VIDEO SURVEILLANCE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Section "Electronic Access" for interface security access system devices.

1.2 SUMMARY

A. The Video Management System (VMS) shall be comprised of color IP surveillance cameras and cable to network switches. The new cameras shall be connected locally on an Ethernet switches provided by Others. A new Digital Video Recorder will be furnished and installed by Others.

B. The security contractor shall be responsible for providing an all-inclusive price for equipment and labor.

C. Interior cameras shall be flush or pole mounted. Exterior cameras shall be surface or teardrop mounted.

D. Provide and install patch cords, shall be orange in color, plugs should include no-snag hoods, and proper length cabling should be used (no excess length looped in wire management).
PART 2 - VMS GENERAL

2.1 SUMMARY

A. Section includes an expansion of the existing IP-Video Surveillance System (VMS).

B. The VMS surveillance system is comprised of new network connected color cameras storage on an Owner provided NVR. The NVR shall monitor and record events in entrances, elevator lobbies, core corridors and the new perimeter. All cameras shall be recorded on the new platform. The security contractor is responsible for providing, installing and terminating all cameras and licenses. The security contractor shall also configure and program of all cameras for monitoring, administration and playback on Owner provided hardware.
PART 3 - PRODUCTS

3.1 SYSTEM REQUIREMENTS

A. Surge Protection: Protect components from voltage surges originating external to equipment housing and entering through power, communication, signal, control, or sensing leads. Include surge protection for external wiring of each conductor's entry connection to components.

B. Minimum Protection for Power Connections 120 V and More: Auxiliary panel suppressors complying with requirements in Division 26 Section "Transient-Voltage Suppression for Low Voltage Electrical Power Circuits."

C. Minimum Protection for Communication, Signal, Control, and Low-Voltage Power Connections: Comply with requirements in Division 26 Section "Transient-Voltage Suppression for Low-Voltage Electrical Power Circuits." as recommended by manufacturer for type of line being protected.

3.2 NETWORK VIDEO RECORDER

Digital based Digital Video Surveillance System ("System") shall allow the display of live, record and playback of digital video streams from multiple video surveillance hybrid cameras.

3.3 CAMERAS

A. Focal or vari-focal lenses shall be used so that each camera target is easily adjusted and changed if so desired. Each camera shall be labeled according to location and/or targeting.

B. Confirm intended target with the Customer before installation. Field conditions must be verified and each camera location, mount, and lens must be measured, calculated, and approved before installation.

C. All cameras shall be powered over Ethernet (POE).

D. Equipment List

1. The following equipment list contains the approved manufacturers and model numbers of equipment required for this project. It is the Contractor's responsibility to provide and install all required equipment to meet the design objectives based on this written specification and drawings.

2. All items listed in the following equipment list are part of the specification unless specifically stated. The contractor shall be responsible for providing and installing these devices and systems as specified in the previous sections of this document and in the following list.

3. Some of the items do not specifically call out an item by manufacturer and model number. For these items, the Contractor may utilize approved components (from the base bid manufacturer’s list) that shall satisfy the feature characteristics and performance criteria described for that item.
3.4 ELEVATOR CAMERAS

A. Contractor shall provide elevator camera and coordinate installation with University an approved elevator sub-contractor.

B. Security Contractor shall be responsible for the following:
   1. Furnish camera for each elevator car
   2. Furnish and install coax cable from the basement floor telecom room to the elevator room.
   3. Connect coax to Contractor provided encoder located in the telecom room
   4. Configure and connect Encoder to the network and VideoEdge.

C. Elevator sub-contractor shall be responsible for the following:
   1. Install camera in elevator car
   2. Connect camera to local power (in maintenance panel located above car)
   3. Connect existing coax on travel cable to camera
   4. Acquire needed inspections and permits with L&I elevator division, (including elevator permits and variances for cameras)
   5. Provide coax termination point in elevator room
   6. Provide a final inspection before the system is operational
<table>
<thead>
<tr>
<th>Item Code</th>
<th>Dwg. Code</th>
<th>Description</th>
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| 1) | CE | Existing Color camera assembly indoor (fixed):  
   a) Security Contractor shall remove existing cameras, identify and deliver to HFS.  
   b) When ready Security Contractor shall reinstall existing camera as depicted on the security drawings.  
   c) Security Contractor shall be responsible in testing existing camera prior to installation to verify proper operation. |
| 2) | C1 | Color camera assembly indoor (fixed), with:  
   a) 1/4” Progressive Scan  
   b) 2.8 – 10 mm lens  
   c) Motion JPEG and MPEG-4 video compression  
   d) Up to 30 frames per second  
   e) Multi-casting and multi-video streaming  
   f) Auto-iris lens  
   g) Indoor vandal resistant housing  
   h) Flush mounted dome and housing cover  
   i) Two way half duplex audio support  
   j) Power over Ethernet 802.3af Class 1  
   Axis P3225-LVE Camera  
   BY SECURITY CONTRACTOR  
   NO EXCEPTION |
| 3) | C2 | Surface Mounted Exterior Mount Camera (fixed), with:  
   a) 1/4” Progressive Scan  
   b) 2.8 – 10 mm lens  
   c) Motion JPEG and MPEG-4 video compression  
   d) Up to 30 frames per second  
   e) Multi-casting and multi-video streaming  
   f) Auto-iris lens  
   g) Indoor vandal resistant housing  
   h) Flush mounted dome and housing cover  
   i) Two way half duplex audio support  
   j) Power over Ethernet 802.3af Class 1  
   Axis P3225-LVE Camera  
   BY SECURITY CONTRACTOR  
   NO EXCEPTION |
| 4) | C3 | Color camera assembly outdoor (fixed pole mount), with:  
   a) 1/4” Progressive Scan |
b) 2.8 – 10 mm lens  
c) 01 lux, F1.3  
d) Motion JPEG and MPEG-4 video compression  
e) Up to 30 frames per second  
f) Multi-casting and multi-video streaming  
g) Auto-iris lens  
h) Outdoor pole mount vandal resistant housing  
i) Pendant mount and pole bracket  
j) Two way half duplex audio support  
k) Power over Ethernet 802.3af Class 1  

Axis P3225-LVE CAMERA w/POLE ADAPTER  
BY SECURITY CONTRACTOR  
NO EXCEPTION

5) C4  
Exterior Teardrop Mount Camera, with:  
a) 1/4” Progressive Scan  
b) 2.8 – 10 mm lens  
c) Motion JPEG and MPEG-4 video compression  
d) Up to 30 frames per second  
e) Multi-casting and multi-video streaming  
f) Auto-iris lens  
g) Indoor vandal resistant housing  
h) Flush mounted dome and housing cover  
i) Two way half duplex audio support  
j) Power over Ethernet 802.3af Class 1  

Axis P3225-LVE CAMERA w/Gooseneck arm  
BY SECURITY CONTRACTOR  
NO EXCEPTION

6) C7  
Analog elevator camera, with:  
a) 2.5 lens  
b) Corner mount and wall bracket with clear lens opening cover  
c) 600 TVL resolution color Day/Night camera  
d) Tamper resistant  
e) Silver in color  

Ganz CMC-25 or approved equal  
BY SECURITY CONTRACTOR  
NO EXCEPTION

7) C8  
360° Multisensor Camera with one IP address (emergency phone)  
a) 4 x 1/2.8” progressive scan RGB CMOS  
b) Varifocal lens, 2.8-6mm, F2.0  
c) 0.3 lux, F2.0
d) Motion JPEG and MPEG-4 video compression
e) Up to 30 frames per second
f) Multi-casting and multi-video streaming
g) Auto-iris lens
h) Indoor/outdoor vandal resistant housing
i) Power over Ethernet 802.3af Type 1 Class 2, max 5.5 W

Axis P3717-PE or approved equal
BY SECURITY CONTRACTOR
NO EXCEPTION

8) C9 180° Multisensor Camera with one IP address
 a) 3 x 1/1.8” progressive scan CMOS
 b) 3 x lenses, fixed focus, 5.0 mm, F2.8
 c) Color image: 0.3 lux, F2.8 - B&W image: 0.06 lux, F2.8
 d) Motion JPEG and MPEG-4 video compression
 e) Up to 30 frames per second
 f) Multi-casting and multi-video streaming
 g) Auto-iris lens
 h) Indoor/outdoor vandal resistant housing
 i) Power over Ethernet 802.3af Type 1 Class 4, max 25.5 W

Axis P3717-PVE or approved equal
BY SECURITY CONTRACTOR
NO EXCEPTION

9) ENC IP Encoder, with:
 a) Multiple H.264 streams per channel
 b) Full frame rate in all resolutions
 c) Intelligent video capabilities
 d) Two-way audio support
 e) Install in 1st Floor telecom room

Axis Q7424-R or approved equal
BY SECURITY CONTRACTOR
NO EXCEPTION

10) NVR Network video recorder, with:
 a) IP camera licenses as needed
 b) Embedded Ethernet
 c) Rack mountable with 36TB storage
 d) Provided, installed and configured by Security Contractor
 e) Video management software
f) Configured to support 30 days of storage per camera at 12fps H.264 with continuous motion

American Dynamics Video Edge NVR Rack Mount Server
Licensing and Configuration BY SECURITY CONTRACTOR
Hardware by OTHERS
NO EXCEPTION

11) CPP Copper Patch Panel, with:
   a) Universal T568A and T568B wiring cards for 110-style IDC terminations
   b) Color-coded front labeling for easy port identification (ANSI/TIA-606-B compliant)
   c) Terminates 26-22 gauge solid conductors
   d) Patch panel shall be Orange in color

Provided, installed, and terminated by Security Contractor for all cameras and PG

12) SC Category 6 Cable, with:
   a) For communication between network devices
   b) ISO listed, NicEic type CMP, plenum rated
   c) 4-pair unshielded UTP wiring
   d) Nominal outside diameter: 5.3 mm.
   e) 14 pf/m nominal capacitance
   f) Provide 5 meters of minimum slack
   g) Pink in color

Provided, installed, and terminated by Others

13) SC Miscellaneous equipment and hardware, including:
   a) Interconnect cabling
   b) Plates, terminal blocks, raceway, and other cable management hardware
   c) Crimp type connectors
   d) To ensure a complete and operational VMS.

BY SECURITY CONTRACTOR
PART 4 – EXECUTION

4.1 EXAMINATION

A. Examine pathway elements intended for cables. Check raceways and other elements for compliance with space allocations, installation tolerance, hazards to camera installation, and other conditions affecting installation.

B. Examine roughing-in for LAN, WAN, and IP network before device installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

4.2 WIRING

A. Wiring Method: Install cables in conduit unless otherwise indicated.
   1. Conduit are not required in accessible indoor ceiling spaces and attics.
   2. Conduit are not required in hollow gypsum board partitions.

B. Wiring within Enclosures: Bundle, lace, and train conductors to terminal points with no excess and without exceeding manufacturer's limitations on bending radii. Provide and use lacing bars and distribution spools.

C. Grounding: Provide independent-signal circuit grounding and surge protection as recommended in writing by manufacturer.

4.3 VIDEO SURVEILLANCE SYSTEM INSTALLATION

A. Install cameras level and plumb.

B. Identify system components, wiring, cabling, and terminals according to Division 26 Section "Identification for Electrical Systems."

C. Cameras will be programmed using naming conventions obtained from Consultant and/or Owner.

4.4 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.

B. Perform tests and inspections.
   1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.
C. Tests and Inspections:

1. Inspection: Verify that units and controls are properly installed, connected, and labeled and that interconnecting wires and terminals are identified.

2. Pretesting: Align and adjust system and pretest components, wiring, and functions to verify that they comply with specified requirements. Conduct tests at varying lighting levels, including day and night scenes as applicable. Prepare video-surveillance equipment for acceptance and operational testing as follows:
   a. Prepare equipment list described in "Submittals" Article.
   b. Verify operation of auto-iris lenses.
   c. Set back-focus of fixed focal length lenses. At focus set to infinity, simulate nighttime lighting conditions by using a dark glass filter of a density that produces a clear image. Adjust until image is in focus with and without the filter.
   d. Set back-focus of zoom lenses. At focus set to infinity, simulate nighttime lighting conditions by using a dark glass filter of a density that produces a clear image. Additionally, set zoom to full wide angle and aim camera at an object 50 to 75 feet (17 to 23 m) away. Adjust until image is in focus from full wide angle to full telephoto, with the filter in place.
   e. Set and name all preset positions; consult with the Owner.
   f. Set sensitivity of motion detection.
   g. Connect and verify responses to alarms.
   h. Verify operation of control-station equipment.

3. Test Schedule: Schedule tests after pretesting has been successfully completed and system has been in normal functional operation for at least 14 days. Provide a minimum of 10 days' notice of test schedule.

4. Operational Tests: Perform operational system tests to verify that system complies with Specifications. Include all modes of system operation. Test equipment for proper operation in all functional modes.

D. Video surveillance system will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

4.5 ADJUSTING

A. Occupancy Adjustments: When requested within twelve months of date of Substantial Completion, provide on-site assistance in adjusting system to suit actual occupied conditions. Provide up to four visits to Project during other-than-normal occupancy hours for this purpose. Tasks shall include, but are not limited to, the following:
   1. Check cable connections.
   2. Check proper operation of cameras and lenses. Verify operation of auto-iris lenses and adjust back-focus as needed.
   3. Adjust all preset positions; consult Owner's personnel.
   4. Recommend changes to cameras, lenses, and associated equipment to improve Owner's use of video surveillance system.
   5. Provide a written report of adjustments and recommendations.
4.6 CLEANING

A. Clean installed items using methods and materials recommended in writing by manufacturer.

B. Clean video-surveillance-system components, including camera-housing windows, lenses, and monitor screens.