PART 1 – GENERAL

1.01 DESCRIPTION

A. The work covered by this section of the Specifications includes all labor necessary to perform and complete such construction, all materials and equipment incorporated or to be incorporated in such construction and all services, facilities, tools and equipment necessary or used to perform and complete such construction. The work of this section shall include, but is not limited to, the following:

1. Provide all software, hardware, and system programming required for connection to the existing campus video safety system.

1.02 QUALITY ASSURANCE

A. Refer to Section 27 00 00 for general details.

B. All items shall be of the current technology; no beta products or discontinued models or products are acceptable.

1.03 CODES AND STANDARDS

A. Except as modified by governing codes and by the Contract Documents, comply with the applicable provisions and recommendations in Section 27 00 00.

B. ISO 20653:2013 (Protection of electrical equipment against foreign objects, water and access)

C. FIPS 140-2-02 (Security Requirements for Cryptographic Modules)

1.04 SUBMITTALS

A. Refer to Section 27 00 00 for general details.

B. Shop Drawings:

1. None Required

C. Submit Manufacturer’s Cut Sheets for the following:

1. Any products not specifically listed in the PRODUCTS section shall require a submittal of the manufacturer’s cut sheets.

1.05 IDENTIFICATION

A. Cameras are to be labeled with the network jack number they attach to, and a camera ID provided by the campus telecommunications representative.

B. All camera labels shall be easily accessible, both physically and visually, upon completion of the job.

C. Refer to Section 27 05 53 for additional details.
1.06 DEFINITIONS

A. **IP66:** Ingress Protection Rating of 66 as specified in ISO 20653:2013, equivalent to a NEMA 4X rating.

B. **IK10:** Resistance to mechanical impact rating of 10 as specified in EN 62262 / IEC 62262 (2002)

C. **RoHS:** Restriction of Hazardous Substances Directive as specified in EU Directive 2002/95/EC

1.07 WARRANTY

A. Refer to Section 27 00 00 for general details.
PART 2 – PRODUCTS

2.01 PRODUCT CONSISTENCY

A. Product Consistency: Any given item of equipment or material shall be the product of one manufacturer throughout the facility. Multiple manufacturers of any one item will not be permitted.

B. All cameras, with the exception of those deployed in elevators, are to be IP and not analog.

C. All cameras and encoders must be ONVIF compliant.

2.02 IP NETWORK CAMERAS

A. Cameras are to be vandal resistant to at minimum IP66.

B. Cameras are all to be Power over Ethernet (IEEE 802.3af) capable.

C. Image sensor shall be a progressive scan CCD sensor.

D. Cameras are to support both MJPEG and H.264 compression.

E. The camera shall feature an automatic back focus mechanism (ABF) for automatic and remote back focus adjustment.

F. Cameras shall have external I/O terminals which can support alarm outputs to enable integration with related systems.

G. The camera shall be able to support unicast and multicast transmitting.

H. The camera shall have a built-in web server so that access to the IP video stream can be accessed via a web browser.

I. The camera shall have full duplex two-way audio feature and be capable of transmitting and receiving the audio stream through the same Ethernet connection as the video.

J. The camera shall provide an SD Card (SDHC) slot which can support a maximum of a 16Gbytes SDHD card that can cache images in the event of a network failure.

K. The camera shall support IPV4 and IPV6 network addressing.

L. Manufacturer/Product: Axis Communications P or Q Series or Approved Equal.

2.03 INFRARED ILLUMINATOR

A. The illumination shall provide an adaptive beam angle allowing the light to be adjusted to the appropriate scene; providing a vari-focal beam pattern.

B. The Infrared unit must be a solid state LED device utilizing SMT (Surface Mount Technology) providing at least 10 years illumination life.

C. The LED illuminator shall be low voltage and low power consumption providing energy efficient Infrared lighting.
D. The LED illuminator should be available in different wavelengths including 850nm and 950nm.

E. The illuminator must include a dedicated PSU with a power adjust facility, an integrated photocell or automatic day/night switching and a volt free telemetry input.

F. Both the illuminator and PSU should be IP66 as a minimum.

G. The illuminator must be RoHS compliant.

H. The illuminator shall be capable of switching via a PIR detector.

I. Manufacturer/Product: Axis Communications T Series or Approved Equal.
PART 3 – EXECUTION

3.01 GENERAL

A. Power for all network cameras will be via cable connection from a PoE network switch provided by the university. Contractor will be responsible for conforming to a maximum 90 meter distance requirement. In the event the 90 meter distance is exceeded, contractor must identify this and provide fiber connectivity. In this event, the contractor must also provide a solution for powering the camera.

B. Perform installation for all provided equipment.

C. Testing, adjustment, and initial programming are to be done in concert with university personnel.

D. Include written documentation and specific instructions for all provided equipment as installed.

E. The Contractor shall be responsible for fully implementing the functions described in the specifications and shown on the drawings.

F. Provide training to the University in the operation, adjustment, servicing, and repair of any hardware added to the existing system.

G. All contractors shall be authorized resellers of proposed solution and have current certifications for specified security products.

H. The Contractor shall possess all applicable Contractors’ licenses.

I. Camera Mounts:
   1. Secure all cameras and housings as appropriate to structural requirements and construction conditions. Utilize tamperproof-mounting hardware.
   2. Camera housings installed in ceilings shall have attachments to building structure independent of ceiling, fire sprinkler, conduit, or other system supports.

3.02 QUANTITIES

A. Quantities and sizes of equipment and components shown on the Drawings are illustrative only and are meant to indicate the general configuration of the work. The Contractor is responsible for providing the correct quantities of all materials necessary to accommodate the equipment and to terminate, cross connect and patch the volume of cable described in these specifications and schedules and shown on the Drawings.

3.03 INSTALLATION

A. Ship equipment in original packages to prevent damage or entry of foreign matter. All handling shall be in accordance with manufacturers’ recommendations. Provide protective covering during construction.

B. Replace, at no expense to the University, any equipment and/or material damaged during storage and installation.

3.04 GROUNDING & BONDING

A. All provided equipment shall be appropriately grounded as required by all applicable standards and manufacturer’s instructions.
B. Refer to Section 27 05 26 for additional details.

3.05 TESTING

A. Upon completion of the installation of the provided equipment, the Contractor shall submit written reports including, but not limited to, the following information:

1. A complete list of all equipment installed, including serial numbers of major components.
2. Certification that all equipment is properly installed, functional, operational, and conforms to contracts Specifications and Drawings.
3. Test reports of all devices and equipment, including technician’s name, company, and date of test.

3.06 ACCEPTANCE

A. Once the installation has been completed and the University is satisfied that all work is in accordance with the Contract Documents, the representative will notify the Contractor and/or campus project manager in writing or via email.

B. Training

1. The Contractor shall provide a minimum of two copies of Operation and Maintenance manuals for all equipment furnished this specification. These manuals are to be available during training.
2. Provide a minimum of 8 hours of scheduled training for the equipment furnished under this Section, including programming, operation, service, and maintenance.
3. Training shall be by engineers or technicians highly skilled in the systems and certified by manufacturer as qualified to train in the particular systems.
4. Training shall be conducted at dates and times directed by the University’s representative.

3.07 RECORD (ASBUILT) DRAWINGS

A. Contractor shall provide matrix of camera name, ip address, location including building name, building number, room number and jack numbers. Documentation shall be submitted within 30 working days after the completion of the project.

B. Maintain a complete set of prints of contract Drawings on-site as the work on the CCTV System is being completed. As work is installed, carefully draw on prints, in colored pencil, correct location of work including all critical dimensions.

C. Upon completion of the project, transfer hand-drawn information to CAD Drawings, updated CAD disks, and submit to the campus representative for review. No hand-drawn as-built drawings will be accepted.

D. As-built drawings shall be provided as one electronic set of CAD files on a CD/DVD, USB flash drive, or via E-Mail to the campus representative. Timeframe for providing as-built documentation should be 60 days from completion of the project.

END OF SECTION
DOCUMENT VERSION CONTROL

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