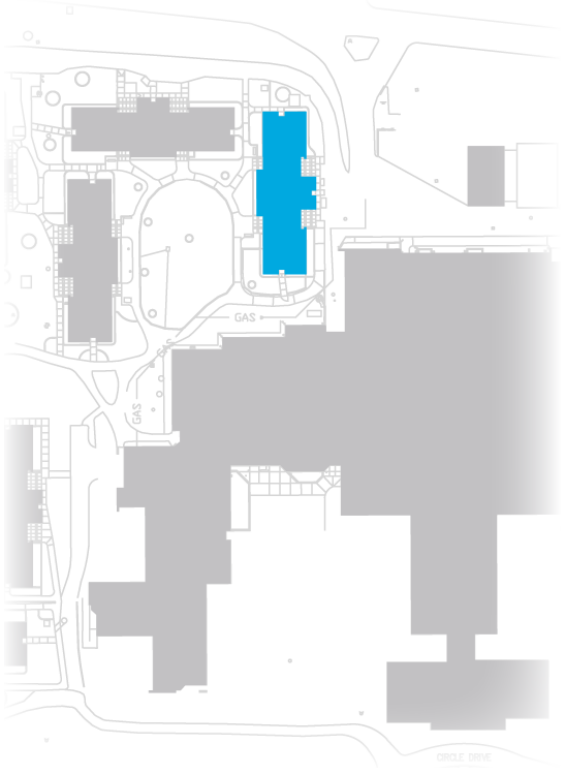
Existing Fiber Patching.

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.
- No identity verification.

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 OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.



STANDARDS COMPLIANCE

COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

PINEWOOD COTTAGE

This building is a part of the south side cottages and provides housing, recreation, and dining for patients.

TELECOMMUNICATIONS ROOM – TR-122

Telecommunications Room TR-122 is located within the service room. It is a mixed-use room primarily devoted to laundry functions. The TR is composed of a wall mounted half rack with a rack mount fiber cabinet, copper patch panel, a network switch, and a UPS. Connectivity is provided by a 12-strand OM1 OFC.

To meet industry standards, it is recommended to provide a new dedicated telecommunications room. The new telecommunications room should be provided with standards compliant backbone and horizontal cabling. Category 6A data ports meeting port density specified in standards are recommended. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

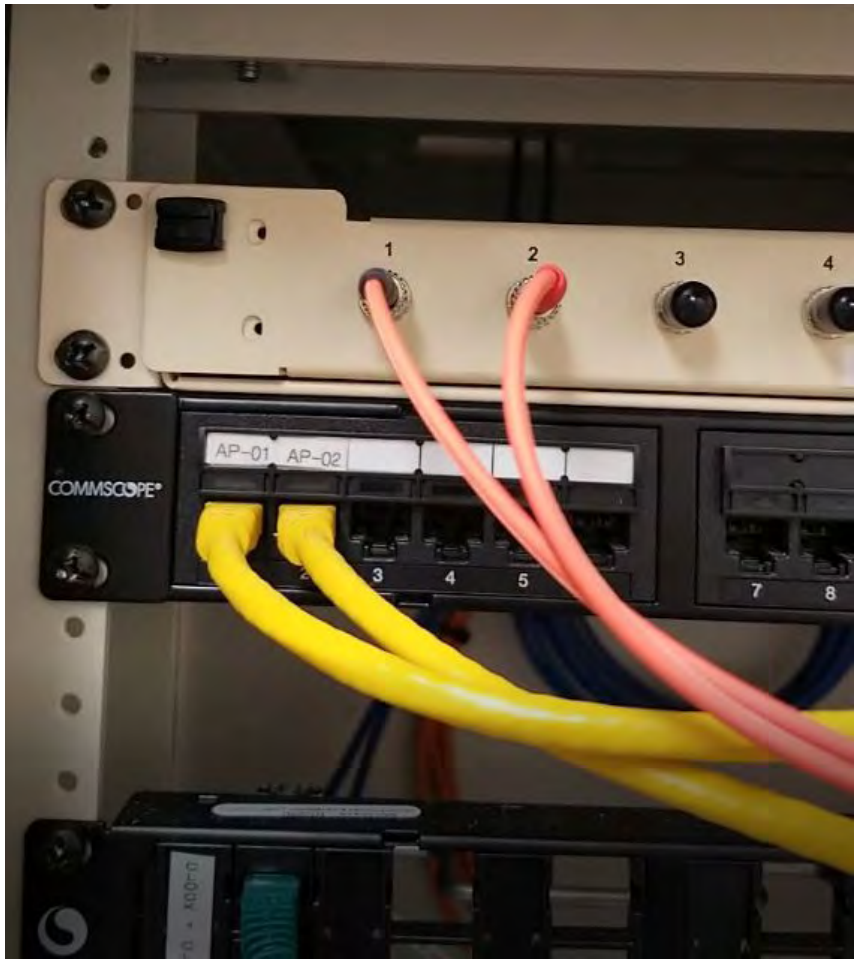
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal cable support, leading to cables being draped or placed directly on equipment.
- No grounding busbar for the telecommunications equipment.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

Recommendations:

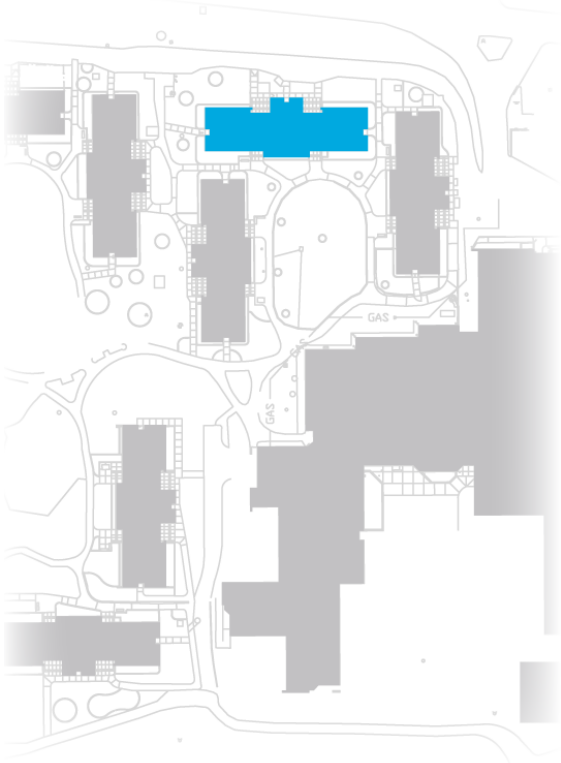
- Provide a dedicated telecommunications room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-122

Existing Telecom Cabinet.



Existing Fiber and Data Patching.



STANDARDS COMPLIANCE

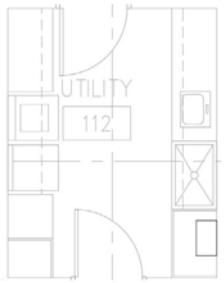
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

EVERGREEN COTTAGE

This building is a part of the south side cottages and provides housing, recreation, and dining for patients.



TELECOMMUNICATIONS ROOM – TR-112

Telecommunications Room TR-112 is located within the service room. It is a mixed-use room primarily devoted to laundry functions. The TR is composed of a small casework cabinet with a wall mount fiber cabinet, copper patch panel, a network switch, and a UPS. Connectivity is provided by a 12-strand OM1 OFC.

To meet industry standards, it is recommended to relocate the telecommunications room to a dedicated room. The new telecommunications room should be provided with upgraded backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

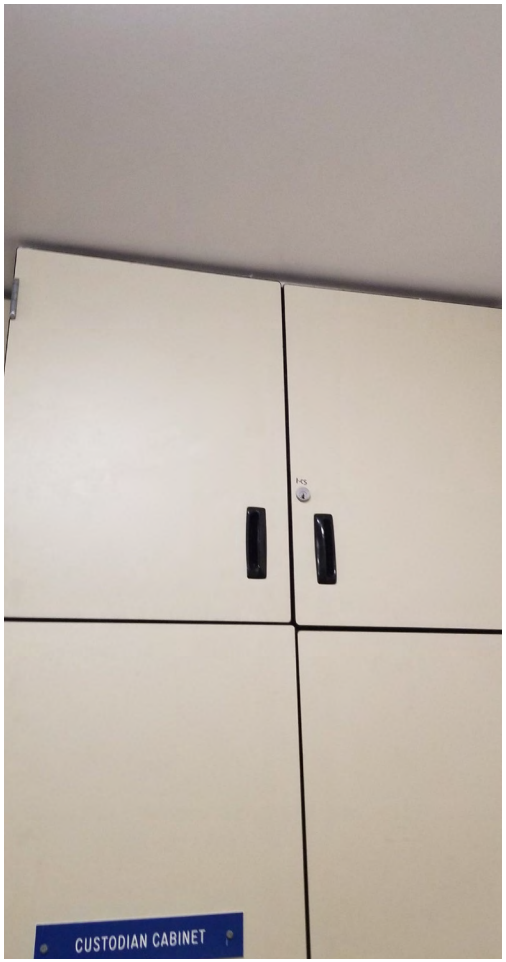
Deficiencies:

- 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.
- No identity verification.

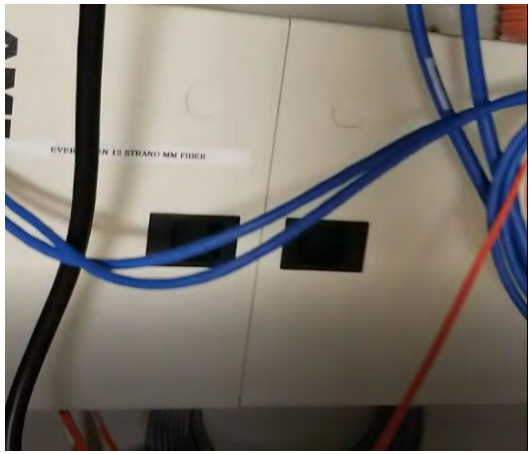
Recommendations:

- Relocate TR to a dedicated 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 OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

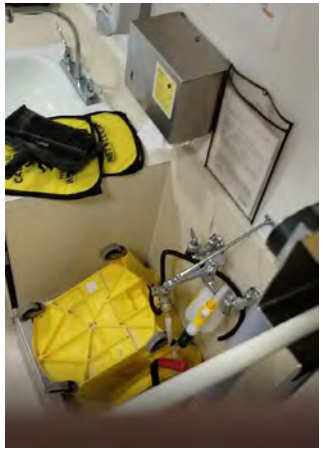
TELECOMMUNICATIONS ROOM – TR-112



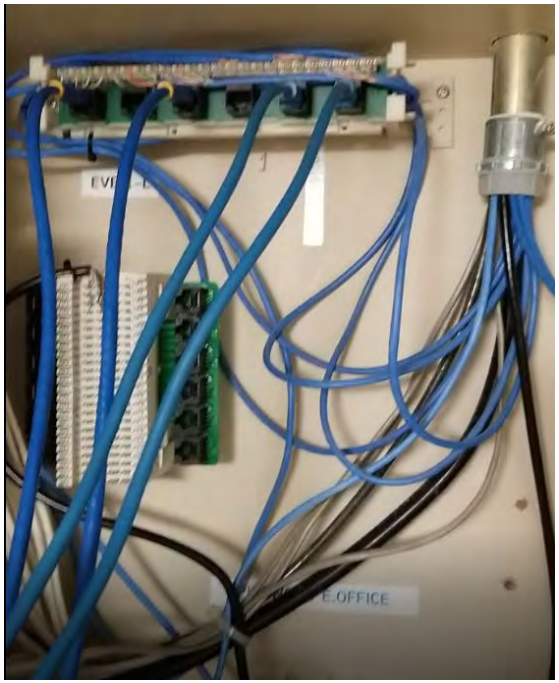
Existing Telecom Cabinet.



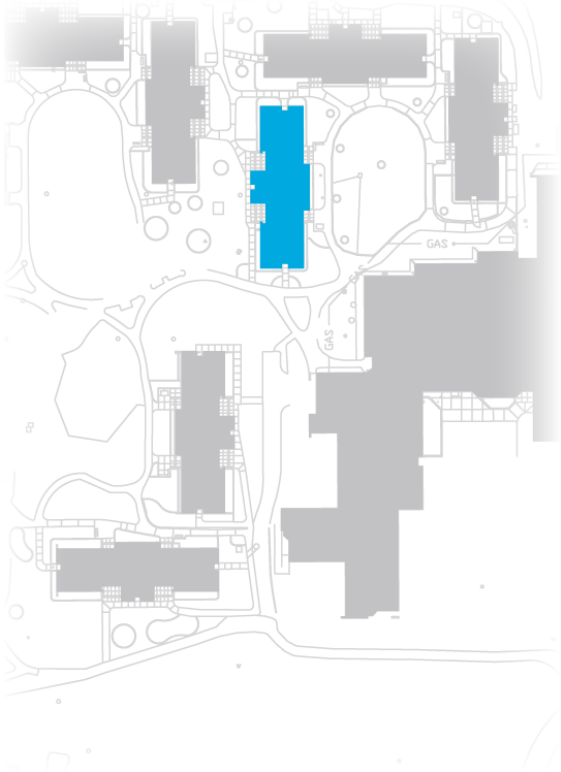
Existing Fiber Cabinet.

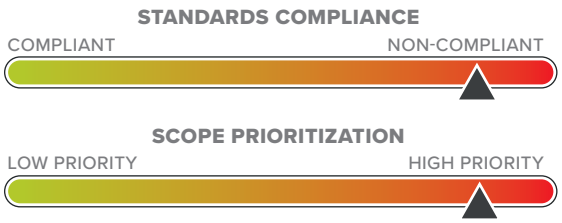


Existing Sink.



Existing Voice Patching.





HAWTHORN COTTAGE

This building is a part of the south side cottages and provides housing, recreation, and dining for patients.

TELECOMMUNICATIONS ROOM – TR-112

Telecommunications Room TR-112 is located within the service room. It is a mixed-use room primarily devoted to laundry functions. The TR is composed of a wall mounted half rack with a rack mount fiber cabinet, copper patch panel, a network switch, and a UPS. Connectivity is provided by a 12-strand OM1 OFC.

To meet industry standards, it is recommended to relocate the telecommunications room to a dedicated room. The new telecommunications room should be provided with upgraded backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

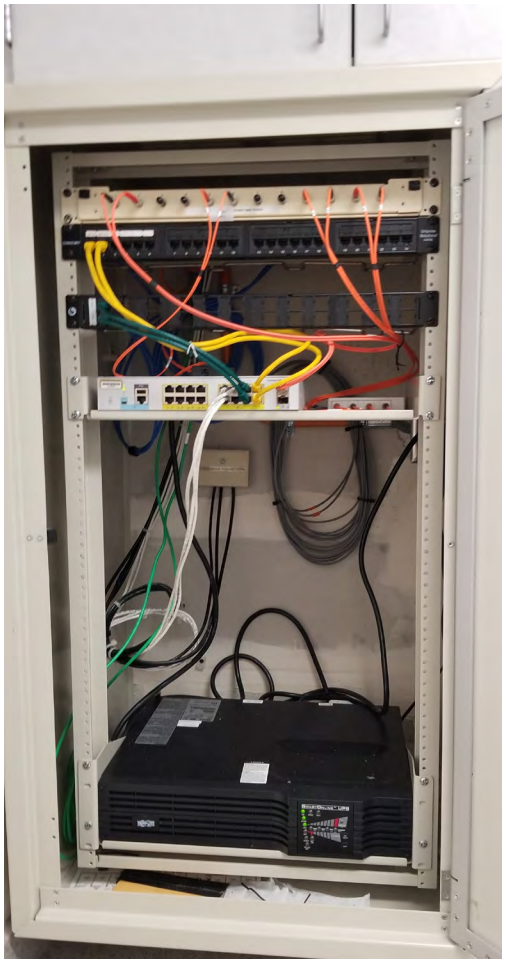
Deficiencies:

- 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.
- No identity verification.

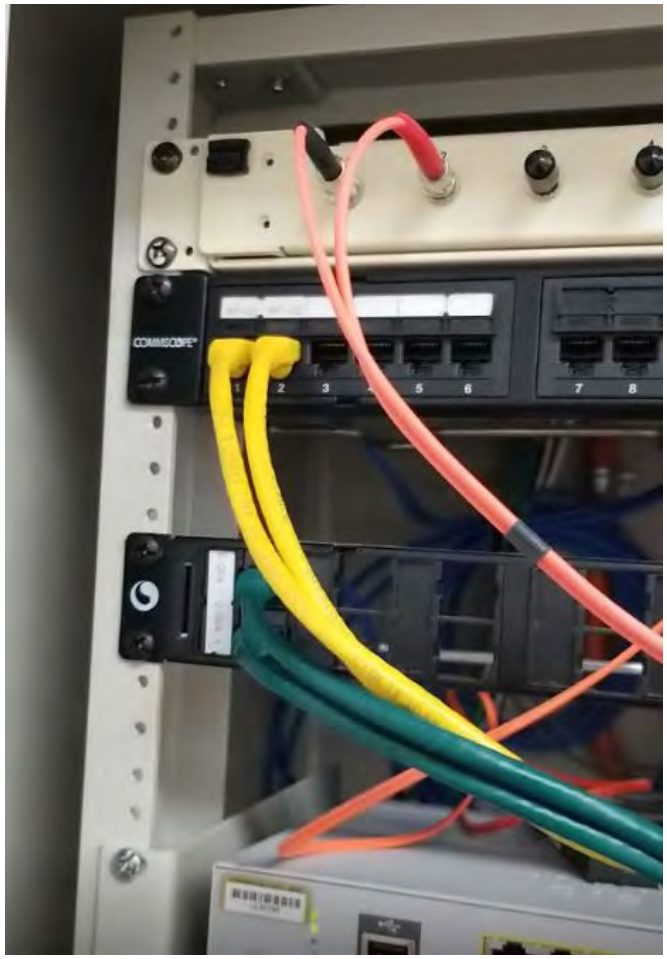
Recommendations:

- Relocate TR to a dedicated 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 OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

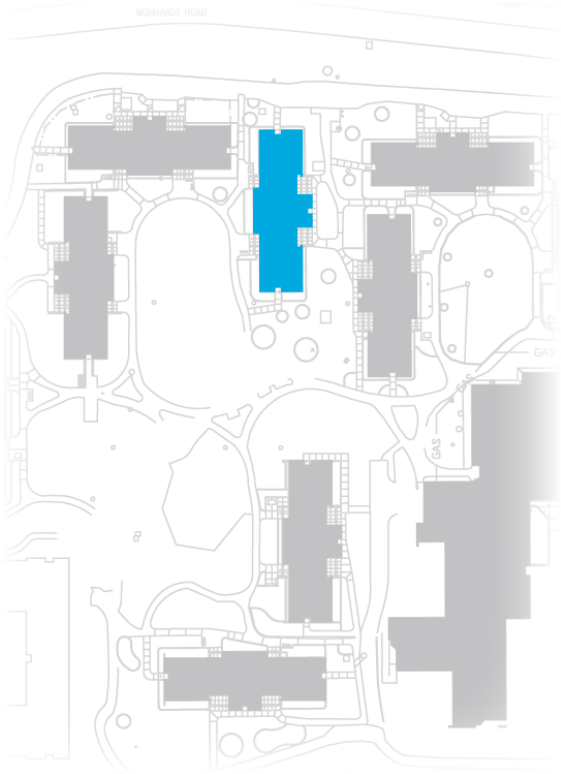
TELECOMMUNICATIONS ROOM – TR-112

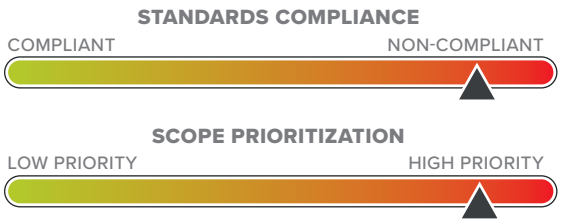


Existing Telecom Cabinet.



Existing Fiber & Data Patching.





HARVEST COTTAGE

This building is a part of the south side cottages and provides housing, recreation, and dining for patients.

TELECOMMUNICATIONS ROOM – TR-112

Telecommunications Room TR-112 is located within the service room. It is a mixed-use room primarily devoted to laundry functions. The TR is composed of a wall mounted half rack with a rack mount fiber cabinet, copper patch panel, a network switch, and a UPS. Connectivity is provided by a 12-strand OM1 OFC.

To meet industry standards, it is recommended to relocate the telecommunications room to a dedicated room. The new telecommunications room should be provided with upgraded backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

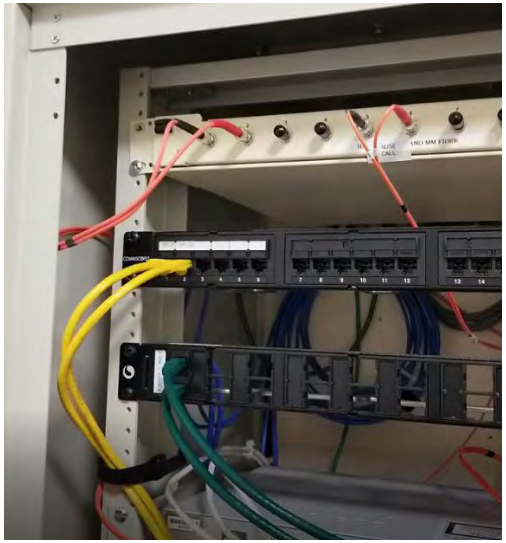
Deficiencies:

- 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.
- No identity verification.

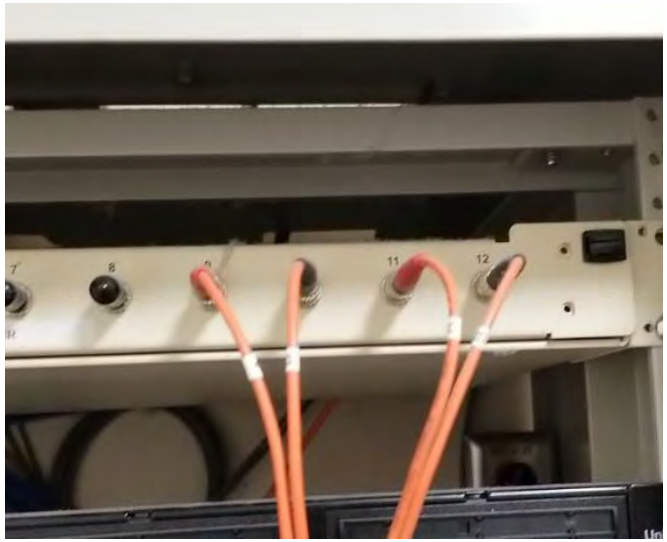
Recommendations:

- Relocate TR to a dedicated 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 OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-112

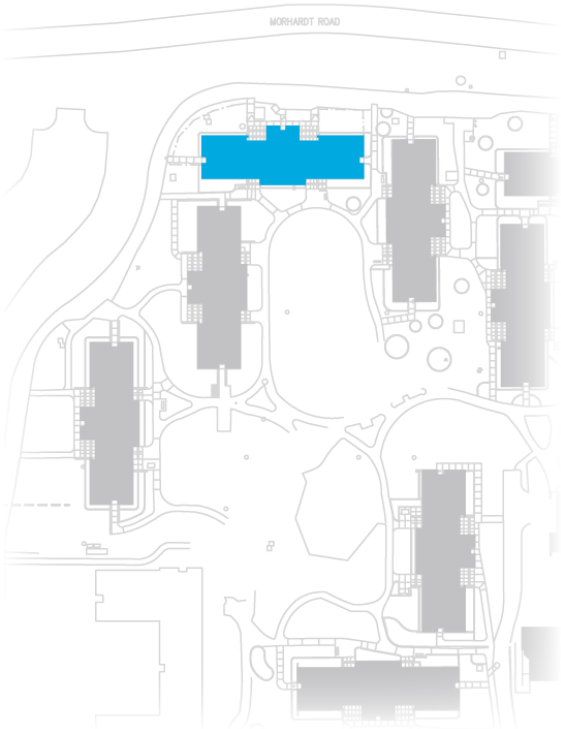


Existing Telecom Cabinet.



Existing Fiber Patching.

Existing Patch Panels.



STANDARDS COMPLIANCE

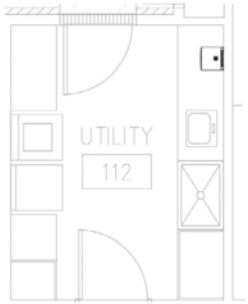
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

HILLSIDE COTTAGE

This building is a part of the south side cottages and provides housing, recreation, and dining for patients.



TELECOMMUNICATIONS ROOM – TR-112

Telecommunications Room TR-112 is located within the service room. It is a mixed-use room primarily devoted to laundry functions. The TR is composed of a wall mounted half rack with a rack mount fiber cabinet, copper patch panel, a network switch, and a UPS. Connectivity is provided by a 12-strand OM1 OFC.

To meet industry standards, it is recommended to relocate the telecommunications room to a dedicated room. The new telecommunications room should be provided with upgraded backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

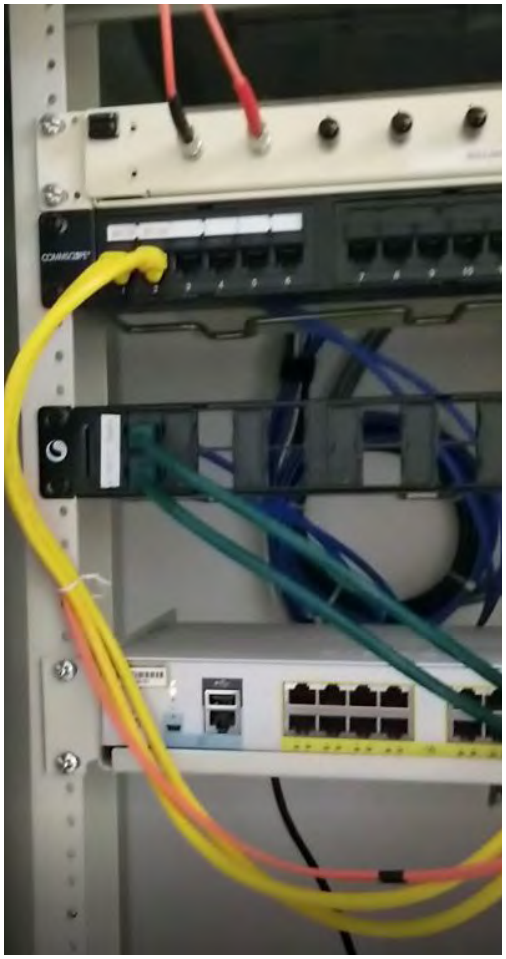
Deficiencies:

- 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.
- No identity verification.

Recommendations:

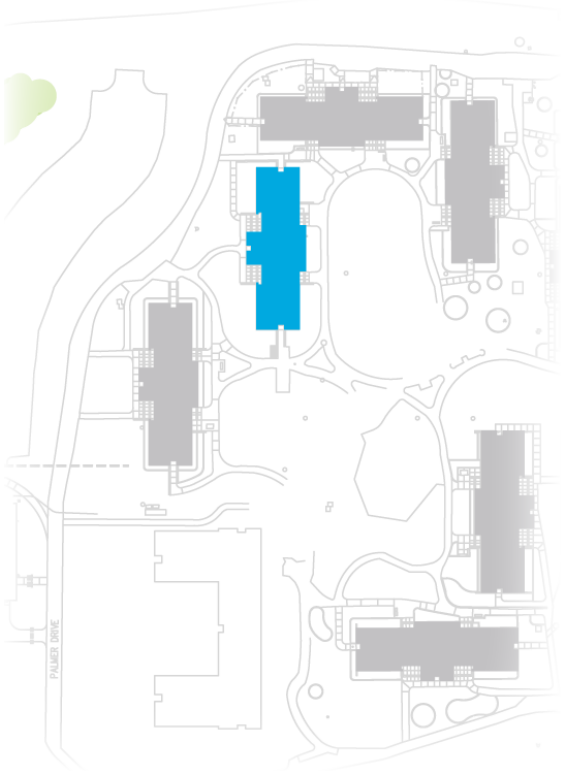
- Relocate TR to a dedicated room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-112



Existing Telecom Cabinet.

Existing Fiber & Data Patching.



STANDARDS COMPLIANCE

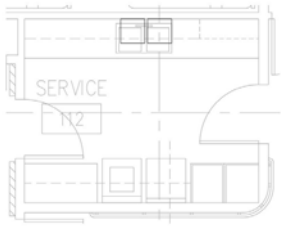
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

LAUREL COTTAGE

This building is a part of the south side cottages and provides housing, recreation, and dining for patients.



TELECOMMUNICATIONS ROOM – TR-112

Telecommunications Room TR-112 is located within the service room. It is a mixed-use room primarily devoted to laundry functions. The TR is composed of two small casework cabinets interconnected with a copper patch panel, a network switch, and a UPS. The right side has a wall mount fiber cabinet, copper patch panel, and 110 blocks. Connectivity is provided by a 12-strand OM1 OFC.

To meet industry standards, it is recommended to relocate the telecommunications room to a dedicated room. The new telecommunications room should be provided with upgraded backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

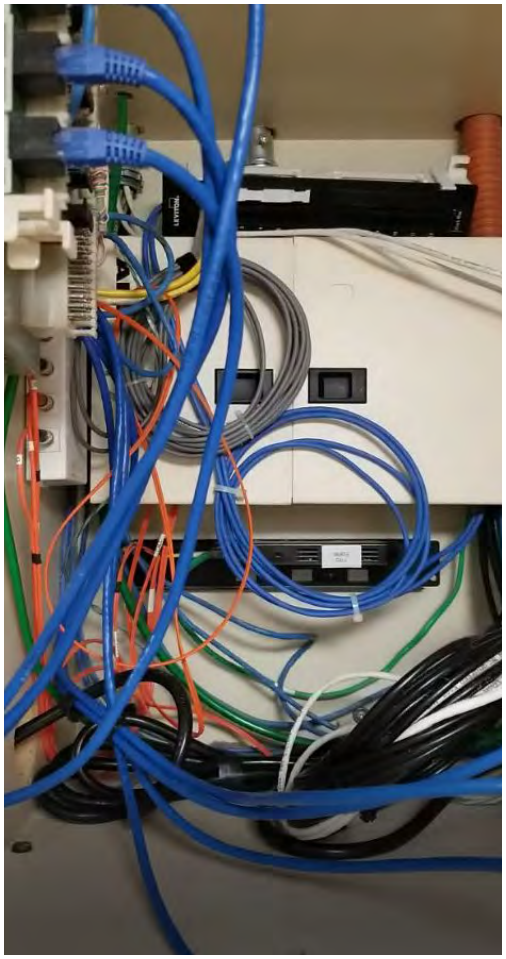
Deficiencies:

- 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.
- No identity verification.

Recommendations:

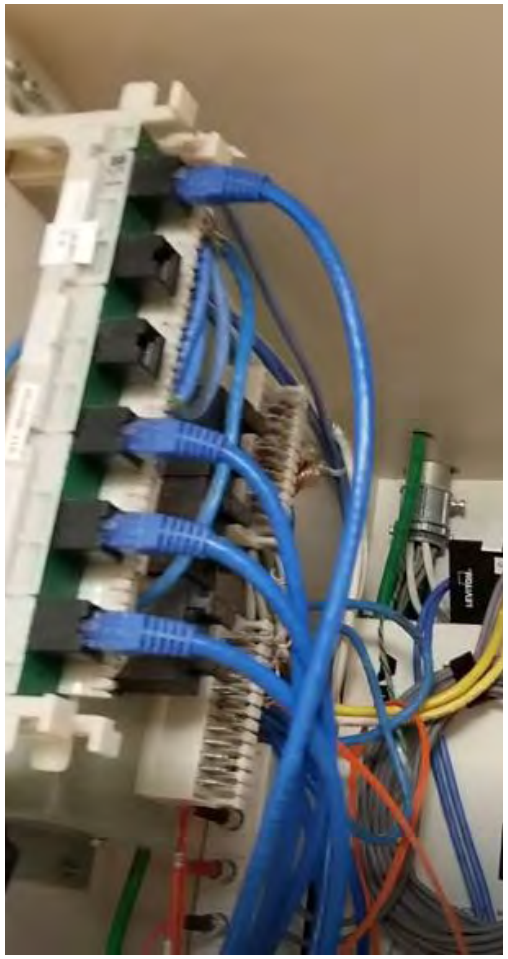
- Relocate TR to a dedicated room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-112

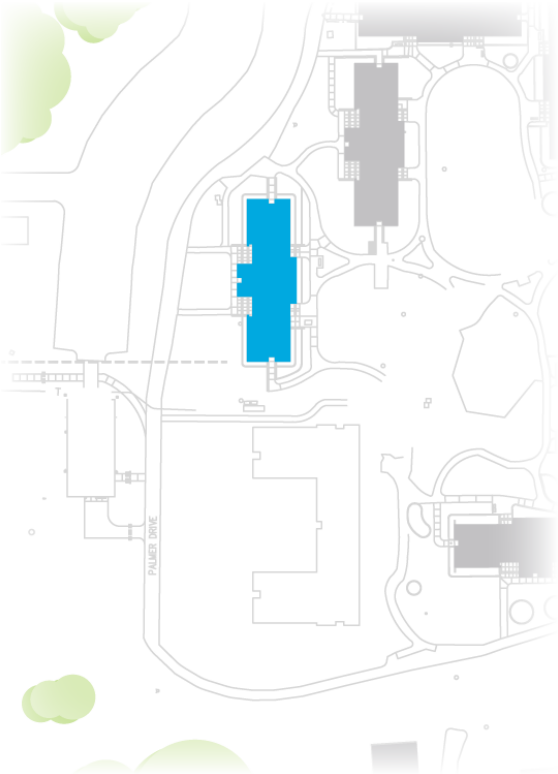


Existing Telecom Cabinet.

Existing Data Patching.



Existing Voice Patching.



STANDARDS COMPLIANCE

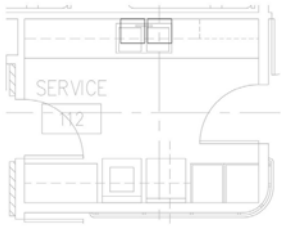
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

PONDEROSA COTTAGE

This building is a part of the south side cottages and provides housing, recreation, and dining for patients.



TELECOMMUNICATIONS ROOM – TR-112

Telecommunications Room TR-112 is located within the service room. It is a mixed-use room primarily devoted to laundry functions. The TR is composed of a small casework cabinet with a wall mount fiber cabinet, copper patch panel, a network switch, and a UPS. Connectivity is provided by a 12-strand OM1 OFC.

To meet industry standards, it is recommended to relocate the telecommunications room to a dedicated room. The new telecommunications room should be provided with upgraded backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

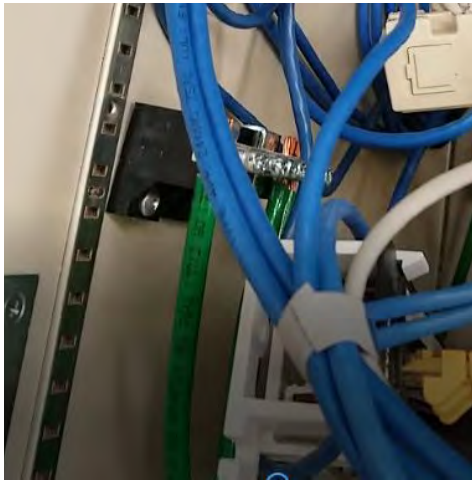
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal cable support, leading to cables being draped or placed directly on equipment.
- No grounding busbar for the telecommunications equipment.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

Recommendations:

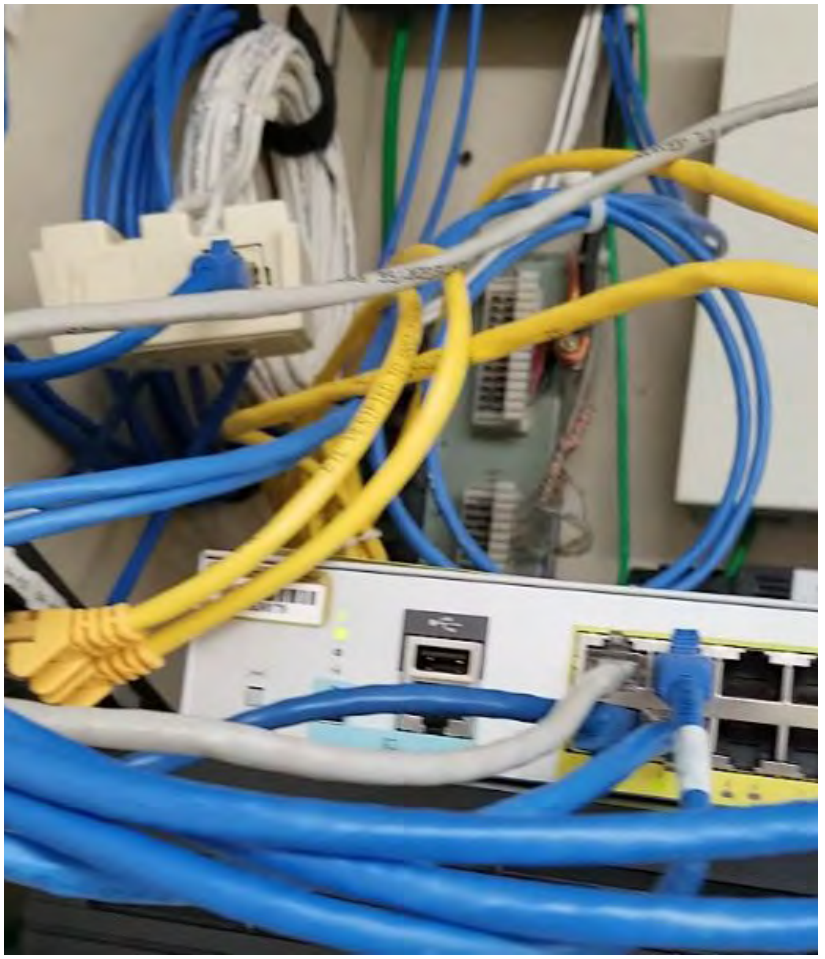
- Relocate TR to a dedicated room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-112

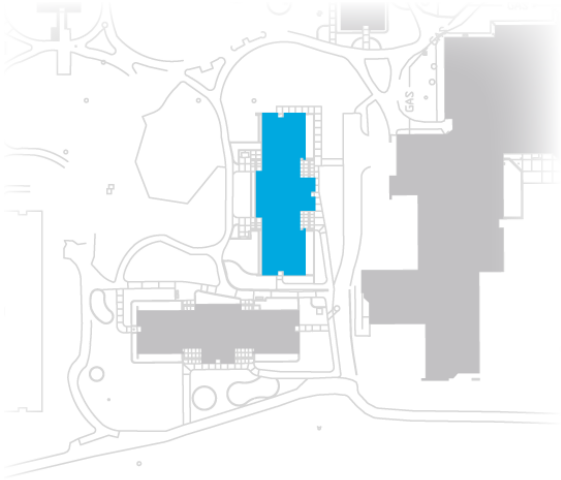
Existing Telecom Cabinet.

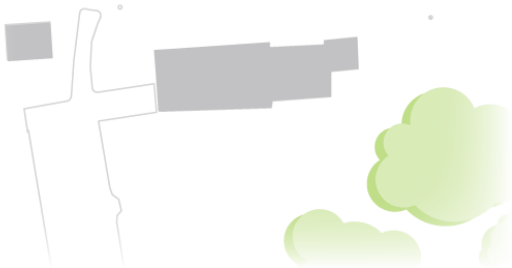


Existing Ground Busbar.



Existing Data Patching.





STANDARDS COMPLIANCE

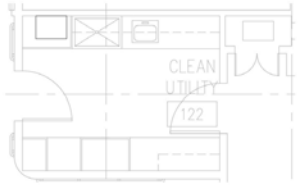
COMPLIANT — NON-COMPLIANT

SCOPE PRIORITIZATION

LOW PRIORITY — HIGH PRIORITY

SHAMROCK COTTAGE

This building is a part of the south side cottages and provides housing, recreation, and dining for patients.



TELECOMMUNICATIONS ROOM – TR-112

Telecommunications Room TR-112 is located within the service room. It is a mixed-use room primarily devoted to laundry functions. The TR is composed of a small casework cabinet with a wall mount fiber cabinet, copper patch panel, a network switch, and a UPS. Connectivity is provided by a 12-strand OM1 OFC.

To meet industry standards, it is recommended to relocate the telecommunications room to a dedicated room. The new telecommunications room should be provided with upgraded backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

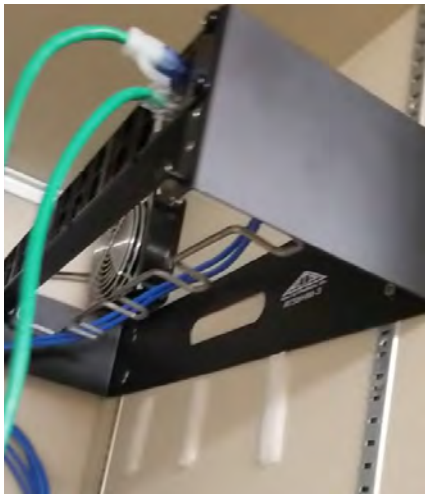
- Horizontal Cabling infrastructure does not meet minimum standards per TIA-1179.
- Backbone Cabling Infrastructure does not meet minimum standards per TIA-1179.
- Minimal cable support, leading to cables being draped or placed directly on equipment.
- No grounding busbar for the telecommunications equipment.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

Recommendations:

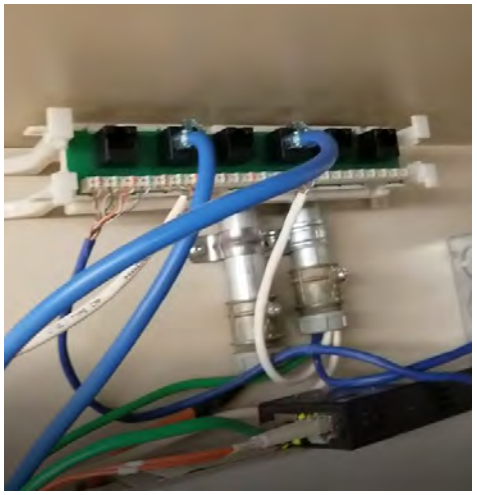
- Relocate TR to a dedicated room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

TELECOMMUNICATIONS ROOM – TR-112

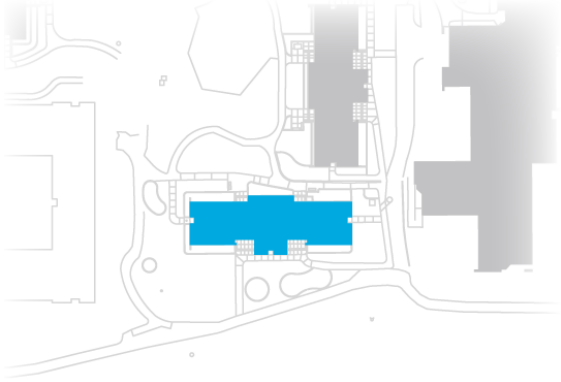
Existing Telecom Cabinet.

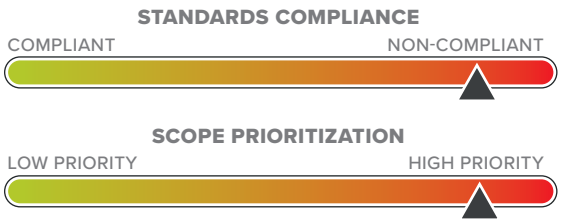


Existing Data Patching.



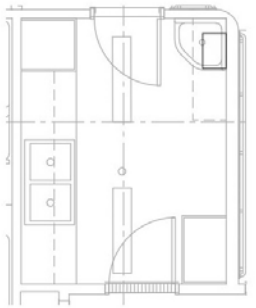
Existing Voice Patching.





TAMARACK COTTAGE

This building is a part of the south side cottages and provides housing, recreation, and dining for patients.



TELECOMMUNICATIONS ROOM – TR-105

Telecommunications Room TR-112 is located within the service room. It is a mixed-use room primarily devoted to laundry functions. The TR is composed of a small casework cabinet with a wall mount fiber cabinet, copper patch panel, a network switch, and a UPS. Connectivity is provided by a 12-strand OM1 OFC.

To meet industry standards, it is recommended to relocate the telecommunications room to a dedicated room. The new telecommunications room should be provided with upgraded backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

Deficiencies:

- 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.
- No identity verification.

Recommendations:

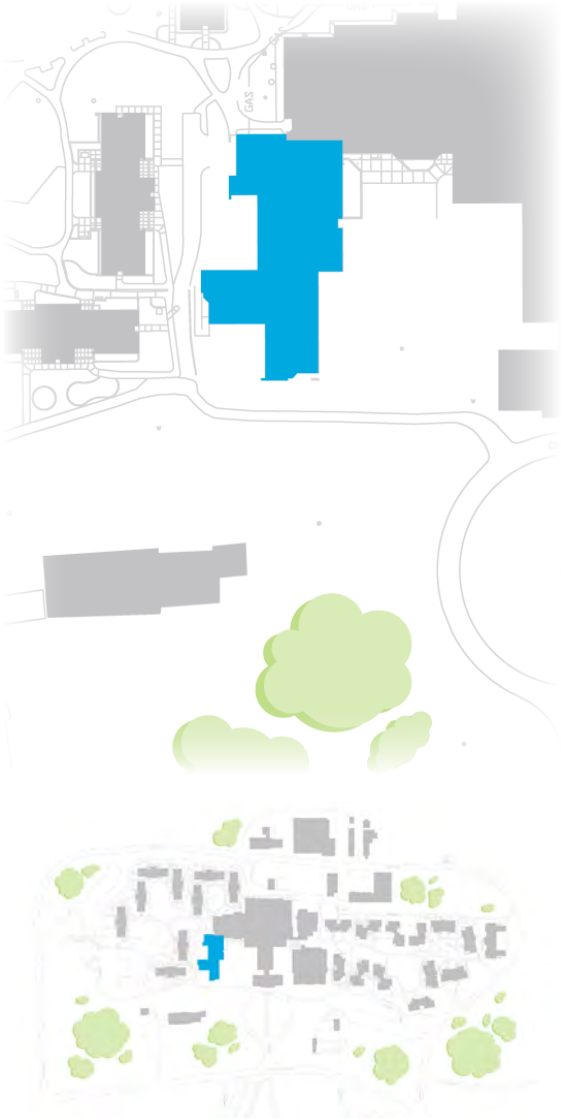
- Relocate TR to a dedicated room.
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals.

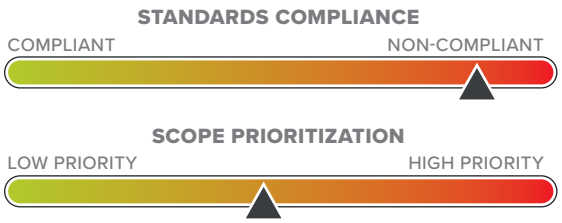
TELECOMMUNICATIONS ROOM – TR-105

Existing Janitor Equipment.

Existing Data Patching.

Existing Fiber Patching.





ROSEWOOD HALL – HEALTH CARE CENTER

Connected to Building 5 to the west this two-story building (Basement and Level 01) includes medical treatment and housing on the east side of the building and administration and support spaces on the west.

TELECOMMUNICATIONS ROOM – TR-HB5

Telecommunications Room TR-HB5, located in the basement of the Rosewood Building, serves the East portion of the building. The telecommunications equipment shares space in the room with electrical equipment. A full height rack supports copper patch panels, a network switch, and a UPS. Wall mounted behind the rack are 110 blocks, support equipment, and a wall mount fiber cabinet.

To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

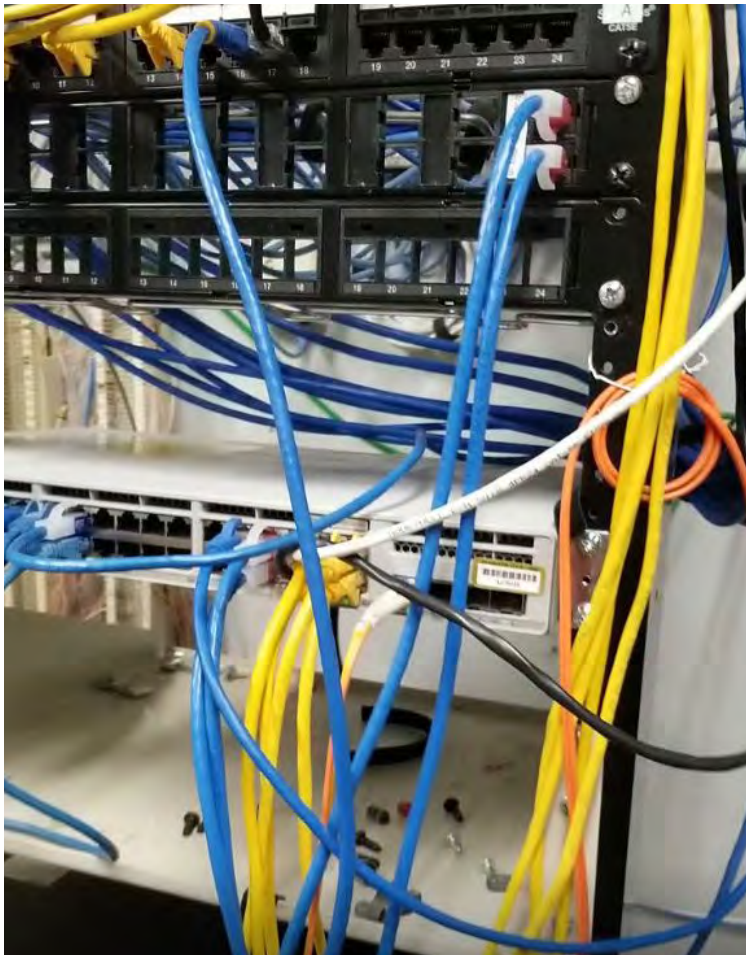
Deficiencies:

- 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:

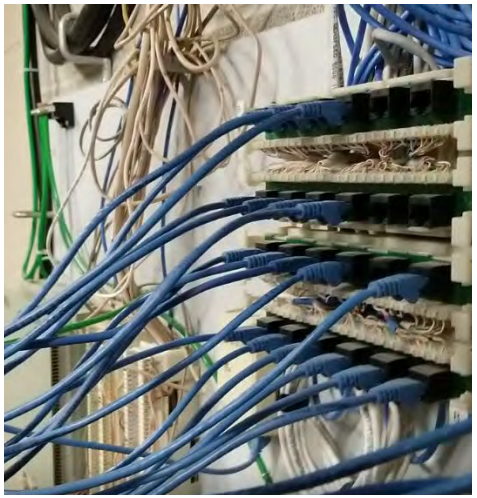
- Upgrade existing port locations to Category 6A.
- Provide labels for all new cabling and existing cables to remain.
- Add additional Category 6A 8P8C RJ45 ports to meet standards.
- Provide new 12-strand OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals if needed.

TELECOMMUNICATIONS ROOM – TR-HB5



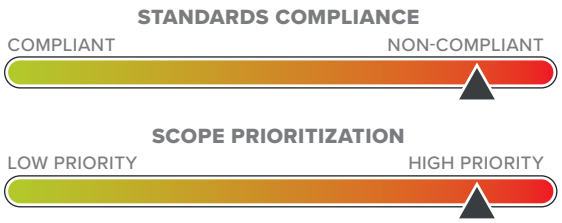
Existing Telecom Rack.

Existing Data Patching.



Existing Voice Patching.

Existing Grounding Busbar.



MASON HALL

Also known as Mason Memorial Hospital – This two-story building provides IT, Administration, and support office space for the facility.

TELECOMMUNICATIONS CLOSET – TR-135

Telecommunications closet TR-135 is located adjacent to the primary telecommunications room (TR-135) this closet contains wall mounted copper patch panels and 110 blocks.

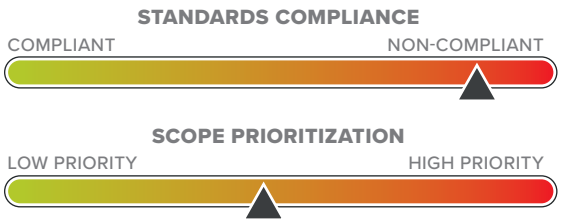
It is recommended to abandon this telecommunications space consolidate all telecommunications infrastructure in TR-136. Existing Category cabling and 66 blocks for the voice system should be demolished. All new cabling should be routed to TR-136.

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.

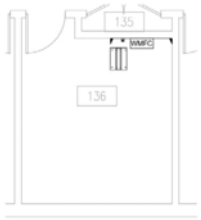
Recommendations:

» Abandon space and move connectivity to TR-136.



MASON HALL

Also known as Mason Memorial Hospital – This two-story building provides IT, Administration, and support office space for the facility.



TELECOMMUNICATIONS CLOSET – TR-136

TR-136 is the main telecommunications room for the building, located on the upper level. It includes a full height two post rack with a UPS, Network Switch, and copper patch panels. On the wall beside the rack there is a wall mount fiber cabinet and a 110 block. The space occupied by the telecommunications equipment appears to have previously been a shower room. Connectivity is provided by 12 strands of OM1 multi-mode OFC.

To meet industry standards, it is recommended to upgrade the existing backbone and horizontal cabling. Additional Category 6A data ports are required to meet standards. It is also recommended to provide a telecommunications grounding busbar to create a consistent potential across all components. Dedicated cooling, ladder rack, cable management, and dedicated equipment receptacles are required to meet standards. The addition of card-based access control is recommended to control and track access to the space.

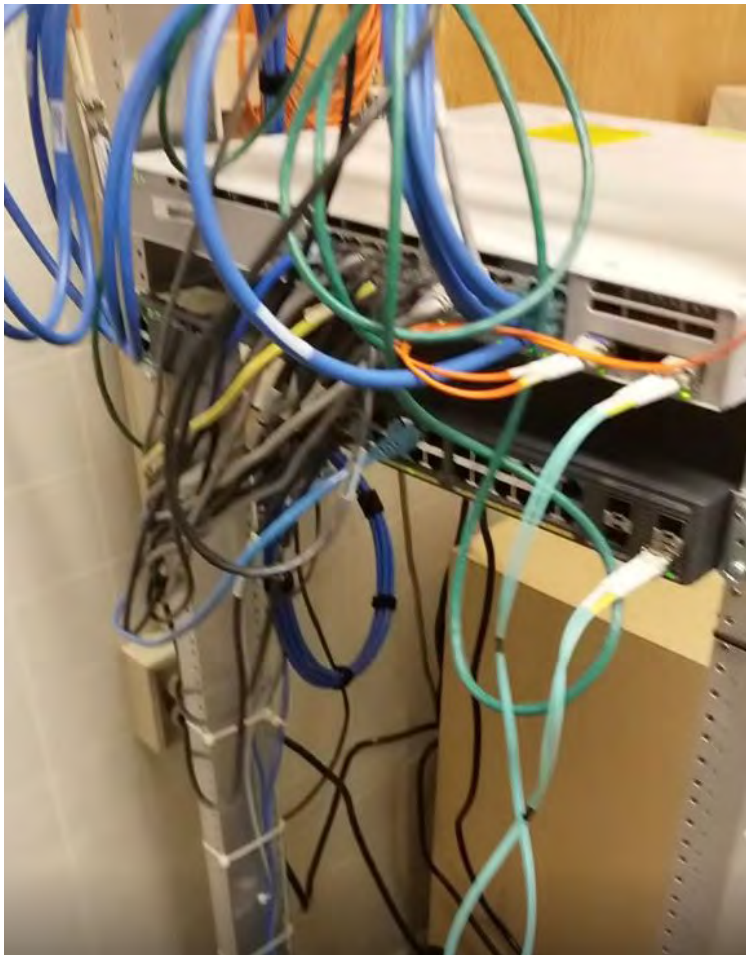
Deficiencies:

- 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.

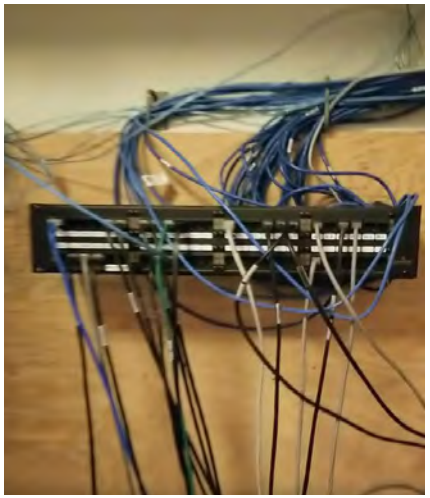
Recommendations:

- 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 OS2 single-mode and 12-strand OM4 multi-mode optical fiber backbone from MER in Building 31.
- Add ladder tray and cable management as needed.
- Add Telecommunications Grounding Busbar.
- Add ductless split-system cooling unit.
- Add power circuits and receptacles as needed.
- Control access to authorized individuals as needed.

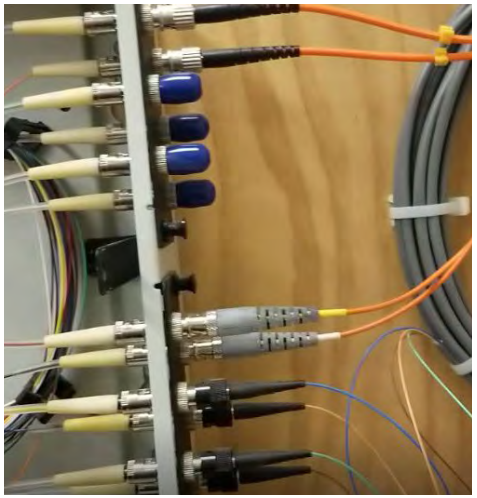
TELECOMMUNICATIONS ROOM – TR-136



Existing Telecom Rack.



Existing Data Patching.



Existing Fiber Patching Jacket.

Fiber Patching Mismatch.

APPENDIX A:
FULL COST OPINIONS

telecommunications **cost opinion**

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Telecommunications Infrastructure Assessment Recommendations
Lakeland Village

BASIS OF OPINION Other
PREPARED BY Tin Vo
DATE August 14, 2024

JOB NUMBER 24040
CHECKED BY Ben Helms
OVERHEAD & PROFIT 15%

telecommunications summary	subtotal	OH&P	total
Building 1 - Administration	$ 417,844	$ 62,677	$ 480,520
Building 2 - Program Area Team Center	$ 327,038	$ 49,056	$ 376,094
Building 3 - School	$ 172,833	$ 25,925	$ 198,758
Building 5 - Habilitation Center	$ 384,137	$ 57,621	$ 441,758
Building 6 - Rainbow Way 5890-5891	$ 305,652	$ 45,848	$ 351,500
Building 7 - Cascade Way 5886-5887	$ 205,297	$ 30,795	$ 236,092
Building 8 - Wildrose Way 5888-5889	$ 187,978	$ 28,197	$ 216,175
Building 9 - Apple Court 5892-5893	$ 192,960	$ 28,944	$ 221,904
Building 10 - Bigfoot Way 5894-5895	$ 167,216	$ 25,082	$ 192,298
Building 11 - Bigfoot Way 5896-5897	$ 153,236	$ 22,985	$ 176,222
Building 12 - Cascade Way 5874-5875	$ 139,829	$ 20,974	$ 160,803
Building 13 - Willow Court 5876-5877	$ 135,406	$ 20,311	$ 155,717
Building 14 - Willow Court 5858-5879	$ 137,301	$ 20,595	$ 157,896
Building 15 - Sunrise Court 5880-5881	$ 98,760	$ 14,814	$ 113,574
Building 16 - Sunrise Court 5882-5883	$ 143,940	$ 21,591	$ 165,531
Building 17 - Sunrise Court 5884-5885	$ 146,083	$ 21,912	$ 167,995
Building 23 - Carpenter and Paint Shop	$ 82,776	$ 12,416	$ 95,193
Building 26 - Repair Garage	$ 126,124	$ 18,919	$ 145,043
Builidng 30 - Laundry	$ 170,991	$ 25,649	$ 196,640
Building 31 - Support Services	$ 137,404	$ 20,611	$ 158,015

telecommunications **cost opinion**

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Telecommunications Infrastructure Assessment Recommendations
Lakeland Village

BASIS OF OPINION Other
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DATE August 14, 2024
JOB NUMBER 24040
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OVERHEAD & PROFIT 15%

telecommunications summary	subtotal	OH&P	total
Building 32 - Food Service	$ 155,879	$ 23,382	$ 179,260
Building 33 - Chapel	$ 105,221	$ 15,783	$ 121,004
Building 34 - Museum (Senior Citizen Center)	$ 76,764	$ 11,515	$ 88,279
Building 37 - Chiller Plant	$ 148,852	$ 22,328	$ 171,179
Building 38 - Boiler Plant	$ 99,400	$ 14,910	$ 114,309
Building 39 - Pinewood	$ 168,819	$ 25,323	$ 194,142
Building 40 - Evergreen	$ 173,852	$ 26,078	$ 199,930
Building 41 - Hawthorn	$ 168,620	$ 25,293	$ 193,913
Building 42 - Harvest	$ 182,901	$ 27,435	$ 210,336
Building 43 - Hillside	$ 186,090	$ 27,913	$ 214,003
Building 44 - Laurel	$ 186,090	$ 27,913	$ 214,003
Building 45 - Ponderosa	$ 149,447	$ 22,417	$ 171,864
Building 46 - Shamrock	$ 154,844	$ 23,227	$ 178,070
Building 47 - Tamarack	$ 156,049	$ 23,407	$ 179,456
Building 48 - Healthcare (Rosewood)	$ 201,382	$ 30,207	$ 231,590
Building 49 - Mason Memorial Hospital	$ 223,679	$ 33,552	$ 257,231
Sub-Total	$ 6,370,695	$ 955,604	$ 7,326,297
General Contractor OH&P **15%**			$ 1,098,945
Escalation **7%**			$ 76,926
Total			**$ 8,502,168**

EXCLUSIONS

1 - Design contingency
2 - Sales Tax

telecommunications **cost opinion**

Building 1 - Administration

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

description	quantity		material cost		labor cost		engineering opinion		
	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
DIVISION 27									
LOW-VOLTAGE SYSTEMS - DIVISIONS 27									
General Provisions (Submittals, Mobilization, Permits)	1	LS	6,139.66	6,140	$ 12,279	$ 12,279	$ 18,419	$ 2,763	$ 21,182
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	12,307.82	12,308	$ -	$ -	$ 12,308	$ 1,846	$ 14,154
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	120	LF	7.50	900	20.00	2,400	3,300	495	3,795
2000VA UPS	2	EA	3,000.00	6,000	110.00	220	6,220	933	7,153
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	1,000	LF	2.50	2,500	.05	50	2,550	383	2,933
12 Strand Multimode Outside Plant (OSP) OFC	1,000	LF	1.19	1,188	.05	50	1,238	186	1,424
Telecommunications Device - 4-Port	97	EA	1,100.00	106,700	473.67	45,946	152,646	22,897	175,543
Telecommunications Device - 4-Port - Existing	40	EA	1,100.00	44,000	473.67	18,947	62,947	9,442	72,389
CAT 6A Quickport Connector	776	EA	36.16	28,057	25.00	19,400	47,457	7,119	54,576
CAT 6A Quickport Connector - Existing	320	EA	36.16	11,570	26.00	8,320	19,890	2,983	22,873
CAT 6A Patch Panel	12	EA	320.11	3,841	150.00	1,800	5,641	846	6,488
Copper 6-port Empty Cassette	96	EA	100.00	9,600	50.00	4,800	14,400	2,160	16,560
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475
Telecom Room - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	97	EA	200.00	19,400	150.00	14,550	33,950	5,093	39,043
Subtotal Low-Voltage Systems (Divisions 27)							399,676	59,951	459,628

telecommunications **cost opinion**

Building 1 - Administration

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	209.64	210	419.28	419	629	94.34	723
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	390.40	390			390	58.56	449
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	2	EA	100.00	200	50.00	100	300	45	345
Card Reader	2	EA	325.00	650	127.50	255	905	136	1,041
Electrified Hardware (Electrified Lock and Power Transfer)	2	EA	1,800.00	3,600	600.00	1,200	4,800	720	5,520
Request To Exit (REX)	2	EA	125.00	250	85.00	170	420	63	483
Wiring - Per Access Control Door	2	EA	400.00	800	700.00	1,400	2,200	330	2,530
Programming	1	LS			1,952.00	1,952	1,952	293	2,245
Engineering	1	LS			976.00	976	976	146	1,122
Subtotal Life Safety and Security Systems (Divisions 28)							18,167	2,725	20,892

telecommunications **cost opinion**

Building 2 - Program Area Team Center

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	4,827.19	4,827	$ 9,654	$ 9,654	$ 14,482	$ 2,172	$ 16,654
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	9,681.34	9,681	$ -	$ -	$ 9,681	$ 1,452	$ 11,134
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	900	LF	2.50	2,250	.05	45	2,295	344	2,639
12 Strand Multimode Outside Plant (OSP) OFC	900	LF	1.19	1,069	.05	45	1,114	167	1,281
Telecommunications Device - 4-Port	64	EA	1,100.00	70,400	473.67	30,315	100,715	15,107	115,822
Telecommunications Device - 4-Port - Existing	47	EA	1,100.00	51,700	473.67	22,263	73,963	11,094	85,057
CAT 6A Quickport Connector	512	EA	36.16	18,512	25.00	12,800	31,312	4,697	36,009
CAT 6A Quickport Connector - Existing	376	EA	36.16	13,595	26.00	9,776	23,371	3,506	26,876
CAT 6A Patch Panel	10	EA	320.11	3,201	150.00	1,500	4,701	705	5,406
Copper 6-port Empty Cassette	80	EA	100.00	8,000	50.00	4,000	12,000	1,800	13,800
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475
Telecom Room - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	64	EA	200.00	12,800	150.00	9,600	22,400	3,360	25,760
Subtotal Low-Voltage Systems (Divisions 27)							314,333	47,150	361,483

telecommunications **cost opinion**

Building 2 - Program Area Team Center

Telecommunications Infrastructure Assessment Recommendations

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 3 - School

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	2,309.16	2,309	$ 4,618	$ 4,618	$ 6,927	$ 1,039	$ 7,967
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	5,096.09	5,096	$ -	$ -	$ 5,096	$ 764	$ 5,861
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000.00	12,000	2,500.00	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	30	LF	7.50	225	20.00	600	825	124	949
2000VA UPS	1	EA	3,000.00	3,000	110.00	110	3,110	467	3,577
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	675	LF	2.50	1,688	.05	34	1,721	258	1,979
12 Strand Multimode Outside Plant (OSP) OFC	675	LF	1.19	802	.05	34	836	125	961
Telecommunications Device - 4-Port	31	EA	1,100.00	34,100	473.67	14,684	48,784	7,318	56,101
Telecommunications Device - 4-Port - Existing	13	EA	1,100.00	14,300	473.67	6,158	20,458	3,069	23,526
CAT 6A Quickport Connector	248	EA	36.16	8,967	25.00	6,200	15,167	2,275	17,442
CAT 6A Quickport Connector - Existing	104	EA	36.16	3,760	26.00	2,704	6,464	970	7,434
CAT 6A Patch Panel	4	EA	320.11	1,280	150.00	600	1,880	282	2,163
Copper 6-port Empty Cassette	32	EA	100.00	3,200	50.00	1,600	4,800	720	5,520
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475

telecommunications **cost opinion**

Building 3 - School

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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 - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	31	EA	200.00	6,200	150.00	4,650	10,850	1,628	12,478
Subtotal Low-Voltage Systems (Divisions 27)							160,128	24,019	184,148
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 5 - Habilitation Center

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

HARGIS
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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	5,246.69	5,247	$ 10,493	$ 10,493	$ 15,740	$ 2,361	$ 18,101
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	11,343.32	11,343	$ -	$ -	$ 11,343	$ 1,701	$ 13,045
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	2	EA	12,000.00	24,000	2,500.00	5,000	29,000	4,350	33,350
Adaptor Plates - LC ACP	8	EA	150.00	1,200	50.00	400	1,600	240	1,840
Rack Mount Fiber Cabinet - 4RU	1	EA	390.00	390	110.00	110	500	75	575
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
2000VA UPS	2	EA	3,000.00	6,000	110.00	220	6,220	933	7,153
Demolish Defunct Infrastructure After System Cutover	1	LS			4,000.00	4,000	4,000	600	4,600
12 Strand Singlemode Outside Plant (OSP) OFC	950	LF	2.50	2,375	.05	48	2,423	363	2,786
12 Strand Multimode Outside Plant (OSP) OFC	950	LF	1.19	1,129	.05	48	1,176	176	1,353
12 Strand Singlemode Plenum Rated OFC	350	LF	.94	328	.05	18	345	52	397
12 Strand Multimode Plenum Rated OFC	350	LF	1.25	438	.05	18	455	68	523
Telecommunications Device - 4-Port	69	EA	1,100.00	75,900	473.67	32,683	108,583	16,288	124,871
Telecommunications Device - 4-Port - Existing	42	EA	1,100.00	46,200	473.67	19,894	66,094	9,914	76,008
CAT 6A Quickport Connector	552	EA	36.16	19,958	25.00	13,800	33,758	5,064	38,822
CAT 6A Quickport Connector - Existing	336	EA	36.16	12,148	26.00	8,736	20,884	3,133	24,017
CAT 6A Patch Panel	10	EA	320.11	3,201	150.00	1,500	4,701	705	5,406
Copper 6-port Empty Cassette	80	EA	100.00	8,000	50.00	4,000	12,000	1,800	13,800
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475

telecommunications **cost opinion**

Building 5 - Habilitation Center

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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 - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	69	EA	200.00	13,800	150.00	10,350	24,150	3,623	27,773
Subtotal Low-Voltage Systems (Divisions 27)							358,883	53,833	412,716
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	288.63	289	577.26	577	866	129.88	996
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	521.80	522			522	78.27	600
Raceway, Cabling Supports and Outlet Boxes	3	EA	200.00	600	200.00	600	1,200	180	1,380
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	2	EA	535.00	1,070	85.00	170	1,240	186	1,426
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	3	EA	100.00	300	50.00	150	450	68	518
Card Reader	3	EA	325.00	975	127.50	383	1,358	204	1,561
Electrified Hardware (Electrified Lock and Power Transfer)	3	EA	1,800.00	5,400	600.00	1,800	7,200	1,080	8,280
Request To Exit (REX)	3	EA	125.00	375	85.00	255	630	95	725
Wiring - Per Access Control Door	3	EA	400.00	1,200	700.00	2,100	3,300	495	3,795
Programming	1	LS			2,609.00	2,609	2,609	391	3,000
Engineering	1	LS			1,304.50	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 6 - Rainbow Way 5890-5891

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	4,902.76	4,903	$ 9,806	$ 9,806	$ 14,708	$ 2,206	$ 16,915
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	8,580.18	8,580	$ -	$ -	$ 8,580	$ 1,287	$ 9,867
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000.00	12,000	2,500.00	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	60	LF	7.50	450	20.00	1,200	1,650	248	1,898
2000VA UPS	1	EA	3,000.00	3,000	110.00	110	3,110	467	3,577
Telecommunication Room Demolition	1	EA			2,000.00	2,000	2,000	300	2,300
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	1,200	LF	2.50	3,000	.05	60	3,060	459	3,519
12 Strand Multimode Outside Plant (OSP) OFC	1,200	LF	1.19	1,426	.05	60	1,486	223	1,708
Trenching	250	LF	7.50	1,875	15.00	3,750	5,625	844	6,469
(4)4"C w/ 3" 3-Cell Textile Innerduct	250	LF	61.40	15,350	71.00	17,750	33,100	4,965	38,065
Utility Vault (Medium)	1	EA	4,335.00	4,335	3,500.00	3,500	7,835	1,175	9,010

telecommunications **cost opinion**

Building 6 - Rainbow Way 5890-5891

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

	quantity		material cost		labor cost		engineering opinion		
description	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
Telecommunications Device - 4-Port	69	EA	1,100.00	75,900	473.67	32,683	108,583	16,288	124,871
Telecommunications Device - 4-Port - Existing	1	EA	1,100.00	1,100	473.67	474	1,574	236	1,810
CAT 6A Quickport Connector	552	EA	36.16	19,958	25.00	13,800	33,758	5,064	38,822
CAT 6A Quickport Connector - Existing	8	EA	36.16	289	26.00	208	497	75	572
CAT 6A Patch Panel	6	EA	320.11	1,921	150.00	900	2,821	423	3,244
Copper 6-port Empty Cassette	48	EA	100.00	4,800	50.00	2,400	7,200	1,080	8,280
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475
Telecom Room - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	69	EA	200.00	13,800	150.00	10,350	24,150	3,623	27,773
Subtotal Low-Voltage Systems (Divisions 27)							292,947	43,942	336,889

telecommunications **cost opinion**

Building 6 - Rainbow Way 5890-5891

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 7 - Cascade Way 5886-5887

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	3,487.67	3,488	$ 6,975	$ 6,975	$ 10,463	$ 1,569	$ 12,032
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	5,351.23	5,351	$ -	$ -	$ 5,351	$ 803	$ 6,154
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000.00	12,000	2,500.00	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	60	LF	7.50	450	20.00	1,200	1,650	248	1,898
Telecommunication Room Demolition	1	EA			2,000.00	2,000	2,000	300	2,300
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	1,075	LF	2.50	2,688	.05	54	2,741	411	3,152
12 Strand Multimode Outside Plant (OSP) OFC	1,075	LF	1.19	1,277	.05	54	1,331	200	1,530
Trenching	320	LF	7.50	2,400	15.00	4,800	7,200	1,080	8,280
(4)4"C w/ 3" 3-Cell Textile Innerduct	320	LF	61.40	19,648	71.00	22,720	42,368	6,355	48,723
Utility Vault (Medium)	1	EA	4,335.00	4,335	3,500.00	3,500	7,835	1,175	9,010
Telecommunications Device - 4-Port	27	EA	1,100.00	29,700	473.67	12,789	42,489	6,373	48,863
Telecommunications Device - 4-Port - Existing	4	EA	1,100.00	4,400	473.67	1,895	6,295	944	7,239
CAT 6A Quickport Connector	216	EA	36.16	7,810	25.00	5,400	13,210	1,981	15,191
CAT 6A Quickport Connector - Existing	32	EA	36.16	1,157	26.00	832	1,989	298	2,287
CAT 6A Patch Panel	3	EA	320.11	960	150.00	450	1,410	212	1,622
Copper 6-port Empty Cassette	24	EA	100.00	2,400	50.00	1,200	3,600	540	4,140
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475

telecommunications **cost opinion**

Building 7 - Cascade Way 5886-5887

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

HARGIS
1201 third avenue, ste 600
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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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 - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	27	EA	200.00	5,400	150.00	4,050	9,450	1,418	10,868
Subtotal Low-Voltage Systems (Divisions 27)							192,592	28,889	221,481
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 8 - Wildrose Way 5888-5889

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	3,104.18	3,104	$ 6,208	$ 6,208	$ 9,313	$ 1,397	$ 10,709
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	4,946.55	4,947	$ -	$ -	$ 4,947	$ 742	$ 5,689
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000.00	12,000	2,500.00	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	60	LF	7.50	450	20.00	1,200	1,650	248	1,898
Telecommunication Room Demolition	1	EA			2,000.00	2,000	2,000	300	2,300
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	1,050	LF	2.50	2,625	.05	53	2,678	402	3,079
12 Strand Multimode Outside Plant (OSP) OFC	1,050	LF	1.19	1,247	.05	53	1,300	195	1,495
Trenching	250	LF	7.50	1,875	15.00	3,750	5,625	844	6,469
(4)4"C w/ 3" 3-Cell Textile Innerduct	250	LF	61.40	15,350	71.00	17,750	33,100	4,965	38,065
Utility Vault (Medium)	1	EA	4,335.00	4,335	3,500.00	3,500	7,835	1,175	9,010
Telecommunications Device - 4-Port	25	EA	1,100.00	27,500	473.67	11,842	39,342	5,901	45,243
Telecommunications Device - 4-Port - Existing	4	EA	1,100.00	4,400	473.67	1,895	6,295	944	7,239
CAT 6A Quickport Connector	200	EA	36.16	7,231	25.00	5,000	12,231	1,835	14,066
CAT 6A Quickport Connector - Existing	32	EA	36.16	1,157	26.00	832	1,989	298	2,287
CAT 6A Patch Panel	3	EA	320.11	960	150.00	450	1,410	212	1,622
Copper 6-port Empty Cassette	24	EA	100.00	2,400	50.00	1,200	3,600	540	4,140
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475

telecommunications **cost opinion**

Building 8 - Wildrose Way 5888-5889

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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1201 third avenue, ste 600
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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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 - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	25	EA	200.00	5,000	150.00	3,750	8,750	1,313	10,063
Subtotal Low-Voltage Systems (Divisions 27)							175,274	26,291	201,565
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 9 - Apple Court 5892-5893

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	3,199.49	3,199	$ 6,399	$ 6,399	$ 9,598	$ 1,440	$ 11,038
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	5,079.37	5,079	$ -	$ -	$ 5,079	$ 762	$ 5,841
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000.00	12,000	2,500.00	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	60	LF	7.50	450	20.00	1,200	1,650	248	1,898
Telecommunication Room Demolition	1	EA			2,000.00	2,000	2,000	300	2,300
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	800	LF	2.50	2,000	.05	40	2,040	306	2,346
12 Strand Multimode Outside Plant (OSP) OFC	800	LF	1.19	950	.05	40	990	149	1,139
Trenching	250	LF	7.50	1,875	15.00	3,750	5,625	844	6,469
(4)4"C w/ 3" 3-Cell Textile Innerduct	250	LF	61.40	15,350	71.00	17,750	33,100	4,965	38,065
Utility Vault (Medium)	1	EA	4,335.00	4,335	3,500.00	3,500	7,835	1,175	9,010
Telecommunications Device - 4-Port	29	EA	1,100.00	31,900	473.67	13,737	45,637	6,845	52,482
Telecommunications Device - 4-Port - Existing	2	EA	1,100.00	2,200	473.67	947	3,147	472	3,619
CAT 6A Quickport Connector	232	EA	36.16	8,388	25.00	5,800	14,188	2,128	16,316
CAT 6A Quickport Connector - Existing	16	EA	36.16	578	26.00	416	994	149	1,144
CAT 6A Patch Panel	3	EA	320.11	960	150.00	450	1,410	212	1,622
Copper 6-port Empty Cassette	24	EA	100.00	2,400	50.00	1,200	3,600	540	4,140
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475

telecommunications **cost opinion**

Building 9 - Apple Court 5892-5893

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

HARGIS
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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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 - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	29	EA	200.00	5,800	150.00	4,350	10,150	1,523	11,673
Subtotal Low-Voltage Systems (Divisions 27)							180,255	27,038	207,293
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 10 - Bigfoot Way 5894-5895

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	2,638.34	2,638	$ 5,277	$ 5,277	$ 7,915	$ 1,187	$ 9,102
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	4,468.04	4,468	$ -	$ -	$ 4,468	$ 670	$ 5,138
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000.00	12,000	2,500.00	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	60	LF	7.50	450	20.00	1,200	1,650	248	1,898
Telecommunication Room Demolition	1	EA			2,000.00	2,000	2,000	300	2,300
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	700	LF	2.50	1,750	.05	35	1,785	268	2,053
12 Strand Multimode Outside Plant (OSP) OFC	700	LF	1.19	832	.05	35	867	130	997
Trenching	150	LF	7.50	1,125	15.00	2,250	3,375	506	3,881
(4)4"C w/ 3" 3-Cell Textile Innerduct	150	LF	61.40	9,210	71.00	10,650	19,860	2,979	22,839
Utility Vault (Medium)	1	EA	4,335.00	4,335	3,500.00	3,500	7,835	1,175	9,010
Telecommunications Device - 4-Port	25	EA	1,100.00	27,500	473.67	11,842	39,342	5,901	45,243
Telecommunications Device - 4-Port - Existing	3	EA	1,100.00	3,300	473.67	1,421	4,721	708	5,429
CAT 6A Quickport Connector	200	EA	36.16	7,231	25.00	5,000	12,231	1,835	14,066
CAT 6A Quickport Connector - Existing	24	EA	36.16	868	26.00	624	1,492	224	1,716
CAT 6A Patch Panel	3	EA	320.11	960	150.00	450	1,410	212	1,622
Copper 6-port Empty Cassette	24	EA	100.00	2,400	50.00	1,200	3,600	540	4,140
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475

telecommunications **cost opinion**

Building 10 - Bigfoot Way 5894-5895

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

HARGIS
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seattle, washington 98101
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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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 - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	25	EA	200.00	5,000	150.00	3,750	8,750	1,313	10,063
Subtotal Low-Voltage Systems (Divisions 27)							154,511	23,177	177,687
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 11 - Bigfoot Way 5896-5897

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	2,382.82	2,383	$ 4,766	$ 4,766	$ 7,148	$ 1,072	$ 8,221
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	4,082.21	4,082	$ -	$ -	$ 4,082	$ 612	$ 4,695
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000.00	12,000	2,500.00	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	60	LF	7.50	450	20.00	1,200	1,650	248	1,898
2000VA UPS	1	EA	3,000.00	3,000	110.00	110	3,110	467	3,577
Telecommunication Room Demolition	1	EA			2,000.00	2,000	2,000	300	2,300
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	575	LF	2.50	1,438	.05	29	1,466	220	1,686
12 Strand Multimode Outside Plant (OSP) OFC	575	LF	1.19	683	.05	29	712	107	819
Trenching	150	LF	7.50	1,125	15.00	2,250	3,375	506	3,881
(4)4"C w/ 3" 3-Cell Textile Innerduct	150	LF	61.40	9,210	71.00	10,650	19,860	2,979	22,839
Utility Vault (Medium)	1	EA	4,335.00	4,335	3,500.00	3,500	7,835	1,175	9,010

telecommunications **cost opinion**

Building 11 - Bigfoot Way 5896-5897

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

	quantity		material cost		labor cost		engineering opinion		
description	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
Telecommunications Device - 4-Port	21	EA	1,100.00	23,100	473.67	9,947	33,047	4,957	38,004
Telecommunications Device - 4-Port - Existing	1	EA	1,100.00	1,100	473.67	474	1,574	236	1,810
CAT 6A Quickport Connector	168	EA	36.16	6,074	25.00	4,200	10,274	1,541	11,815
CAT 6A Quickport Connector - Existing	8	EA	36.16	289	26.00	208	497	75	572
CAT 6A Patch Panel	2	EA	320.11	640	150.00	300	940	141	1,081
Copper 6-port Empty Cassette	16	EA	100.00	1,600	50.00	800	2,400	360	2,760
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475
Telecom Room - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	21	EA	200.00	4,200	150.00	3,150	7,350	1,103	8,453
Subtotal Low-Voltage Systems (Divisions 27)							140,531	21,080	161,611

telecommunications **cost opinion**

Building 11 - Bigfoot Way 5896-5897

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 12 - Cascade Way 5874-5875

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	1,934.04	1,934	$ 3,868	$ 3,868	$ 5,802	$ 870	$ 6,672
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	3,935.27	3,935	$ -	$ -	$ 3,935	$ 590	$ 4,526
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000.00	12,000	2,500.00	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	60	LF	7.50	450	20.00	1,200	1,650	248	1,898
Telecommunication Room Demolition	1	EA			2,000.00	2,000	2,000	300	2,300
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	550	LF	2.50	1,375	.05	28	1,403	210	1,613
12 Strand Multimode Outside Plant (OSP) OFC	550	LF	1.19	653	.05	28	681	102	783
Telecommunications Device - 4-Port	27	EA	1,100.00	29,700	473.67	12,789	42,489	6,373	48,863
Telecommunications Device - 4-Port - Existing	4	EA	1,100.00	4,400	473.67	1,895	6,295	944	7,239
CAT 6A Quickport Connector	216	EA	36.16	7,810	25.00	5,400	13,210	1,981	15,191
CAT 6A Quickport Connector - Existing	32	EA	36.16	1,157	26.00	832	1,989	298	2,287
CAT 6A Patch Panel	3	EA	320.11	960	150.00	450	1,410	212	1,622
Copper 6-port Empty Cassette	24	EA	100.00	2,400	50.00	1,200	3,600	540	4,140
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475

telecommunications **cost opinion**

Building 12 - Cascade Way 5874-5875

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

HARGIS
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seattle, washington 98101
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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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 - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	27	EA	200.00	5,400	150.00	4,050	9,450	1,418	10,868
Subtotal Low-Voltage Systems (Divisions 27)							127,124	19,069	146,192
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 13 - Willow Court 5876-5877

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

HARGIS
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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	1,829.44	1,829	$ 3,659	$ 3,659	$ 5,488	$ 823	$ 6,312
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	3,839.22	3,839	$ -	$ -	$ 3,839	$ 576	$ 4,415
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000.00	12,000	2,500.00	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	60	LF	7.50	450	20.00	1,200	1,650	248	1,898
2000VA UPS	1	EA	3,000.00	3,000	110.00	110	3,110	467	3,577
Telecommunication Room Demolition	1	EA			2,000.00	2,000	2,000	300	2,300
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	400	LF	2.50	1,000	.05	20	1,020	153	1,173
12 Strand Multimode Outside Plant (OSP) OFC	400	LF	1.19	475	.05	20	495	74	569
Telecommunications Device - 4-Port	26	EA	1,100.00	28,600	473.67	12,316	40,916	6,137	47,053
Telecommunications Device - 4-Port - Existing	2	EA	1,100.00	2,200	473.67	947	3,147	472	3,619
CAT 6A Quickport Connector	208	EA	36.16	7,520	25.00	5,200	12,720	1,908	14,629
CAT 6A Quickport Connector - Existing	16	EA	36.16	578	26.00	416	994	149	1,144
CAT 6A Patch Panel	3	EA	320.11	960	150.00	450	1,410	212	1,622
Copper 6-port Empty Cassette	24	EA	100.00	2,400	50.00	1,200	3,600	540	4,140
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475

telecommunications **cost opinion**

Building 13 - Willow Court 5876-5877

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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 - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	26	EA	200.00	5,200	150.00	3,900	9,100	1,365	10,465
Subtotal Low-Voltage Systems (Divisions 27)							122,701	18,405	141,106
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 14 - Willow Court 5878-5879

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

HARGIS
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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	1,849.83	1,850	$ 3,700	$ 3,700	$ 5,549	$ 832	$ 6,382
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	3,907.13	3,907	$ -	$ -	$ 3,907	$ 586	$ 4,493
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000.00	12,000	2,500.00	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	60	LF	7.50	450	20.00	1,200	1,650	248	1,898
2000VA UPS	1	EA	3,000.00	3,000	110.00	110	3,110	467	3,577
Telecommunication Room Demolition	1	EA			2,000.00	2,000	2,000	300	2,300
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	500	LF	2.50	1,250	.05	25	1,275	191	1,466
12 Strand Multimode Outside Plant (OSP) OFC	500	LF	1.19	594	.05	25	619	93	712
Telecommunications Device - 4-Port	24	EA	1,100.00	26,400	473.67	11,368	37,768	5,665	43,433
Telecommunications Device - 4-Port - Existing	5	EA	1,100.00	5,500	473.67	2,368	7,868	1,180	9,049
CAT 6A Quickport Connector	192	EA	36.16	6,942	25.00	4,800	11,742	1,761	13,503
CAT 6A Quickport Connector - Existing	40	EA	36.16	1,446	26.00	1,040	2,486	373	2,859
CAT 6A Patch Panel	3	EA	320.11	960	150.00	450	1,410	212	1,622
Copper 6-port Empty Cassette	24	EA	100.00	2,400	50.00	1,200	3,600	540	4,140
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475
Telecom Room - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350

telecommunications **cost opinion**

Building 14 - Willow Court 5878-5879

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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
Pathway per Drop	24	EA	200.00	4,800	150.00	3,600	8,400	1,260	9,660
Subtotal Low-Voltage Systems (Divisions 27)							124,596	18,689	143,285
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 15 - Sunrise Court 5880-5881

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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seattle, washington 98101
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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	1,175.03	1,175	$ 2,350	$ 2,350	$ 3,525	$ 529	$ 4,054
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	2,810.92	2,811	$ -	$ -	$ 2,811	$ 422	$ 3,233
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000.00	12,000	2,500.00	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	60	LF	7.50	450	20.00	1,200	1,650	248	1,898
2000VA UPS	1	EA	3,000.00	3,000	110.00	110	3,110	467	3,577
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	675	LF	2.50	1,688	.05	34	1,721	258	1,979
12 Strand Multimode Outside Plant (OSP) OFC	675	LF	1.19	802	.05	34	836	125	961
Telecommunications Device - 4-Port	14	EA	1,100.00	15,400	473.67	6,631	22,031	3,305	25,336
Telecommunications Device - 4-Port - Existing	1	EA	1,100.00	1,100	473.67	474	1,574	236	1,810
CAT 6A Quickport Connector	112	EA	36.16	4,049	25.00	2,800	6,849	1,027	7,877
CAT 6A Quickport Connector - Existing	8	EA	36.16	289	26.00	208	497	75	572
CAT 6A Patch Panel	2	EA	320.11	640	150.00	300	940	141	1,081
Copper 6-port Empty Cassette	16	EA	100.00	1,600	50.00	800	2,400	360	2,760
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475

telecommunications **cost opinion**

Building 15 - Sunrise Court 5880-5881

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

HARGIS
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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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 - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	14	EA	200.00	2,800	150.00	2,100	4,900	735	5,635
Subtotal Low-Voltage Systems (Divisions 27)							86,055	12,908	98,963
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 16 - Sunrise Court 5882-5883

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

HARGIS
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seattle, washington 98101
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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	1,977.10	1,977	$ 3,954	$ 3,954	$ 5,931	$ 890	$ 6,821
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	4,083.88	4,084	$ -	$ -	$ 4,084	$ 613	$ 4,696
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000.00	12,000	2,500.00	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	60	LF	7.50	450	20.00	1,200	1,650	248	1,898
Telecommunication Room Demolition	1	EA			2,000.00	2,000	2,000	300	2,300
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	925	LF	2.50	2,313	.05	46	2,359	354	2,713
12 Strand Multimode Outside Plant (OSP) OFC	925	LF	1.19	1,099	.05	46	1,145	172	1,317
Telecommunications Device - 4-Port	28	EA	1,100.00	30,800	473.67	13,263	44,063	6,609	50,672
Telecommunications Device - 4-Port - Existing	4	EA	1,100.00	4,400	473.67	1,895	6,295	944	7,239
CAT 6A Quickport Connector	224	EA	36.16	8,099	25.00	5,600	13,699	2,055	15,754
CAT 6A Quickport Connector - Existing	32	EA	36.16	1,157	26.00	832	1,989	298	2,287
CAT 6A Patch Panel	3	EA	320.11	960	150.00	450	1,410	212	1,622
Copper 6-port Empty Cassette	24	EA	100.00	2,400	50.00	1,200	3,600	540	4,140
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475

telecommunications **cost opinion**

Building 16 - Sunrise Court 5882-5883

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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 - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	28	EA	200.00	5,600	150.00	4,200	9,800	1,470	11,270
Subtotal Low-Voltage Systems (Divisions 27)							131,235	19,685	150,920
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 17 - Sunrise Court 5884-5885

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

HARGIS
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seattle, washington 98101
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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	2,011.06	2,011	$ 4,022	$ 4,022	$ 6,033	$ 905	$ 6,938
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	4,148.74	4,149	$ -	$ -	$ 4,149	$ 622	$ 4,771
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000.00	12,000	2,500.00	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	60	LF	7.50	450	20.00	1,200	1,650	248	1,898
Telecommunication Room Demolition	1	EA			2,000.00	2,000	2,000	300	2,300
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	900	LF	2.50	2,250	.05	45	2,295	344	2,639
12 Strand Multimode Outside Plant (OSP) OFC	900	LF	1.19	1,069	.05	45	1,114	167	1,281
Telecommunications Device - 4-Port	28	EA	1,100.00	30,800	473.67	13,263	44,063	6,609	50,672
Telecommunications Device - 4-Port - Existing	5	EA	1,100.00	5,500	473.67	2,368	7,868	1,180	9,049
CAT 6A Quickport Connector	224	EA	36.16	8,099	25.00	5,600	13,699	2,055	15,754
CAT 6A Quickport Connector - Existing	40	EA	36.16	1,446	26.00	1,040	2,486	373	2,859
CAT 6A Patch Panel	3	EA	320.11	960	150.00	450	1,410	212	1,622
Copper 6-port Empty Cassette	24	EA	100.00	2,400	50.00	1,200	3,600	540	4,140
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475

telecommunications **cost opinion**

Building 17 - Sunrise Court 5884-5885

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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 - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	28	EA	200.00	5,600	150.00	4,200	9,800	1,470	11,270
Subtotal Low-Voltage Systems (Divisions 27)							133,378	20,007	153,385
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 23 - Carpenter and Paint Shop

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	895.70	896	$ 1,791	$ 1,791	$ 2,687	$ 403	$ 3,090
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	2,355.73	2,356	$ -	$ -	$ 2,356	$ 353	$ 2,709
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000.00	12,000	2,500.00	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	60	LF	7.50	450	20.00	1,200	1,650	248	1,898
2000VA UPS	1	EA	3,000.00	3,000	110.00	110	3,110	467	3,577
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	1,150	LF	2.50	2,875	.05	58	2,933	440	3,372
12 Strand Multimode Outside Plant (OSP) OFC	1,150	LF	1.19	1,366	.05	58	1,424	214	1,637
Telecommunications Device - 4-Port	7	EA	1,100.00	7,700	473.67	3,316	11,016	1,652	12,668
Telecommunications Device - 4-Port - Existing	2	EA	1,100.00	2,200	473.67	947	3,147	472	3,619
CAT 6A Quickport Connector	56	EA	36.16	2,025	25.00	1,400	3,425	514	3,938
CAT 6A Quickport Connector - Existing	16	EA	36.16	578	26.00	416	994	149	1,144
CAT 6A Patch Panel	1	EA	320.11	320	150.00	150	470	71	541
Copper 6-port Empty Cassette	8	EA	100.00	800	50.00	400	1,200	180	1,380
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475

telecommunications **cost opinion**

Building 23 - Carpenter and Paint Shop

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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 - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	7	EA	200.00	1,400	150.00	1,050	2,450	368	2,818
Subtotal Low-Voltage Systems (Divisions 27)							70,071	10,511	80,582
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 26 - Repair Garage

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	1,729.13	1,729	$ 3,458	$ 3,458	$ 5,187	$ 778	$ 5,965
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	3,435.99	3,436	$ -	$ -	$ 3,436	$ 515	$ 3,951
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	45	LF	7.50	338	20.00	900	1,238	186	1,423
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	750	LF	2.50	1,875	.05	38	1,913	287	2,199
12 Strand Multimode Outside Plant (OSP) OFC	750	LF	1.19	891	.05	38	929	139	1,068
Telecommunications Device - 4-Port	27	EA	1,100.00	29,700	473.67	12,789	42,489	6,373	48,863
Telecommunications Device - 4-Port - Existing	5	EA	1,100.00	5,500	473.67	2,368	7,868	1,180	9,049
CAT 6A Quickport Connector	216	EA	36.16	7,810	25.00	5,400	13,210	1,981	15,191
CAT 6A Quickport Connector - Existing	40	EA	36.16	1,446	26.00	1,040	2,486	373	2,859
CAT 6A Patch Panel	3	EA	320.11	960	150.00	450	1,410	212	1,622
Copper 6-port Empty Cassette	24	EA	100.00	2,400	50.00	1,200	3,600	540	4,140
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475
Telecom Room - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	27	EA	200.00	5,400	150.00	4,050	9,450	1,418	10,868
Subtotal Low-Voltage Systems (Divisions 27)							111,926	16,789	128,715

telecommunications **cost opinion**

Building 26 - Repair Garage

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	149.79	150	299.58	300	449	67.41	517
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	321.40	321			321	48.21	370
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 16-Door	1	EA	1,950.00	1,950	255.00	255	2,205	331	2,536
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,607.00	1,607	1,607	241	1,848
Engineering	1	LS			803.50	804	804	121	924
Subtotal Life Safety and Security Systems (Divisions 28)							14,199	2,130	16,329

telecommunications **cost opinion**

Building 30 - Laundry

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	2,857.43	2,857	$ 5,715	$ 5,715	$ 8,572	$ 1,286	$ 9,858
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	4,407.86	4,408	$ -	$ -	$ 4,408	$ 661	$ 5,069
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	45	LF	7.50	338	20.00	900	1,238	186	1,423
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	750	LF	2.50	1,875	.05	38	1,913	287	2,199
12 Strand Multimode Outside Plant (OSP) OFC	750	LF	1.19	891	.05	38	929	139	1,068
Trenching	225	LF	7.50	1,688	15.00	3,375	5,063	759	5,822
(4)4"C w/ 3" 3-Cell Textile Innerduct	225	LF	61.40	13,815	71.00	15,975	29,790	4,469	34,259
Utility Vault (Medium)	1	EA	4,335.00	4,335	3,500.00	3,500	7,835	1,175	9,010
Telecommunications Device - 4-Port	25	EA	1,100.00	27,500	473.67	11,842	39,342	5,901	45,243
Telecommunications Device - 4-Port - Existing	7	EA	1,100.00	7,700	473.67	3,316	11,016	1,652	12,668
CAT 6A Quickport Connector	200	EA	36.16	7,231	25.00	5,000	12,231	1,835	14,066
CAT 6A Quickport Connector - Existing	56	EA	36.16	2,025	26.00	1,456	3,481	522	4,003
CAT 6A Patch Panel	3	EA	320.11	960	150.00	450	1,410	212	1,622
Copper 6-port Empty Cassette	24	EA	100.00	2,400	50.00	1,200	3,600	540	4,140
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475

telecommunications **cost opinion**

Building 30 - Laundry

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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 - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	25	EA	200.00	5,000	150.00	3,750	8,750	1,313	10,063
Subtotal Low-Voltage Systems (Divisions 27)							158,286	23,743	182,029
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 31 - Support Services

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

HARGIS
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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	1,737.23	1,737	$ 3,474	$ 3,474	$ 5,212	$ 782	$ 5,993
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	3,756.23	3,756	$ -	$ -	$ 3,756	$ 563	$ 4,320
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 4RU	3	EA	390.00	1,170	110.00	330	1,500	225	1,725
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	65	LF	7.50	488	20.00	1,300	1,788	268	2,056
20KVA UPS	1	EA	12,600.00	12,600	110.00	110	12,710	1,907	14,617
Demolish Defunct Infrastructure After System Cutover	1	LS			4,000.00	4,000	4,000	600	4,600
12 Strand Singlemode Plenum Rated OFC	100	LF	.94	94	.05	5	99	15	113
12 Strand Multimode Plenum Rated OFC	100	LF	1.25	125	.05	5	130	20	150
Telecommunications Device - 4-Port	23	EA	1,100.00	25,300	473.67	10,894	36,194	5,429	41,624
Telecommunications Device - 4-Port - Existing	6	EA	1,100.00	6,600	473.67	2,842	9,442	1,416	10,858
CAT 6A Quickport Connector	184	EA	36.16	6,653	25.00	4,600	11,253	1,688	12,941
CAT 6A Quickport Connector - Existing	48	EA	36.16	1,735	26.00	1,248	2,983	448	3,431
CAT 6A Patch Panel	3	EA	320.11	960	150.00	450	1,410	212	1,622
Copper 6-port Empty Cassette	24	EA	100.00	2,400	50.00	1,200	3,600	540	4,140
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475

telecommunications **cost opinion**

Building 31 - Support Services

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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 - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	23	EA	200.00	4,600	150.00	3,450	8,050	1,208	9,258
Subtotal Low-Voltage Systems (Divisions 27)							118,837	17,826	136,663
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	209.64	210	419.28	419	629	94.34	723
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	390.40	390			390	58.56	449
Raceway, Cabling Supports and Outlet Boxes	2	EA	200.00	400	200.00	400	800	120	920
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	2	EA	100.00	200	50.00	100	300	45	345
Card Reader	2	EA	325.00	650	127.50	255	905	136	1,041
Electrified Hardware (Electrified Lock and Power Transfer)	2	EA	1,800.00	3,600	600.00	1,200	4,800	720	5,520
Request To Exit (REX)	2	EA	125.00	250	85.00	170	420	63	483
Wiring - Per Access Control Door	2	EA	400.00	800	700.00	1,400	2,200	330	2,530
Programming	1	LS			1,952.00	1,952	1,952	293	2,245
Engineering	1	LS			976.00	976	976	146	1,122
Subtotal Life Safety and Security Systems (Divisions 28)							18,567	2,785	21,352

telecommunications **cost opinion**

Building 32 - Food Service

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	2,627.91	2,628	$ 5,256	$ 5,256	$ 7,884	$ 1,183	$ 9,066
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	3,939.61	3,940	$ -	$ -	$ 3,940	$ 591	$ 4,531
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	30	LF	7.50	225	20.00	600	825	124	949
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	450	LF	2.50	1,125	.05	23	1,148	172	1,320
12 Strand Multimode Outside Plant (OSP) OFC	450	LF	1.19	535	.05	23	557	84	641
Trenching	225	LF	7.50	1,688	15.00	3,375	5,063	759	5,822
(4)4"C w/ 3" 3-Cell Textile Innerduct	225	LF	61.40	13,815	71.00	15,975	29,790	4,469	34,259
Utility Vault (Medium)	1	EA	4,335.00	4,335	3,500.00	3,500	7,835	1,175	9,010
Telecommunications Device - 4-Port	19	EA	1,100.00	20,900	473.67	9,000	29,900	4,485	34,385
Telecommunications Device - 4-Port - Existing	8	EA	1,100.00	8,800	473.67	3,789	12,589	1,888	14,478
CAT 6A Quickport Connector	152	EA	36.16	5,496	25.00	3,800	9,296	1,394	10,690
CAT 6A Quickport Connector - Existing	64	EA	36.16	2,314	26.00	1,664	3,978	597	4,575
CAT 6A Patch Panel	3	EA	320.11	960	150.00	450	1,410	212	1,622
Copper 6-port Empty Cassette	24	EA	100.00	2,400	50.00	1,200	3,600	540	4,140
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475

telecommunications **cost opinion**

Building 32 - Food Service

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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 - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	19	EA	200.00	3,800	150.00	2,850	6,650	998	7,648
Subtotal Low-Voltage Systems (Divisions 27)							143,174	21,476	164,650
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 33 - Chapel

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	1,524.56	1,525	$ 3,049	$ 3,049	$ 4,574	$ 686	$ 5,260
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	2,735.78	2,736	$ -	$ -	$ 2,736	$ 410	$ 3,146
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000.00	12,000	2,500.00	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	60	LF	7.50	450	20.00	1,200	1,650	248	1,898
2000VA UPS	1	EA	3,000.00	3,000	110.00	110	3,110	467	3,577
Telecommunication Room Demolition	1	EA			2,000.00	2,000	2,000	300	2,300
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	975	LF	2.50	2,438	.05	49	2,486	373	2,859
12 Strand Multimode Outside Plant (OSP) OFC	975	LF	1.19	1,158	.05	49	1,207	181	1,388
Trenching	100	LF	7.50	750	15.00	1,500	2,250	338	2,588
(4)4"C w/ 3" 3-Cell Textile Innerduct	100	LF	61.40	6,140	71.00	7,100	13,240	1,986	15,226
Utility Vault (Medium)	1	EA	4,335.00	4,335	3,500.00	3,500	7,835	1,175	9,010

telecommunications **cost opinion**

Building 33 - Chapel

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **CHECKED BY** Ben Helms **OVERHEAD & PROFIT** 15%

	quantity		material cost		labor cost		engineering opinion		
description	number	unit	unit cost	total	unit cost	total	subtotal	OH&P	total
Telecommunications Device - 4-Port	6	EA	1,100.00	6,600	473.67	2,842	9,442	1,416	10,858
Telecommunications Device - 4-Port - Existing	1	EA	1,100.00	1,100	473.67	474	1,574	236	1,810
CAT 6A Quickport Connector	48	EA	36.16	1,735	25.00	1,200	2,935	440	3,376
CAT 6A Quickport Connector - Existing	8	EA	36.16	289	26.00	208	497	75	572
CAT 6A Patch Panel	1	EA	320.11	320	150.00	150	470	71	541
Copper 6-port Empty Cassette	8	EA	100.00	800	50.00	400	1,200	180	1,380
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475
Telecom Room - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	6	EA	200.00	1,200	150.00	900	2,100	315	2,415
Subtotal Low-Voltage Systems (Divisions 27)							92,516	13,877	106,394

telecommunications **cost opinion**

Building 33 - Chapel

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 34 - Museum (Senior Citizen Center)

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	690.60	691	$ 1,381	$ 1,381	$ 2,072	$ 311	$ 2,383
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	2,294.08	2,294	$ -	$ -	$ 2,294	$ 344	$ 2,638
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000.00	12,000	2,500.00	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	60	LF	7.50	450	20.00	1,200	1,650	248	1,898
2000VA UPS	1	EA	3,000.00	3,000	110.00	110	3,110	467	3,577
12 Strand Singlemode Outside Plant (OSP) OFC	2,000	LF	2.50	5,000	.05	100	5,100	765	5,865
12 Strand Multimode Outside Plant (OSP) OFC	2,000	LF	1.19	2,376	.05	100	2,476	371	2,847
Telecommunications Device - 4-Port	6	EA	1,100.00	6,600	473.67	2,842	9,442	1,416	10,858
CAT 6A Quickport Connector	48	EA	36.16	1,735	25.00	1,200	2,935	440	3,376
CAT 6A Patch Panel	1	EA	320.11	320	150.00	150	470	71	541
Copper 6-port Empty Cassette	8	EA	100.00	800	50.00	400	1,200	180	1,380
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475
Telecom Room - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	6	EA	200.00	1,200	150.00	900	2,100	315	2,415
Subtotal Low-Voltage Systems (Divisions 27)							64,060	9,609	73,668

telecommunications **cost opinion**

Building 34 - Museum (Senior Citizen Center)

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 37 - Chiller Plant

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	1,945.34	1,945	$ 3,891	$ 3,891	$ 5,836	$ 875	$ 6,711
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	4,352.57	4,353	$ -	$ -	$ 4,353	$ 653	$ 5,005
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000.00	12,000	2,500.00	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	60	LF	7.50	450	20.00	1,200	1,650	248	1,898
2000VA UPS	1	EA	3,000.00	3,000	110.00	110	3,110	467	3,577
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	975	LF	2.50	2,438	.05	49	2,486	373	2,859
12 Strand Multimode Outside Plant (OSP) OFC	975	LF	1.19	1,158	.05	49	1,207	181	1,388
Telecommunications Device - 4-Port	32	EA	1,100.00	35,200	473.67	15,158	50,358	7,554	57,911
Telecommunications Device - 4-Port - Existing	1	EA	1,100.00	1,100	473.67	474	1,574	236	1,810
CAT 6A Quickport Connector	256	EA	36.16	9,256	25.00	6,400	15,656	2,348	18,004
CAT 6A Quickport Connector - Existing	8	EA	36.16	289	26.00	208	497	75	572
CAT 6A Patch Panel	3	EA	320.11	960	150.00	450	1,410	212	1,622
Copper 6-port Empty Cassette	24	EA	100.00	2,400	50.00	1,200	3,600	540	4,140
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475

telecommunications **cost opinion**

Building 37 - Chiller Plant

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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 - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	32	EA	200.00	6,400	150.00	4,800	11,200	1,680	12,880
Subtotal Low-Voltage Systems (Divisions 27)							136,147	20,422	156,569
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 38 - Boiler Plant

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	1,387.50	1,388	$ 2,775	$ 2,775	$ 4,163	$ 624	$ 4,787
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	2,608.67	2,609	$ -	$ -	$ 2,609	$ 391	$ 3,000
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000.00	12,000	2,500.00	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	60	LF	7.50	450	20.00	1,200	1,650	248	1,898
2000VA UPS	1	EA	3,000.00	3,000	110.00	110	3,110	467	3,577
Telecommunication Room Demolition	1	EA			2,000.00	2,000	2,000	300	2,300
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	1,100	LF	2.50	2,750	.05	55	2,805	421	3,226
12 Strand Multimode Outside Plant (OSP) OFC	1,100	LF	1.19	1,307	.05	55	1,362	204	1,566
Trenching	75	LF	7.50	563	15.00	1,125	1,688	253	1,941
(4)4"C w/ 3" 3-Cell Textile Innerduct	75	LF	61.40	4,605	71.00	5,325	9,930	1,490	11,420
Utility Vault (Medium)	1	EA	4,335.00	4,335	3,500.00	3,500	7,835	1,175	9,010
Telecommunications Device - 4-Port	6	EA	1,100.00	6,600	473.67	2,842	9,442	1,416	10,858
CAT 6A Quickport Connector	48	EA	36.16	1,735	25.00	1,200	2,935	440	3,376
CAT 6A Quickport Connector - Existing	3	EA	36.16	108	26.00	78	186	28	214
CAT 6A Patch Panel	1	EA	320.11	320	150.00	150	470	71	541
Copper 6-port Empty Cassette	8	EA	100.00	800	50.00	400	1,200	180	1,380
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475

telecommunications **cost opinion**

Building 38 - Boiler Plant

Telecommunications Infrastructure Assessment Recommendations

Lakeland Village

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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 - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	6	EA	200.00	1,200	150.00	900	2,100	315	2,415
Subtotal Low-Voltage Systems (Divisions 27)							86,695	13,004	99,699
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 39 - Pinewood

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Lakeland Village

BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	2,543.17	2,543	$ 5,086	$ 5,086	$ 7,630	$ 1,144	$ 8,774
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	4,648.65	4,649	$ -	$ -	$ 4,649	$ 697	$ 5,346
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000.00	12,000	2,500.00	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	60	LF	7.50	450	20.00	1,200	1,650	248	1,898
Telecommunication Room Demolition	1	EA			2,000.00	2,000	2,000	300	2,300
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	1,375	LF	2.50	3,438	.05	69	3,506	526	4,032
12 Strand Multimode Outside Plant (OSP) OFC	1,375	LF	1.19	1,634	.05	69	1,702	255	1,958
Trenching	100	LF	7.50	750	15.00	1,500	2,250	338	2,588
(4)4"C w/ 3" 3-Cell Textile Innerduct	100	LF	61.40	6,140	71.00	7,100	13,240	1,986	15,226
Utility Vault (Medium)	1	EA	4,335.00	4,335	3,500.00	3,500	7,835	1,175	9,010
Telecommunications Device - 4-Port	27	EA	1,100.00	29,700	473.67	12,789	42,489	6,373	48,863
Telecommunications Device - 4-Port - Existing	4	EA	1,100.00	4,400	473.67	1,895	6,295	944	7,239
CAT 6A Quickport Connector	216	EA	36.16	7,810	25.00	5,400	13,210	1,981	15,191
CAT 6A Quickport Connector - Existing	32	EA	36.16	1,157	26.00	832	1,989	298	2,287
CAT 6A Patch Panel	3	EA	320.11	960	150.00	450	1,410	212	1,622
Copper 6-port Empty Cassette	24	EA	100.00	2,400	50.00	1,200	3,600	540	4,140
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475

telecommunications **cost opinion**

Building 39 - Pinewood

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Lakeland Village

BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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 - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	27	EA	200.00	5,400	150.00	4,050	9,450	1,418	10,868
Subtotal Low-Voltage Systems (Divisions 27)							156,115	23,417	179,532
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 40 - Evergreen

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	2,625.29	2,625	$ 5,251	$ 5,251	$ 7,876	$ 1,181	$ 9,057
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	4,798.36	4,798	$ -	$ -	$ 4,798	$ 720	$ 5,518
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000.00	12,000	2,500.00	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	60	LF	7.50	450	20.00	1,200	1,650	248	1,898
Telecommunication Room Demolition	1	EA			2,000.00	2,000	2,000	300	2,300
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	1,325	LF	2.50	3,313	.05	66	3,379	507	3,886
12 Strand Multimode Outside Plant (OSP) OFC	1,325	LF	1.19	1,574	.05	66	1,640	246	1,886
Trenching	100	LF	7.50	750	15.00	1,500	2,250	338	2,588
(4)4"C w/ 3" 3-Cell Textile Innerduct	100	LF	61.40	6,140	71.00	7,100	13,240	1,986	15,226
Utility Vault (Medium)	1	EA	4,335.00	4,335	3,500.00	3,500	7,835	1,175	9,010
Telecommunications Device - 4-Port	29	EA	1,100.00	31,900	473.67	13,737	45,637	6,845	52,482
Telecommunications Device - 4-Port - Existing	4	EA	1,100.00	4,400	473.67	1,895	6,295	944	7,239
CAT 6A Quickport Connector	232	EA	36.16	8,388	25.00	5,800	14,188	2,128	16,316
CAT 6A Quickport Connector - Existing	32	EA	36.16	1,157	26.00	832	1,989	298	2,287
CAT 6A Patch Panel	3	EA	320.11	960	150.00	450	1,410	212	1,622
Copper 6-port Empty Cassette	24	EA	100.00	2,400	50.00	1,200	3,600	540	4,140
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475

telecommunications **cost opinion**

Building 40 - Evergreen

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Lakeland Village

BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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 - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	29	EA	200.00	5,800	150.00	4,350	10,150	1,523	11,673
Subtotal Low-Voltage Systems (Divisions 27)							161,147	24,172	185,319
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 41 - Hawthorn

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Lakeland Village

BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	2,542.92	2,543	$ 5,086	$ 5,086	$ 7,629	$ 1,144	$ 8,773
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	4,639.43	4,639	$ -	$ -	$ 4,639	$ 696	$ 5,335
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000.00	12,000	2,500.00	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	60	LF	7.50	450	20.00	1,200	1,650	248	1,898
Telecommunication Room Demolition	1	EA			2,000.00	2,000	2,000	300	2,300
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	1,325	LF	2.50	3,313	.05	66	3,379	507	3,886
12 Strand Multimode Outside Plant (OSP) OFC	1,325	LF	1.19	1,574	.05	66	1,640	246	1,886
Trenching	100	LF	7.50	750	15.00	1,500	2,250	338	2,588
(4)4"C w/ 3" 3-Cell Textile Innerduct	100	LF	61.40	6,140	71.00	7,100	13,240	1,986	15,226
Utility Vault (Medium)	1	EA	4,335.00	4,335	3,500.00	3,500	7,835	1,175	9,010
Telecommunications Device - 4-Port	27	EA	1,100.00	29,700	473.67	12,789	42,489	6,373	48,863
Telecommunications Device - 4-Port - Existing	4	EA	1,100.00	4,400	473.67	1,895	6,295	944	7,239
CAT 6A Quickport Connector	216	EA	36.16	7,810	25.00	5,400	13,210	1,981	15,191
CAT 6A Quickport Connector - Existing	32	EA	36.16	1,157	26.00	832	1,989	298	2,287
CAT 6A Patch Panel	3	EA	320.11	960	150.00	450	1,410	212	1,622
Copper 6-port Empty Cassette	24	EA	100.00	2,400	50.00	1,200	3,600	540	4,140
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475

telecommunications **cost opinion**

Building 41 - Hawthorn

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seattle, washington 98101
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Lakeland Village

BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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 - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	27	EA	200.00	5,400	150.00	4,050	9,450	1,418	10,868
Subtotal Low-Voltage Systems (Divisions 27)							155,915	23,387	179,302
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 42 - Harvest

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Lakeland Village

BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	2,797.09	2,797	$ 5,594	$ 5,594	$ 8,391	$ 1,259	$ 9,650
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	5,041.10	5,041	$ -	$ -	$ 5,041	$ 756	$ 5,797
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000.00	12,000	2,500.00	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	60	LF	7.50	450	20.00	1,200	1,650	248	1,898
Telecommunication Room Demolition	1	EA			2,000.00	2,000	2,000	300	2,300
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	1,650	LF	2.50	4,125	.05	83	4,208	631	4,839
12 Strand Multimode Outside Plant (OSP) OFC	1,650	LF	1.19	1,960	.05	83	2,043	306	2,349
Trenching	130	LF	7.50	975	15.00	1,950	2,925	439	3,364
(4)4"C w/ 3" 3-Cell Textile Innerduct	130	LF	61.40	7,982	71.00	9,230	17,212	2,582	19,794
Utility Vault (Medium)	1	EA	4,335.00	4,335	3,500.00	3,500	7,835	1,175	9,010
Telecommunications Device - 4-Port	30	EA	1,100.00	33,000	473.67	14,210	47,210	7,082	54,292
Telecommunications Device - 4-Port - Existing	4	EA	1,100.00	4,400	473.67	1,895	6,295	944	7,239
CAT 6A Quickport Connector	240	EA	36.16	8,677	25.00	6,000	14,677	2,202	16,879
CAT 6A Quickport Connector - Existing	32	EA	36.16	1,157	26.00	832	1,989	298	2,287
CAT 6A Patch Panel	3	EA	320.11	960	150.00	450	1,410	212	1,622
Copper 6-port Empty Cassette	24	EA	100.00	2,400	50.00	1,200	3,600	540	4,140
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475

telecommunications **cost opinion**

Building 42 - Harvest

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Lakeland Village

BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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 - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	30	EA	200.00	6,000	150.00	4,500	10,500	1,575	12,075
Subtotal Low-Voltage Systems (Divisions 27)							170,196	25,529	195,726
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 43 - Hillside

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Lakeland Village

BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	2,845.63	2,846	$ 5,691	$ 5,691	$ 8,537	$ 1,281	$ 9,817
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	5,139.78	5,140	$ -	$ -	$ 5,140	$ 771	$ 5,911
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000.00	12,000	2,500.00	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	60	LF	7.50	450	20.00	1,200	1,650	248	1,898
Telecommunication Room Demolition	1	EA			2,000.00	2,000	2,000	300	2,300
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	1,700	LF	2.50	4,250	.05	85	4,335	650	4,985
12 Strand Multimode Outside Plant (OSP) OFC	1,700	LF	1.19	2,020	.05	85	2,105	316	2,420
Trenching	130	LF	7.50	975	15.00	1,950	2,925	439	3,364
(4)4"C w/ 3" 3-Cell Textile Innerduct	130	LF	61.40	7,982	71.00	9,230	17,212	2,582	19,794
Utility Vault (Medium)	1	EA	4,335.00	4,335	3,500.00	3,500	7,835	1,175	9,010
Telecommunications Device - 4-Port	32	EA	1,100.00	35,200	473.67	15,158	50,358	7,554	57,911
Telecommunications Device - 4-Port - Existing	3	EA	1,100.00	3,300	473.67	1,421	4,721	708	5,429
CAT 6A Quickport Connector	256	EA	36.16	9,256	25.00	6,400	15,656	2,348	18,004
CAT 6A Quickport Connector - Existing	24	EA	36.16	868	26.00	624	1,492	224	1,716
CAT 6A Patch Panel	3	EA	320.11	960	150.00	450	1,410	212	1,622
Copper 6-port Empty Cassette	24	EA	100.00	2,400	50.00	1,200	3,600	540	4,140
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475

telecommunications **cost opinion**

Building 43 - Hillside

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Lakeland Village

BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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 - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	32	EA	200.00	6,400	150.00	4,800	11,200	1,680	12,880
Subtotal Low-Voltage Systems (Divisions 27)							173,385	26,008	199,393
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 44 - Laurel

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Lakeland Village

BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	2,845.63	2,846	$ 5,691	$ 5,691	$ 8,537	$ 1,281	$ 9,817
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	5,139.78	5,140	$ -	$ -	$ 5,140	$ 771	$ 5,911
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000.00	12,000	2,500.00	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	60	LF	7.50	450	20.00	1,200	1,650	248	1,898
Telecommunication Room Demolition	1	EA			2,000.00	2,000	2,000	300	2,300
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	1,700	LF	2.50	4,250	.05	85	4,335	650	4,985
12 Strand Multimode Outside Plant (OSP) OFC	1,700	LF	1.19	2,020	.05	85	2,105	316	2,420
Trenching	130	LF	7.50	975	15.00	1,950	2,925	439	3,364
(4)4"C w/ 3" 3-Cell Textile Innerduct	130	LF	61.40	7,982	71.00	9,230	17,212	2,582	19,794
Utility Vault (Medium)	1	EA	4,335.00	4,335	3,500.00	3,500	7,835	1,175	9,010
Telecommunications Device - 4-Port	32	EA	1,100.00	35,200	473.67	15,158	50,358	7,554	57,911
Telecommunications Device - 4-Port - Existing	3	EA	1,100.00	3,300	473.67	1,421	4,721	708	5,429
CAT 6A Quickport Connector	256	EA	36.16	9,256	25.00	6,400	15,656	2,348	18,004
CAT 6A Quickport Connector - Existing	24	EA	36.16	868	26.00	624	1,492	224	1,716
CAT 6A Patch Panel	3	EA	320.11	960	150.00	450	1,410	212	1,622
Copper 6-port Empty Cassette	24	EA	100.00	2,400	50.00	1,200	3,600	540	4,140
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475

telecommunications **cost opinion**

Building 44 - Laurel

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Lakeland Village

BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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 - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	32	EA	200.00	6,400	150.00	4,800	11,200	1,680	12,880
Subtotal Low-Voltage Systems (Divisions 27)							173,385	26,008	199,393
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 45 - Ponderosa

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	2,021.91	2,022	$ 4,044	$ 4,044	$ 6,066	$ 910	$ 6,976
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	4,297.04	4,297	$ -	$ -	$ 4,297	$ 645	$ 4,942
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000.00	12,000	2,500.00	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	60	LF	7.50	450	20.00	1,200	1,650	248	1,898
Telecommunication Room Demolition	1	EA			2,000.00	2,000	2,000	300	2,300
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	1,650	LF	2.50	4,125	.05	83	4,208	631	4,839
12 Strand Multimode Outside Plant (OSP) OFC	1,650	LF	1.19	1,960	.05	83	2,043	306	2,349
Telecommunications Device - 4-Port	29	EA	1,100.00	31,900	473.67	13,737	45,637	6,845	52,482
Telecommunications Device - 4-Port - Existing	4	EA	1,100.00	4,400	473.67	1,895	6,295	944	7,239
CAT 6A Quickport Connector	232	EA	36.16	8,388	25.00	5,800	14,188	2,128	16,316
CAT 6A Quickport Connector - Existing	32	EA	36.16	1,157	26.00	832	1,989	298	2,287
CAT 6A Patch Panel	3	EA	320.11	960	150.00	450	1,410	212	1,622
Copper 6-port Empty Cassette	24	EA	100.00	2,400	50.00	1,200	3,600	540	4,140
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475

telecommunications **cost opinion**

Building 45 - Ponderosa

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Lakeland Village

BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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 - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	29	EA	200.00	5,800	150.00	4,350	10,150	1,523	11,673
Subtotal Low-Voltage Systems (Divisions 27)							136,742	20,511	157,253
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 46 - Shamrock

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seattle, washington 98101
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Lakeland Village

BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	2,084.71	2,085	$ 4,169	$ 4,169	$ 6,254	$ 938	$ 7,192
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	4,485.26	4,485	$ -	$ -	$ 4,485	$ 673	$ 5,158
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000.00	12,000	2,500.00	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Telecommunication Room Demolition	1	EA			2,000.00	2,000	2,000	300	2,300
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	1,500	LF	2.50	3,750	.05	75	3,825	574	4,399
12 Strand Multimode Outside Plant (OSP) OFC	1,500	LF	1.19	1,782	.05	75	1,857	279	2,136
Telecommunications Device - 4-Port	32	EA	1,100.00	35,200	473.67	15,158	50,358	7,554	57,911
Telecommunications Device - 4-Port - Existing	4	EA	1,100.00	4,400	473.67	1,895	6,295	944	7,239
CAT 6A Quickport Connector	256	EA	36.16	9,256	25.00	6,400	15,656	2,348	18,004
CAT 6A Quickport Connector - Existing	32	EA	36.16	1,157	26.00	832	1,989	298	2,287
CAT 6A Patch Panel	3	EA	320.11	960	150.00	450	1,410	212	1,622
Copper 6-port Empty Cassette	24	EA	100.00	2,400	50.00	1,200	3,600	540	4,140
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475
Telecom Room - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	32	EA	200.00	6,400	150.00	4,800	11,200	1,680	12,880
Subtotal Low-Voltage Systems (Divisions 27)							142,139	21,321	163,460

telecommunications **cost opinion**

Building 46 - Shamrock

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Lakeland Village

BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 47 - Tamarack

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Lakeland Village

BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	2,112.63	2,113	$ 4,225	$ 4,225	$ 6,338	$ 951	$ 7,289
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	4,512.06	4,512	$ -	$ -	$ 4,512	$ 677	$ 5,189
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Telecommunications Rooms - HC	1	EA	12,000.00	12,000	2,500.00	2,500	14,500	2,175	16,675
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	60	LF	7.50	450	20.00	1,200	1,650	248	1,898
Telecommunication Room Demolition	1	EA			2,000.00	2,000	2,000	300	2,300
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	1,900	LF	2.50	4,750	.05	95	4,845	727	5,572
12 Strand Multimode Outside Plant (OSP) OFC	1,900	LF	1.19	2,257	.05	95	2,352	353	2,705
Telecommunications Device - 4-Port	32	EA	1,100.00	35,200	473.67	15,158	50,358	7,554	57,911
Telecommunications Device - 4-Port - Existing	3	EA	1,100.00	3,300	473.67	1,421	4,721	708	5,429
CAT 6A Quickport Connector	256	EA	36.16	9,256	25.00	6,400	15,656	2,348	18,004
CAT 6A Quickport Connector - Existing	24	EA	36.16	868	26.00	624	1,492	224	1,716
CAT 6A Patch Panel	3	EA	320.11	960	150.00	450	1,410	212	1,622
Copper 6-port Empty Cassette	24	EA	100.00	2,400	50.00	1,200	3,600	540	4,140
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475

telecommunications **cost opinion**

Building 47 - Tamarack

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Lakeland Village

BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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 - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	32	EA	200.00	6,400	150.00	4,800	11,200	1,680	12,880
Subtotal Low-Voltage Systems (Divisions 27)							143,344	21,502	164,845
DIVISION 28									
LIFE SAFETY & SECURITY SYSTEMS - DIVISIONS 28									
General Provisions (Submittals, Mobilization, Permits)	1	LS	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 48 - Health Care (Rosewood)

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BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	2,888.68	2,889	$ 5,777	$ 5,777	$ 8,666	$ 1,300	$ 9,966
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	5,820.85	5,821	$ -	$ -	$ 5,821	$ 873	$ 6,694
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	60	LF	7.50	450	20.00	1,200	1,650	248	1,898
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	1,275	LF	2.50	3,188	.05	64	3,251	488	3,739
12 Strand Multimode Outside Plant (OSP) OFC	1,275	LF	1.19	1,515	.05	64	1,578	237	1,815
Telecommunications Device - 4-Port	37	EA	1,100.00	40,700	473.67	17,526	58,226	8,734	66,960
Telecommunications Device - 4-Port - Existing	24	EA	1,100.00	26,400	473.67	11,368	37,768	5,665	43,433
CAT 6A Quickport Connector	296	EA	36.16	10,702	25.00	7,400	18,102	2,715	20,818
CAT 6A Quickport Connector - Existing	192	EA	36.16	6,942	26.00	4,992	11,934	1,790	13,724
CAT 6A Patch Panel	6	EA	320.11	1,921	150.00	900	2,821	423	3,244
Copper 6-port Empty Cassette	48	EA	100.00	4,800	50.00	2,400	7,200	1,080	8,280
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475
Telecom Room - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	37	EA	200.00	7,400	150.00	5,550	12,950	1,943	14,893
Subtotal Low-Voltage Systems (Divisions 27)							188,677	28,302	216,979

telecommunications **cost opinion**

Building 48 - Health Care (Rosewood)

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

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Lakeland Village

BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611

telecommunications **cost opinion**

Building 49 - Mason Memorial Hospital

HARGIS
1201 third avenue, ste 600
seattle, washington 98101
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Lakeland Village

BASIS OF OPINION Other **PREPARED BY** Tin Vo **DATE** August 14, 2024

JOB NUMBER 24040 **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	3,208.49	3,208	$ 6,417	$ 6,417	$ 9,625	$ 1,444	$ 11,069
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	6,532.34	6,532	$ -	$ -	$ 6,532	$ 980	$ 7,512
SECTION 271100 TELECOMMUNICATION DISTRIBUTION SYSTEM									
Adaptor Plates - LC ACP	4	EA	150.00	600	50.00	200	800	120	920
Rack Mount Fiber Cabinet - 2RU	1	EA	300.00	300	110.00	110	410	62	472
Ladder Rack	60	LF	7.50	450	20.00	1,200	1,650	248	1,898
Demolish Defunct Infrastructure After System Cutover	1	LS			2,000.00	2,000	2,000	300	2,300
12 Strand Singlemode Outside Plant (OSP) OFC	1,900	LF	2.50	4,750	.05	95	4,845	727	5,572
12 Strand Multimode Outside Plant (OSP) OFC	1,900	LF	1.19	2,257	.05	95	2,352	353	2,705
Telecommunications Device - 4-Port	48	EA	1,100.00	52,800	473.67	22,736	75,536	11,330	86,867
Telecommunications Device - 4-Port - Existing	20	EA	1,100.00	22,000	473.67	9,473	31,473	4,721	36,194
CAT 6A Quickport Connector	384	EA	36.16	13,884	25.00	9,600	23,484	3,523	27,006
CAT 6A Quickport Connector - Existing	160	EA	36.16	5,785	26.00	4,160	9,945	1,492	11,437
CAT 6A Patch Panel	6	EA	320.11	1,921	150.00	900	2,821	423	3,244
Copper 6-port Empty Cassette	48	EA	100.00	4,800	50.00	2,400	7,200	1,080	8,280
Telecom Room - Electrical Improvements	1	EA	4,000.00	4,000	2,500.00	2,500	6,500	975	7,475
Telecom Room - HVAC - Ductless Split System	1	EA	7,500.00	7,500	1,500.00	1,500	9,000	1,350	10,350
Pathway per Drop	48	EA	200.00	9,600	150.00	7,200	16,800	2,520	19,320
Subtotal Low-Voltage Systems (Divisions 27)							210,974	31,646	242,620

telecommunications **cost opinion**

Building 49 - Mason Memorial Hospital

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JOB NUMBER 24040 **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	138.02	138	276.03	276	414	62.11	476
Basic Materials and Methods (Consumables, Small Tools, Equip Rental, Grounding, Identification, etc.)	1	LS	280.40	280			280	42.06	322
Raceway, Cabling Supports and Outlet Boxes	1	EA	200.00	200	200.00	200	400	60	460
SECTION 281300 ACCESS CONTROL SYSTEM									
Access Control Panel w/ Controller	1	EA	2,800.00	2,800	680.00	680	3,480	522	4,002
Door Controller - 2-Door	1	EA	535.00	535	85.00	85	620	93	713
Power Supply 10A/24V - 8-Door	1	EA	925.00	925	170.00	170	1,095	164	1,259
Portal Licenses	1	EA	100.00	100	50.00	50	150	23	173
Card Reader	1	EA	325.00	325	127.50	128	453	68	520
Electrified Hardware (Electrified Lock and Power Transfer)	1	EA	1,800.00	1,800	600.00	600	2,400	360	2,760
Request To Exit (REX)	1	EA	125.00	125	85.00	85	210	32	242
Wiring - Per Access Control Door	1	EA	400.00	400	700.00	700	1,100	165	1,265
Programming	1	LS			1,402.00	1,402	1,402	210	1,612
Engineering	1	LS			701.00	701	701	105	806
Subtotal Life Safety and Security Systems (Divisions 28)							12,705	1,906	14,611