SECTION 28 23 00

SURVEILLANCE VIDEO

PART 1: GENERAL

1.1 INTRODUCTION

Zimmer Development's Oasis Apartments is a market-rate garden style project consisting of 3 buildings and 204 units.

InfiniSys has been contracted to coordinate the overall design and cabling for Surveillance Video for the project on behalf of Zimmer Development.

1.2 COPYRIGHT

1.3 INFORMATION FOR BIDDERS

The surveillance video contractor is responsible for procuring, installing wiring and testing all components as described in this document and the accompanying drawing set, and for scheduling all work to meet the overall project schedule according to the needs of the Owner.

InfiniSys, the Owner or local providers may supply some materials.

All items necessary for proper installation, not limited to but including such items as special tools, fasteners, fire caulking and other materials not specifically mentioned are the responsibility of the access management contractor. The access management contractor is responsible for secure storage of materials on site.

We recommend that a single dealer install all surveillance video systems.

The surveillance video contractor is responsible for completing all work a minimum of 30 days prior to the first C.O. in order to provide time for rework, repairs, and installation of Service Provider equipment. This 30-day requirement may be waived by the Owner or Owner's Representative.

1.4 DEFINITIONS AND ACRONYMS

Main Communications Room (MDF) is the main communications room for the site, houses the incoming low voltage services, and may be the demarcation point for these services. The MDF distributes low voltage services to the other communications rooms.

Building Communications Room (IDF) is the intermediate communications room located at each building in a garden-style or in separate locations throughout the building in a high-density. This communications room distributes low voltage services to each of the units.

Unit Distribution Panel (UDP) is the distribution panel located in each of the units. This panel distributes low voltage services from the corresponding IDF to each of the faceplates in a unit.

Power over Ethernet (PoE) is a standardized system to pass electrical power along with data on Ethernet cabling. This allows a single cable to provide both data connection and electrical power to such devices.

Network Video Recorder (NVR) is a dedicated device, usually with an embedded operating system, running a software program that records video in a digital format to a disk drive or other mass storage device.

IP – Internet Protocol

LED – Light Emitting Diode

IR – Infrared

IT – Information Technology

1.5 COORDINATION

The surveillance video contractor is responsible for communicating all other trade requirements, such as special Electrical, Low Voltage, Masonry, Paving, and Landscaping requirements, to the General Contractor, and for ensuring coordination with other trades as required.

The surveillance video contractor is responsible for ensuring that all other trades complete such work in a manner suitable for the installation of this system to these specifications, and in a timely manner that allows the installation of this system to be completed according to the General Contractor’s schedule.

1.6 CODES, REGULATIONS, AND STANDARDS

All work will meet or exceed the requirements of all applicable statutes, ordinances, rules, codes, regulations, decisions, and orders of all local, state, and federal authorities having jurisdiction over the construction of telecommunications cable systems, including, but not limited to, applicable building codes, fire codes, and regulations of the Occupational Safety and Health Administration and Federal Communications Commission.

All work will meet or exceed the requirements of the 2020 National Electrical Code, other NFPA codes, and any then-current amendments or addenda thereto, including, but not limited to:

NFPA 70 National Electrical Code 2020 Edition, Article 800

”Communications Systems”

NFPA 70 National Electrical Code 2020 Edition, Article 200

”Wiring and Protection”

Except as otherwise specified in the Scope of Work, all work will meet or exceed the requirements of the ANSI/TIA telecommunications cabling standards and any then-current amendments or addenda thereto, including, but not limited to:

ANSI/TIA-570-D

“Residential Telecommunications Infrastructure Standard”

ANSI/TIA-568.0-D and addenda

” Generic Telecommunications Cabling For Customer Premises”

ANSI/TIA-568.1-D and addenda

” Commercial Building Telecommunications Cabling Standard”

ANSI/TIA-568.2-D and addenda

” Balanced Twisted-Pair Telecommunications Cabling and Components Standards”

ANSI/TIA-568.3-D and addenda

“Optical Fiber Cabling Components Standard”

ANSI/TIA-568.4-D and addenda

“Broadband Coaxial Cabling and Components Standard”

ANSI/TIA-569-E and addenda

” Telecommunications Pathways and Spaces”

ANSI/TIA-606-C and addenda

” Administration Standard for Commercial Telecommunications Infrastructure”

ANSI/TIA-607-C and addenda

” Generic Telecommunications Bonding and Grounding (Earthing) For Customer Premises”

All work will meet or exceed the safety requirements and certifications of Underwriters Laboratories Inc. (UL).

Except as otherwise specified in the Scope of Work, all video cabling will be installed and terminated in accordance with Society of Cable Telecommunications Engineers standards.

PART 2: PRODUCTS

2.1 CABLE AND COMPONENTS

Items that are not specifically shown on the drawings or called for by the scope of work, but are required by local, state, and federal authorities or normally used and required for the system design to perform to specifications and system design intent, will be considered part of the scope of work.

2.2 CAMERAS

All IP network cameras shall produce color images under normal daytime conditions. In locations where adequate illumination cannot be provided at night, cameras with automatic day/night switching shall be used. Supplemental IR illumination may also be required.

A. Approved Camera Manufacturers

The following camera manufacturers are approved. Other equivalent products may be submitted for approval:

- Sony
- Axis
- Samsung
- Avigilon
- Illustra

B. Camera Requirements

1) Fixed vandal resistant outdoor day/night IP dome cameras as located on the plans. Color or finish of housing to be selected by architect and approved by owner.

2) Fixed vandal resistant indoor IP dome cameras as located on the plans. Color or finish of housing to be selected by architect and approved by owner.

3) Fixed vandal resistant indoor IP corner wedge or dome camera for use in the elevators – the travel cable must include a Category 6 or fiber cable. Color or finish of housing to be selected by architect and approved by owner.

4) All cameras must use Power over Ethernet (“PoE”) capable.

5) All cameras must be high resolution (min. of 5 megapixels).

6) All IP cameras must capable of H.264 compression at a minimum.

7) All IP cameras must be capable of motion detection to limit NVR capacity.

8) Outdoor cameras must have built-in Infra-Red Light Emitting Diodes (IR LEDs) or external illuminators with equivalent luminosity. IRs must provide for a minimum of 50 feet of illumination.

9) Outdoor cameras must be weatherproof and shall be equipped with appropriate environmental housings as required for the climate range at the site.

10) Vendor must provide all PoE hardware required.

11) Camera housings shall be as recommended by the camera manufacturer for the selected camera and color or finish of housing to be selected by architect and approved by owner.

2.3 NETWORK VIDEO RECORDER (NVR)

The surveillance video contractor shall supply, install, and configure a network video recorder(s) to record and store images from the camera network in digital format on a hard drive.

A. Approved NVR Manufacturers

The following NVR manufacturers are approved. Other equivalent products may be submitted for approval:

- Sony
- Axis
- Samsung
- Avigilon
- ExacqVision

B. NVR Requirements

1) The NVR shall have sufficient storage for a minimum of 14 days of continuous recording.
2) Motion detection may be implemented in areas that do not require continuous recording – (to be coordinated with the management company).
3) It is required that only 75% of the NVR capacity be used by cameras.
4) The NVR disk system must be in a RAID 5 arrangement as an option to the owner.
5) The NVR must be capable of recording using H.264 compression at a minimum.
6) The surveillance video contractor shall provide a methodology for external video archival for staff.
7) The surveillance video contractor shall provide surge protection and grounding of equipment per NEC 250.
8) The surveillance video contractor shall provide initial system setup and programming.
9) The system shall provide expansion capability for additional cameras, monitors, and image storage capacity.
10) The NVR shall be located in the MDF.
11) The NVR must be protected by minimum 4-hour UPS.
12) The NVR must allow viewing of the cameras and recorded images over the management network or secure internet connection by staff.
13) The vendor is responsible for coordinating the connection of their camera network to the management network with Management IT.

PART 3: EXECUTION

3.1 CABLING PRACTICES

A. Labeling

All cables must be labeled at both ends in a clear and legible manner. Cabling between equipment should be labeled at both ends with the function and device at both ends. We recommend using printed labels created with a Wire Marker Printer.

Both sides of a dual cable must be labeled, and unterminated cables must also be labeled. The label should be located within 2ft of the likely termination point after trim, so the label will not be cut off. All cable ends should be placed in a plastic bag after labeling, and the bag taped around the cable bundle, so the cable ends will not be painted, textured, or damaged.

B. Testing

All prewire cabling shall be tested after installation. The entire system must be tested after completion, and performance demonstrated to the Owner. All components must operate properly and clearly, with performance consistent with the manufacturers' specifications.

C. Documentation

All pertinent equipment documentation shall be given to the owner upon completion. This shall include all equipment users' guides and manuals, safety instructions, and specific documentation of the installed system, including as-built drawings and schematics, and customized user instructions.

The documentation should be neatly arranged in a ring binder.

D. Protection from Cable Damage

Protecting cabling from damage is the responsibility of the installing surveillance video contractor. All cabling must be run where it is unlikely to be damaged after installation. Nail plates should be installed where cabling passes through wall studs. All cabling must be properly supported and secured in a way that will not compress or deform the cables. All cable bends must maintain a minimum 3" bend radius.

Splicing or repair of cabling is not permitted. Damaged cable must be replaced entirely.

Any defective or damaged cabling must be replaced at the surveillance video contractor's expense, unless it is the result of gross negligence by another trade, or unavoidable because of later changes, structural modifications, etc.

The General Contractor shall be responsible for notifying the surveillance video contractor of any such cable damage.

3.2 CABLING

The cabling is an extremely important and integral part of the overall Surveillance Video system. Use proper wire for the communication line, power wires, and be sure that the system is properly grounded. Check all local building codes and ordinances prior to installing this system. The installation must be in compliance with local codes. Always check with the local building code to determine the type of wire required in your municipality.

All cables that penetrate structural walls or ceilings shall be at a minimum riser rated (type CMR or equivalent), and plenum rated in such spaces that require it by local, state, or national code.

All underground cabling must have an insulation rated for an underground environment. All underground cabling must be placed in conduits. All data cables and fiber shall be riser rated at a minimum and plenum rated in such spaces that require it by local, state, or national code.

The Surveillance Video Contractor will be responsible for providing any necessary cabling and devices to interconnect the components, and for installation of any additional conduit, boxes, or devices necessary to create a complete system.

The installing contractor may use bundled, webbed, or jacketed hybrid cable assemblies as long as the component cables and any outer jackets or sheaths of the assembly meet the above requirements.

All cabling must be properly supported and secured in a way that will not compress or deform the cables. All cable bends must maintain a minimum 3” bend radius.

Splicing or repair of cabling is not permitted. Damaged cable must be replaced in its entirety.

Cable pulling shall not at any time exceed the manufacturer’s maximum pulling tension recommendations for the type of cable being installed.

A. IP Camera Cabling

The surveillance video contractor shall install a minimum of one riser rated Category 6 cable to each indoor and outdoor IP camera location from the MDF or nearest IDF. All camera terminations shall be terminated on Category 6 110 modular jack panels and labeled accordingly. Camera cabling must not exceed 300 feet in length.

The surveillance video contractor shall use single mode fiber for the backhaul from the IDF(s) to the NVR location in the MDF.

The surveillance video contractor is responsible for all components and connectivity required to provide a complete working system, including, but not limited to PoE switches, SFPs, and fiber.

Connection to the management network from the NVR will be coordinated between the surveillance video contractor and Zimmer Development IT.

B. Power Requirements

The surveillance video contractor is responsible for providing and installing the PoE equipment necessary for powering the cameras.

3.3 SITE TRAINING

The surveillance video contractor shall provide on-site training on software and hardware maintenance of the Surveillance Video system. Designated Site personnel shall be trained in all aspects of managing the Systems, including remotely viewing cameras, searching recordings, and archiving.

The Property Manager shall designate the employees to receive training on the system and ensure that they are present for the training session, and that at least one properly-trained employee is always available on-site to perform programming as needed. The Property Manager shall determine the date and time of the training session(s), and will determine when training is satisfactorily complete, and the designated personnel are comfortable with operating and maintaining the system.

The surveillance video contractor shall provide one additional training session at no additional charge, within the first year of operation, at the request of the Property Manager. Further training may be charged per the agreed Service Contract rate.

3.4 SYSTEM ACCEPTANCE

The Property Manager shall accept the Surveillance Video system as complete when training is satisfactorily complete, the designated personnel are comfortable with operating and maintaining the system, and all agreed functions are operating properly.

The Warranty period shall begin upon written acceptance of the system by the Property Manager or other representative designated by the Owner.

END OF SECTION