SECTION 28 00 00 – ELECTRONIC SAFETY AND SECURITY

PART 1 - GENERAL

1.01 OVERVIEW

A. This Specification provides direction to Electronic Safety and Security (ESS) Integrators (aka, Security Contractors) for all Division 28 work performed for the University of Texas MD Anderson Cancer Center and the University of Texas Health Science Center at Houston, collectively referred to herein as “Institution” or “Institutional.”

B. All Security Contractors and their subcontractors shall comply with this Specification when performing work for the Institution under the Construction Standards Institute (CSI) Division 28, Electronic Safety and Security section.

C. The University of Texas Police at Houston (UTP-H) administers this Specification, and UTP-H is solely responsible for its additions, revisions, updates, corrections, deletions and clarifications.

D. This Specification shall be considered the “Project specification” for all Division 28 work for the Institution, and shall be adapted to each ESS Project by reference to any or all the following construction documents (CDs):

1. Floor plans.

2. Elevation plans.

3. Riser Diagrams.

4. Component Detail Drawings.

5. Component schedules, parts lists, or bills of materials (BOMs).

6. Other Project-specific, supporting documentation issued by the Institution or its representative.

E. This Specification shall not be replaced, revised, omitted or superseded for any Institutional Project that includes ESS content, except as approved, in writing, by UTP-H. In cases of a conflict between this Specification and other documents, this Specification shall prevail, except as approved by UTP-H.

1.02 REFERENCE DOCUMENTS

A. Specifications throughout all Divisions of the Project Manual are directly applicable to this Section, and this Section is directly applicable to them.

B. The latest published edition of a reference document shall apply to this Project unless otherwise identified herein by a specific edition date.

C. Security Contractor shall ensure all amendments to any reference document, if adopted prior to the effective date of this Contract, applies to this Project.

D. Security Contractor shall ensure all materials, installation and workmanship comply with the applicable requirements, standards and guidance addressed within the latest editions of the following reference documents:

1. NFPA 101 Life Safety Code.

2. Applicable Underwriters Laboratory (UL) standards.

3. Local fire and building codes.

4. Institutional EH&S Above Ceiling Work policy.

5. NFPA 72 National Electrical Code (NEC).

6. Construction Documents (CDs) related to this Specification and Contract.

7. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections.

8. Division 08 Openings.

9. Division 26 Electrical.

10. Division 27 Communications.

11. Division 28 10 00 Access Control System (ACS), Intrusion Detection System (IDS), and security-related notification/communication devices.

12. Division 28 20 00 Video Management System (VMS).

13. UTP-H Access Control Programming Guidelines

14. UTP-H Video Management System Configuration Guidelines

15. Element D5038, Security Design Guidelines

16. MD Anderson Policy ADM3440, Above Ceiling Work (for MDACC only)

17. Manufacturer specifications, instructions, and recommendations for all provided and installed security systems components.

1.03 SECURITY CONTRACTOR QUALIFICATIONS

A. Security Contractor shall be a direct, certified dealer of, and have five years or more experience installing and maintaining, the ACS and VMS solutions identified in the UTP-H Division 28 specifications and reference documents applicable to this Project. This qualification shall not be achieved through a partnership, subcontract, 1099, temporary, or any arrangement other than direct employment of certified, local employees.

B. Security Contractor shall have successfully installed, configured and programmed three (3) projects of similar size and scope utilizing the same ACS and VMS to this project within the last three (3) years.

C. A minimum of three of Security Contractor's directly employed, local personnel shall carry one of the following, unexpired certifications and have a minimum of two years' experience as:

1. CCURE 9000 System Installer Maintainer

2. CCURE 9000 Advanced Integrator

3. CCURE 9000 Enterprise Architecture

D. Security Contractor's personnel assigned to this Project, whether direct or subcontracted under UTP-H approval, shall be submitted to and approved by UTP-H prior to the commencement of any work at the Project site.

1.04 DEFINITIONS

A. Access control panel, control panel, ACS panel, or data gathering panel: The circuitry, relays, and other mechanisms combined to manage, monitor, operate and control a subset of ACS components such as card readers, door locks, REX devices, and various other inputs and outputs. The control panel typically consists of a GCM which contains that portion of the ACS database pertaining to the components controlled by the panel, and which generally makes all processing decisions and communicates with the ACS server. Also, typically contained in the control panel are one or more ACM boards for managing card readers and related devices, as well as dedicated input and output relay boards for controlling other components attached to the ACS.

B. ACS: Access Control System. The Institutional ACS may be composed of card, biometric and other token readers; electromechanical and electromagnetic locks; REX devices; intrusion sensing and arming/disarming devices; duress indicating devices; door releases and door hold-backs; visual and audible annunciators; control panels; power supplies, and; servers.

C. Authority Having Jurisdiction (AHJ): The local authority responsible for inspecting and approving the installation and modification of access control systems, fire detection and suppression systems, and other safety-related components. The AHJ is most often an official building inspection department of a city, a local or county fire marshal, or a state fire marshal. The Institution generally acts as its own AHJ (as a state organization), as represented by the Environmental Health and Safety (EH&S) department.

D. Avigilon or Avigilon Control Center (ACC): The approved VMS and camera manufacturer of the Institution. Pelco Endura and Pelco Control Point (DS Xpress, DSSRV and DSSRV2 units) are transitioning to this platform as of 2021. The VMS application is Avigilon Control Center (ACC).

E. CDs: Project-specific construction documents, including all applicable drawings, schedules, and other documentation issued by the Institution to provide direction, clarity, or expansion upon Project intent.

F. Contract: The legal, Project-specific agreement between the Security Contractor and the Owner or Owner's representative(s) that requires installation and/or modification and/or demolition of security systems and their components, and to which this Specification and construction documents apply.

G. DC: Door contact, door sensor, or door status switch.

H. DPDT: Double-pole, double-throw electrical switch.

I. DS Xpress: FOR REFERENCE ONLY; THIS PRODUCT IS NO LONGER UTILIZED. A Pelco-branded Hybrid Video Recorder (originally by manufactured by Integral) utilized throughout the Institutions for recording digital and analog video. Sometimes referred to as “DVRs”, DS Xpress units are end-of-life and being phased out by the Avigilon Control Center (ACC) VMS.

J. DSSRV or DSSRV2: FOR REFERENCE ONLY; THIS PRODUCT IS NO LONGER UTILIZED. Pelco-branded Network Video Recorders utilized throughout the Institutions for recording digital video. DSSRV2 and DSSRV units are end-of-life and being phased out by the Avigilon Control Center (ACC) VMS.

K. DVR: FOR REFERENCE ONLY; THIS PRODUCT IS NO LONGER UTILIZED. A Digital Video Recorder that typically accepts analog camera connections, converts these signals to data, and stores the camera recordings for later use. These devices also allow configuration and control of connected cameras. Owner may utilize the terms “DVR” and “HVR” to refer to the same equipment.

L. Edge recording: Utilization of an SD card or other media installed in the camera body for the purpose of recording video prior to transmission to the controlling recorder.

M. Electric strike: An electromechanical locking device that installs in the frame of a door, is powered through a cable routed into the frame, and releases the deadlatch of the door lock upon electronic command. Fail safe or fail secure in operation, these devices typically provide free-egress simply by turning the inside door handle, unless a door lock set that secures on the inside of the door is used, subject to code-compliance.

N. Electrified cylindrical lockset: A drop-in replacement for a mechanical, cylindrical lockset, installed through the surface of a door, and connected to a deadlatch embedded in the side of the door. Power is typically supplied through a power cable routed to the lock through a door core and transferred through a power hinge or power transfer device. Fail safe or fail secure in operation, these locks require coring of the door that in a retrofit application will void the fire rating of a non-cored door.

O. Electrified mortise lockset: A drop-in replacement for a mechanical, mortised lockset, embedded in the side of a door, and connected to various lock release handle sets, thumb turns, and lock cylinders installed through the surface of the door. Power is typically supplied through a power cable routed to the lock through a door core and transferred through a power hinge or power transfer device. Fail safe or fail secure in operation, these locks require coring of the door that in a retrofit application will void the fire rating of a non-cored door.

P. Endura: FOR REFERENCE ONLY; THIS PRODUCT IS NO LONGER UTILIZED. A Pelco-branded, server-based, video management platform utilized within MD Anderson Cancer Center facilities to monitor, control, and manage the recording of security video on Pelco Network Storage Manager (NSM) devices attached to the Institutional network. Endura is an end-of-life platform being phased out by the Avigilon Control Center (ACC) VMS.

Q. FPT: Functional Performance Test (commissioning, or acceptance testing). This term may also refer to the FPT form utilized in the commissioning process.

R. HVR: FOR REFERENCE ONLY; THIS PRODUCT IS NO LONGER UTILIZED. A Hybrid Video Recorder that accepts both analog and network camera feeds, records connected cameras digitally, and facilitates configuration and control of connected cameras. Owner utilizes the terms “HVR” and “DVR” to refer to the same equipment.

S. IDS: Physical Intrusion Detection System. The Institutional IDS may be composed of intrusion sensors; audio and visual annunciators; arming/disarming devices, and; control panels. IDS' may or may not be integrated with the Institutional ACS.

T. Institution or Institutional: The, or pertaining to the, University of Texas MD Anderson Cancer Center and the University of Texas Health Science Center at Houston.

U. Integrator: The Security Contractor, and his subcontractors, legally committed to the performance of the Project to which this Specification and construction documents apply.

V. Maglock: An electromagnet surface-mounted or imbedded in a door frame ("sheer lock") and securing the door or other portal with a strong magnetic attraction to a steel armature plate secured to the door surface. These devices require connection to fire/life safety systems and are heavily regulated by local and national codes. Maglocks are not the Owner's preferred locking solution, and must be approved for use by UTP-H.

W. MDA or MDACC: University of Texas MD Anderson Cancer Center.

X. NVR: A Network Video Recorder, typically connected to multiple cameras via a network connection and TCP/IP routing. Accessible from client workstations, the unit digitally records camera signals directly on the NVR or directs video streams to network-attached storage (NAS) devices for later use, while permitting configuration and control of connected cameras. The Avigilon Control Center (ACC) utilizes a series of NVRs attached to the Institutional network for managing video.

Y. Owner: The University of Texas MD Anderson Cancer Center and the University of Texas Health Science Center at Houston; also see "Institution."

Z. Panoramic Camera: Sometimes referred to as "360 cameras", "180 cameras" or "270 cameras", these devices view and record activity over a wide field of view, up to a full 360 degrees depending on specifications and configuration. Also depending on the VMS, these units can provide a "stitched" view in which the entire field of view is displayed on a single monitor as a single image, or they can display the field of view disassembled into separate images. Panoramic cameras are preferable to PTZ cameras for purposes of recording wide fields of view due to a PTZ camera's inability to record more than the area on which it is focused at a particular time. Additionally, panoramic cameras allow multiple users to simultaneously, digitally pan, tilt and zoom throughout the field of view without impacting recording of the full field.

AA. PIR: Passive Infrared sensor utilized as an intrusion sensor, occupancy sensor, or a REX.

BB. PoE: Power over Ethernet refers to the ability of a networked device to obtain its operating power over the network cable that also transmits data to and from the unit, eliminating the need for a separate power source but requiring connection to a PoE-enabled network switch or use of a PoE injector device.

CC. Police Technical Support Services: A department of UTP-H responsible for the non-warranty service and maintenance of Institutional security systems. Also referred to as "Technical Services."

DD. Project: The Institutional Project for which the Security Contractor has agreed to provide services, and to which applies this Specification and reference construction documents; may also be referred to as the "Contract" or "Agreement."

EE. Project-specific: Of or related to the Institutional Project for which the Security Contractor has agreed to provide services, and to which applies this Specification and construction documents.

FF. PTZ camera: A camera, either digital or analog, PoE or powered separately, with the ability to be remotely panned left or right, tilted up or down, and optically zoomed in or out. PTZ cameras are typically specified by the Institution only for inspection purposes, and not for recording of large fields of view. Installation of PTZ cameras requires approval of UTP-H.

GG. REX or REXs: Request to Exit device, which may be a "mushroom" exit button, PIR motion detector, push bar, wave plate, push paddle, or other device designed to two things: Directly break power to a lock (as required under all known AHJ's), and send a request-to-exit command to the control panel.

HH. ROC: Risk Operations Center, formerly the Police Command Center (PCC) or UTP-H dispatch center.

II. Risk Preparedness Operations: A department of UTP-H, formerly "Security Risk Operations", responsible for the configuration, programming, software administration, and audit of Institutional security systems.

JJ. Risk Preparedness Services: A department of UTP-H, formerly "Security Risk Mitigation", responsible for the assessment, design, standards-compliance, oversight, and commissioning of Institutional security systems.

KK. RTE: Request to Exit device, usually referred to as a REX; see "REX."

LL. Security Contractor: The ESS Security Integrator, and his subcontractors, performing work under the Division 28 ESS section on a Project, and to which this Specification and construction documents apply; also see "Integrator."

MM. Security-related notification/communication devices: Field devices designed to provide direct notification to or communication with the Risk Operations Center or other control points, 24 hours per day. These devices include panic buttons (covert and overt), blue pull stations, blue emergency phones, direct-call single-line phones, direct-call multi-line phones, audio intercoms, and audio/video intercoms. These devices do not include emergency communications equipment installed in elevators.

NN. Security systems: The Institutional physical Access Control System, physical Intrusion Detection System, Video Management System, and security-related notification/communication devices referenced in this Project.

OO. Security systems components: The individual parts, pieces, cabling, mounting hardware, connectors, fasteners, control equipment, software, materials and consumables comprising or supporting the Project-specific security systems.

PP. SMS: Security Management Software, a component of the physical Access Control System. The Institutional SMS is Software House CCURE 9000.

QQ. SPDT: Single-pole, double-throw electrical switch.

RR. SRM: Security Risk Mitigation; see "Risk Preparedness Services."

SS. SRO: Security Risk Operations; see "Risk Preparedness Operations."

TT. Tier One Security Systems Components: Security systems components that, if compromised or malfunctioning, hinder the ability to protect Owner's security sensitive areas that include irradiator rooms, datacenters, animal care areas, biosafety laboratories, interlock spaces, and exterior entry points. Tier One also includes any security systems component whose diminished performance may negatively impact life safety, including emergency phones and security pull stations, panic/duress buttons, and components which hinder egress.

UU. Tier Two Security Systems Components: Security systems components that, if compromised or malfunctioning, hinder the ability to protect Owner's security sensitive areas that include pharmacies and medication storage/dispensing areas, the Acute Care Cancer Center, Pediatrics Care areas, IDF/MDF rooms, security areas, and other locations determined by Owner to require expedited response due to security concerns.

VV. Tier Three Security Systems Components: All security systems components not included in Tiers One
and Two.

WW. T.O.D.: Time of Day refers to the unlock schedule assigned to an electronically controlled door.

XX. UTHSC, UTH or UTHealth: University of Texas Health Science Center at Houston.

YY. UTP-H: University of Texas Police at Houston, previously UTPD.

ZZ. VMS: Video Management System. The Institutional VMS is the solution(s) utilized to monitor, record and administer security video cameras, and includes the following: cameras; servers; NVRs/HVRs; DVRs; software; various communications media; monitors; analog switching equipment; analytics devices; infrared illumination; camera encoders; communications converters and extenders; power supplies; POE injectors; network attached storage devices, and; wireless transmission and receiving equipment. The approved VMS for MDACC and UTHealth facilities is Avigilon Control Center (ACC).

1.05 QUALITY ASSURANCE

A. UTP-H shall perform acceptance testing, or "commissioning", of all security systems work according to its established Functional Performance Test (FPT) procedure and documentation.

B. Security Contractor shall take responsibility to ensure the full functionality of its installed security systems and components prior to commissioning through a process of pretesting.

1. Security Contractor shall utilize Owner's FPT form and process, available from UTP-H, as well as this Specification and all reference documents, for pretesting.

C. UTP-H shall determine final acceptance of all security systems described in this Specification by commissioning the work against the following criteria:

1. Security Contractor's compliance with UTP-H Division 28 specifications and Project-specific construction documents (CDs).

2. Security Contractor's compliance with UTP-H Programming Guidelines.

3. Completeness of Security Contractor's work, as evaluated by UTP-H and measured against industry best practices.

4. Quality of Security Contractor's work, as evaluated by UTP-H and measured against industry best practices.

5. Full functionality of security systems, as demonstrated to UTP-H.

D. UTP-H shall support Security Contractor-requested commissioning based on the following requirements:

1. Security Contractor shall complete all required pretesting, which includes all components subject to commissioning by UTP-H, prior to requesting commissioning.

2. Security Contractor shall request commissioning from UTP-H at least one week (five working days) prior to the requested commissioning date.

a. Commissioning requests shall be emailed to the UTP-H representative coordinating security work on the contract.

b. Security Contractor shall provide to UTP-H a properly completed FPT form with no modifications to the template upon request for commissioning.

3. Security Contractor shall not be found deficient on more than two inspected requirements during commissioning.

a. Upon failure of the third inspected requirement, UTP-H shall reserve the right to end commissioning, require the Security Contractor to correct deficiencies, and require the Security Contractor repeat pretesting prior to rescheduling of commissioning.

1.06 SUBMITTALS

A. UTP-H shall review and approval all submittals related to security systems prior to initiation of security systems work by any party to the Contract.

B. Security Contractor shall submit to UTP-H upon award of contract all specifications, data sheets, alternate equipment proposals, and other relevant technical documentation applicable to the components of the security systems it intends to install on this Project.

C. Security Contractor shall prepare and submit all Project drawings and other documentation to the local AHJ as required to obtain appropriate permits for the installation of electronic locking devices.

D. Security Contractor shall submit to UTP-H the following record documents upon completion of the Project.

1. If required by the Project, shop drawings of the complete, installed security systems including clearly numbered device/component location and point-to-point cabling plotted on the facility's floorplan, and detail drawings depicting the exact configuration of all security systems control panels and video recording and routing devices. These documents may also be referred to as "as-builts."

2. A schedule of all installed security devices, including the following for each device. The Security Contractor shall not call-out minor parts associated with the function of a significant device, i.e. call-out card readers, but to not call-out REX devices, door contacts, and locks. This requirement may be satisfied by the submission of a completed FPT form.

a. Type of device (card reader, camera, etc.)

b. Location of device (building, room number, area)

c. Device manufacturer and model number

d. Serial number and MAC address of network-connected devices

e. Type of locking device connected (for readers)

f. Fail-secure or fail-safe functionality (for readers)

g. Input port (for readers, sensors, etc.)

h. Output port (for output devices)

i. Network port (for cameras, ACS panels, etc.)

3. Test reports documenting all tests performed on, and adjustments made to each security systems component to demonstrate compliance with the manufacturer's performance criteria. This deliverable may be satisfied with the submission of a completed FPT form following successful pretesting.

4. Attestation of warranty, for the period specified by the Project documents, for which the Security Contractor agrees to repair or replace at no cost all failed components or systems of the Project, and for which manufacturer agrees to repair or replace components that fail in materials or workmanship.

5. Operation and maintenance data, including all owner's manuals, installation manuals, user's manuals, warranty details, and any other instructional or guidance documents applicable to the components of the Project-specific security systems.

6. All contact information and procedures necessary to request warranty work from the Security Contractor.

1.07 DELIVERY, STORAGE AND HANDLING

A. Security Contractor shall deliver security systems components, to be installed on the Owner's premises, protected and undamaged, in original containers/packaging, with intact labels.

B. Security Contractor shall deliver security systems components, removed from Owner's premises by Security Contractor (may be referred to as "demolished"), to UTP-H for disposition.

C. Security Contractor shall store, handle, and protect all security systems components in accordance with each component manufacturer's recommendations.

D. Security Contractor shall protect security systems components from weather, humidity, temperature variations, dirt, dust, other contaminants, vandalism, theft, and access by unauthorized persons. Equipment damaged prior to system acceptance shall be replaced at no cost to the Owner.

1.08 EXTRA MATERIALS

A. Upon successful commissioning of the Project by UTP-H, Security Contractor shall deliver all extra, Project-specific security systems components and materials to UTP-H.

1.09 WARRANTY

A. Security Contractor shall warranty all installed security systems components and labor for TWO YEARS following successful commissioning of security systems by UTP-H. The two-year warranty shall cover all parts, materials, labor and associated costs of correcting deficiencies in the procured security systems, regardless if manufacturers' warranties remain in effect.

B. Security Contractor shall be responsible for diagnosing Project-related electromagnetic and electromechanical locking deficiencies during the Security Contractor's warranty period, regardless if the hardware was procured and/or installed under Division 08 or Division 28.

1. Security Contractor shall not be responsible for replacing, repairing or reinstalling electromagnetic and electromechanical locking hardware if said hardware was provided and installed by others.

C. Security Contractor shall ensure all warranty and service work complies with the requirements of this Specification.

D. Security Contractor shall provide the following service response during his warranty period:

1. Tier One security systems components.

a. Refer to Section 1.04 Definitions.

b. Security Contractor shall provide onsite response (if necessary) within eight clock hours of a warranty service call by Owner, twenty-four hours per day.

c. Security Contractor shall complete warranty repairs within twenty-four clock hours of onsite response. If warranty repairs exceed twenty-four clock hours, UTP-H reserves the right to require the contractor to provide onsite manufacturer support at no additional cost to Owner.

2. Tier Two security systems components.

a. Refer to Section 1.04 Definitions.

b. Security Contractor shall provide onsite response (if necessary) within sixteen business hours (two business days) of a service call by Owner.

c. Security Contractor shall complete warranty repairs within forty business hours (five business days) of onsite response. If warranty repairs exceed forty business hours, UTP-H reserves the right to require the contractor to provide onsite manufacturer support at no additional cost to Owner.

3. Tier Three security systems components.

a. Refer to Section 1.04 Definitions.

b. Security Contractor shall provide onsite response (if necessary) within forty business hours (five business days) of a warranty service call by Owner.

E. Immediately upon completion of a warranty service request, the Security Contractor shall provide written documentation to UTP-H detailing the work completed, the cause of the deficiency, and any additional work required to restore security systems to the manufacturer's specifications.

1. UTP-H reserves the right to expand or modify security systems during warranty periods using a provider other than the Security Contractor without affect to the Security Contractor's warranty of its installed security systems components unless another provider damages, relocates, or substantially modifies the Security Contractor's installed security systems components.

PART 2 - PRODUCTS

2.01 GENERAL

A. Security Contractor shall furnish and install all security systems components in accordance with this Specification.

B. Security Contractor shall ensure all materials meet or exceed all applicable reference documents; standards; federal, state and local requirements, and; codes and ordinances of AHJs.

C. Substitutions are not allowed unless specifically identified in this Specification or reference construction documents, or expressly approved by UTP-H through the submittal process.

2.02 ACCESS CONTROL SYSTEM (ACS)

A. ACS components are specified in Division 28 10 00.

1. Substitutions for the institutional ACS solution are not allowed.

2. Security Contractor shall ensure all substituted ACS components, if allowed by this Specification, reference documents, or expressly by UTP-H on a per-Contract basis, are compatible with the institutional ACS solution.

2.03 INTRUSION DETECTION SYSTEMS (IDS)

A. IDS components are specified in Division 28 10 00.

1. Substitutions for specified institutional IDS solutions are not allowed.

2. Security Contractor shall ensure all substituted IDS components, if allowed by this Specification, reference documents, or expressly by UTP-H on a per-Contract basis, are compatible with the institutional IDS and ACS solution.

2.04 SECURITY-RELATED NOTIFICATION/COMMUNICATION DEVICES

A. Security-related emergency notification devices are specified in Division 28 10 00.

1. Security Contractor shall ensure all substituted security-related notification/communication devices, if allowed by this Specification, reference documents, or expressly by UTP-H on a per-Contract basis, are compatible with the institutional ACS solution.

2.05 VIDEO MANAGEMENT SYSTEM (VMS)

A. VMS components are specified in Division 28 20 00.

1. Substitutions for the institutional VMS solution are not allowed.

2. Security Contractor shall ensure all substituted VMS components, if allowed by this Specification, reference documents, or expressly by UTP-H on a per-Contract basis, are compatible with the institutional VMS solution The Institutional VMS is Avigilon Control Center (ACC).

2.06 MISCELLANEOUS COMPONENTS

A. Substitutions for miscellaneous security systems components described in this Specification are not permitted unless specifically approved by UTP-H on a per-Contract basis.

PART 3 - EXECUTION

3.01 PREPARATION

A. Security Contractor shall coordinate the approval and credentialing of his personnel required to be on Owner's premises or to have access to Owner's systems.

1. Security Contractor shall communicate requests to badge Contingent Workers (Security Contractor's personnel) to UTP-H at utpdtechserv@mdanderson.org.

B. Security Contractor shall obtain approval from UTP-H prior to accessing Owner's security systems servers, control panels, power supplies, and any other security systems components.

C. Security Contractor shall provide all client-based programming of Owner's security systems from Owner's 8016 El Rio facility, at a client workstation dedicated for this purpose.

D. Security Contractor shall document and communicate to UTP-H the make, model, serial number, and MAC address of all network-connected devices immediately following receipt of these devices for submission by UTP-H to the Owner's NAC Exemption process, which is required to bring any network connected device online on the Owner's network.

3.02 TRADE COORDINATION

A. Security Contractor shall coordinate his work with the Owner and all relevant trades, contractors, subcontractors, and the general contractor, including but not limited to:

1. Architect, A&E firms and General Contractor: Security Contractor shall coordinate with all design elements to ensure placement and functionality of security devices are as designed.

2. Door hardware consultant and contractor. Security Contractor shall ensure all locking hardware specified by the door hardware consultant and installed by the door hardware contractor are compatible with Owner's ACS voltage requirements and individual door function.

3. Fire designer and contractor. Security Contractor shall ensure all aspects of the ACS are integrated per local regulatory requirements with life safety systems.

   NOTE: For MD Anderson Cancer Center (not applicable to UTHSC), all fire relays for the purpose of releasing electronically controlled doors must be installed at the door itself, not in a centralized location or at the control panels. This restriction applies to all electromagnetic and electromechanical locks required to drop (unlock) in a fire alarm condition.

4. Mechanical, electrical and plumbing (MEP) consultant and contractor. Security Contractor shall coordinate with electrician to ensure all required conduit, back boxes, and electrical/generator power feeds are provided prior to commencement of security device installation.

5. Telecommunications consultant and contractor. Security Contractor shall coordinate with the IT consultant and contractor to ensure network cables and connections are located where required for security devices.

6. Intrusion Detection Systems contractor (if other than Security Contractor).

7. Owner. Security Contractor shall coordinate with UTP-H to provide periodic installation status, coordinate programming requirements, obtain access and computer privileges, resolve issues and concerns, and report problems or mishaps.

3.03 INSTALLATION

A. Security Contractor shall ensure all security systems installation methods are in accordance with published recommendations of the manufacturer of the systems and components utilized on this Project, and according to industry best practices.

B. Security Contractor shall ensure all security systems and components are designed and installed to provide uninterrupted service 24 hours per day, seven days per week.

C. Security Contractor shall provide all necessary anchoring devices and supports suitable for anchored equipment and shall not cut or weld building structural elements.

   1. Powder- and pneumatic-actuated anchors may not be utilized to secure cable mounting devices to the upper deck. Security contractor is to refer to Division 27 of this Project Specification for all cable installation guidance.

D. General Wiring Installation.

   1. Security Contractor shall install all security systems cabling in accordance with owner guidelines and Division 27 of this Project Specification. In the case of a conflict between Division 27 and 28 of this Project Specification, the more stringent requirement shall apply.

   2. Security Contractor shall ensure all wiring is installed in conduit where exposed to view in unfinished areas such as mechanical spaces, electrical or data closets, or high bay and warehouse areas.

   3. Security Contractor shall ensure exposed conduit is run a minimum of 12 ft. above finished floor except where descending to reach a security system component. Provide access doors to reach equipment above inaccessible ceilings.

4. Security Contractor shall ensure wiring is concealed in walls or above ceilings, where possible.

5. Security Contractor shall ensure all wire-ways for security systems cabling are installed per reference construction documents.

    a. If reference construction documents do not detail a wire-way, it is the responsibility of the security contractor to provide their own wire-way. All cabling shall be secured at a minimum of five-foot intervals and in compliance with Division 27 of this Project Specification.

6. Security Contractor shall ensure all installed access control cable is encased in a brown jacket and plenum rated where required by applicable codes and regulations. Underground rated cable is exempt from jacket color requirements.

7. Security Contractor shall ensure all underground cable, regardless if installed in conduit or other enclosure, is underground rated.

8. Security Contractor shall provide and apply code-compliant fire sealant at all penetrations of fire rated partitions and slabs, per Division 27 of this Project Specification.

9. Security Contractor shall ensure all security systems cables are continuous, without breaks, splices or connectors, from each device location to the final point of termination. All cable and conductor terminations shall be made inside the equipment enclosures, device back-boxes, terminal cabinets or junction boxes at each end of the circuit. Security Contractor shall not use open connections.

10. Security Contractor shall provide grommets and strain relief material where necessary to avoid abrasion of wire and excess tension on wire and cable.

11. Security Contractor shall provide pathways, conduits or sleeves for cables in walls and other blind spaces to facilitate future service.

    a. All cable penetrations, through a wall or roof, require a sleeve.

    b. Any cable penetrations through a fire-rated wall or roof require a sleeve, fire caulking and shall comply with Division 07 of this Project Specification.

    c. All sleeves must be compliant with, and installed in accordance with, Division 27 of this Project Specification.

12. Security Contractor shall install jet line in all conduit runs over 20 ft., and in limited access wire pathways, for future service needs, regardless if cable is present in the run.

13. To protect against cable damage, Security Contractor shall use armored cable from wall or floor penetrations to security systems components mounted to furniture or other free-standing objects.

E. Component Connections.

1. Security Contractor shall not use wire nuts to connect security systems-related, low voltage conductors but shall use only crimp connections.

2. Security Contractor shall connect IP cameras, controller panels, video servers, and any other network-attached security systems devices to Owner's network during UTP-H Technical Services normal business hours, and only upon completion of the following:

    a. Security Contractor shall program all network-attached security systems devices according to UTP-H Programming Guidelines.

    b. Security Contractor shall test all network-attached security systems devices with their UTP-H compliant configuration.

    c. Security Contractor shall ensure all network connected devices have been approved through Owner's NAC Exemption process and, if required, assigned a static IP address prior to installation.

F. Security Contractor shall label all security systems devices, cables, enclosures and terminations utilizing UTP-H naming conventions defined in the reference UTP-H Programming Guidelines and FPT (commissioning) documentation.

1. Security Contractor shall utilize a digital label printer, black lettering on white label stock, for all labels applied to security system components and cabling. No hand-written labels shall be acceptable.

2. Security Contractor shall label all security equipment racks, cabinets, terminal boxes and other security-related enclosures, including access control and power supply panel enclosures.

3. Security Contractor shall label all card and other security credential or biometric readers at their termination point in the control panel and at the top (or inside edge, if not possible) of the device itself.

4. Security Contractor shall label each camera with its approved name on the outside body of the camera, visible from the floor.

5. Security Contractor shall cover each camera with a 2' x 2' square of black plastic if it will not be active with 24 hours of its installation. Security Contractor shall remove this covering upon commissioning or otherwise upon activation of the camera.

6. Security Contractor shall label all door release switches and access control bypass switches at their termination points and at the devices themselves, indicating their functions and switch positions.

7. Security Contractor shall label all other security systems devices at their final and, if applicable, any intermediate termination points.

8. Security Contractor shall label all security systems cables and wiring using waterproof, self-adhesive, computer printed labels.

9. Security Contractor shall label all control panel and remote panel assemblies at the point of termination inside the enclosure and shall label all data connections at the devices and control panels.

3.04 PRETESTING

A. Security Contractor shall verify through inspections, demonstrations and testing that the complete security system(s) are functional and all requirements of this Specification and reference contract documents have been met.

B. Security Contractor shall use the UTP-H FPT form to perform pretesting.

C. Security Contractor shall arrange pretests a minimum of 48 hours in advance with all required parties.

D. UTP-H will not attend pretests; Security Contractor shall provide pretest results to UTP-H upon subsequent request for an FPT.

E. Security Contractors shall participate in the Owner's Integrated Systems Test (IST) designed to ensure the functionality of all ESS integrations and links, especially with regard to fire systems and power back-up.

1. Security Contractor shall ensure for all IST's a project manager, field supervisor or programmer is present to verify system functionality and regulatory compliance.

2. UTP-H and/or Owner's Facilities department may be present at IST's.

F. During or as a result of any testing process, Security Contractor shall repair or replace security systems components found to be defective, inoperative, not performing to manufacturer's specifications, or not meeting the requirements of this Specification. Security Contractor shall retest the entire system upon discovery and correction of each failed component until 100% satisfactory results are obtained.

G. Throughout the installation, Security Contractor shall perform inspections of his work to ensure all security systems components are installed properly and function according to manufacturers' specifications. Security Contractor shall facilitate any requested inspections by Owner's quality control or project management representatives.

3.05 TESTING

A. Upon the successful completion of pretest requirements, Security Contractor shall arrange with UTP-H for a Functional Performance Test (FPT).

B. Security Contractor shall provide completed pretesting documentation to UTP-H at the time of request for an FPT.

C. Security Contractor shall utilize the UTP-H FPT form to conduct the FPT.

D. Security Contractor shall ensure the presence of his project manager, field supervisor and an ACS-certified technician during the FPT process.

1. A representative of the Security Contractor shall staff the ACS monitoring station to acknowledge alarms during the testing, and his other representatives shall accompany UTP-H in the field to assist in testing the system.

2. UTP-H reserves the right to suspend or terminate an FPT at any time if the system or its components fail to perform as specified.

E. If corrections or additional work are required as a result of the FPT, Security Contractor shall complete the UTP-H provided “punch list” of action items and then produce documentation to demonstrate the punch list was completed and the installation is at the Final Completion stage; another FPT or a continuation of the previous FPT may be required.

F. Successful completion of the FPT and UTP-H acceptance of the system(s) shall begin the Security Contractor’s warranty period.

G. If the Security Contractor and/or UTP-H are required to retest at a later date due to a failed FPT, the Security Contractor shall bear 100% of his cost for the additional test(s).

3.06 DECOMMISSIONING

A. All security hardware shall be decommissioned by a qualified, licensed, and appropriately certified security contractor vetted by UTP-H.

3.07 TRAINING

A. Security Contractor shall provide any personal, onsite training required for Owner to utilize, maintain and otherwise repair substituted security systems components.

END OF SECTION 28 00 00

SECTION 28 10 00 – ELECTRONIC SAFETY AND SECURITY

PART 1 - GENERAL

1.01 OVERVIEW (ACS, IDS, NOTIFICATION/COMMUNICATION DEVICES)

A. This Specification provides direction to ESS Integrators (Security Contractors) for all Access Control Systems (ACS), Intrusion Detection Systems (IDS), and security-related notification/communication device work performed under Division 28 for the University of Texas MD Anderson Cancer Center and the University of Texas Health Science Center at Houston, both referred to herein as “Institution” or “Institutional.”

B. All Security Contractors and their subcontractors shall comply with this Specification when performing ACS, IDS, and security-related notification/communication device work for the Institution under Division 28, Electronic Safety and Security.

C. The University of Texas Police at Houston (UTP-H) administers this Specification, and is solely responsible for its additions, revisions, updates, corrections, deletions and clarifications.

D. This Specification is the “project specification” for all Division 28 ACS, IDS, and security-related notification/communication device work for the Institution, and may include any or all the following Construction Documents (CDs):

1. Floor plans.

2. Elevation plans.

3. Riser Diagrams.

4. Component Detail Drawings.

5. Component schedules, parts lists, or bills of materials (BOMs).

6. Other project-specific, supporting documentation issued by the Institution or its representative.

E. This Specification shall not be replaced, omitted or superseded for any Institutional project that includes ACS, IDS, and security-related notification/communication device work, except as approved by UTP-H. In cases of a conflict between this Specification and other documents, this Specification shall prevail, except as expressly approved by UTP-H.

1.02 REFERENCE DOCUMENTS

Refer to Division 28 00 00 Electronic Safety and Security.

1.03 SECURITY CONTRACTOR QUALIFICATIONS

Refer to Division 28 00 00 Electronic Safety and Security.

1.04 DEFINITIONS

Refer to Division 28 00 00 Electronic Safety and Security.

1.05 QUALITY ASSURANCE

Refer to Division 28 00 00 Electronic Safety and Security.

1.06 SUBMITTALS

Refer to Division 28 00 00 Electronic Safety and Security.

1.07 DELIVERY, STORAGE AND HANDLING

Refer to Division 28 00 00 Electronic Safety and Security.

1.08 EXTRA MATERIALS

Refer to Division 28 00 00 Electronic Safety and Security.

1.09 WARRANTY

Refer to Division 28 00 00 Electronic Safety and Security.

PART 2 - PRODUCTS

2.01 GENERAL

A. Refer to Division 28 00 00 Electronic Safety and Security.

2.02 ACCESS CONTROL SYSTEM

A. ACS Solution

1. Note: Security Contractor shall contact UTP-H for latest software version/build identification.

2. Required: Tyco Software House CCURE (UTP-H will provide current version).

B. Auto-opener Interface Boards

1. Required: Camden CX-33

2. Alternate: BEA Br3

C. Buttons, Door Release

1. Required: Rutherford Controls RCI-909 (momentary).

D. Control Panels

1. Note: No more than 70% reader capacity shall be installed on any control panel, and no more than twenty-two readers shall be installed on any new control panel.

2. Note: Each control panel requires one power supply, as specified herein.

3. Note: All control panel inputs shall be supervised.

4. Required: Software House I-star Ultra SE controller

5. Alternate (UTP-H approval only): I-star Edge controller with external power.

E. Input Modules, Supervised

1. Required: Software House model #AS-0073-000 I8 Input Bus Module.

F. Interlock Boards, Mantrap/Airlock

1. Required (as required): SDC UR2-4.

2. Required (as required): SDC UR4-8.

G. Locks, Electric Strikes

1. Note: Utilization of electric strikes must be approved by UTP-H.

2. Note: Specified by Division 08.

H. Locks, Electrified Cylindrical and Mortise

1. Note: Owner's preferred locking solution are electrified cylindrical or mortise devices.

2. Note: Specified by Division 08.

3. Note: Electrified locks shall be equipped with bypass cylinders configured to accept the BEST Locking Systems, small-format, 7-pin interchangeable core.

4. Required (cylindrical, fail secure "electrically unlocked"): BEST/Stanley 9KW37DEU14D-S3-626

5. Required (cylindrical, fail safe "electrically locked"): BEST/Stanley 9KW37DEL14D-S3-626

6. Required (mortise, fail secure "electrically unlocked"): BEST/Stanley 45HW7DEU14H-626

7. Required (mortise, fail safe "electrically locked"): BEST/Stanley 45HW7DEL14H-626

I. Locks, Electromagnetic (non-TDL)

1. Note: Maglocks must be approved by UTP-H.

2. Note: Specified by Division 08.

3. Alternate: Upon UTP-H approval.

J. Locks, Time Delay (TDL) Electromagnetic

1. Required: Rutherford Controls DE8310 series.

2. Alternate: Security Door Controls (SDC) 1511S.

3. Alternate: Schlage/Locknetics 390DEL.

4. Alternate: DynaLock 3101C.

K. Locks, Time Delay (TDL) Latch Retraction

1. Note: Specified by Division 08.

L. Output Modules, Supervised

1. Required: Software House AS-0074-000 R8 Output Bus Module.

M. Power Supplies, (ACS) Control Panels

1. Required: Software House PSX-75-E1

2. Required: Software House PSX-150-E1

3. Alternate (where appropriate): Software House Rack Mount PSX-RBE

N. Power Supplies, Electromechanical and Electromagnetic Locks

1. Note: The use of stand-alone, plug-in transformers to directly power electrified locks is prohibited.

2. Note: Electromechanical hardware requiring high in-rush current shall be the responsibility of the locking hardware provider.

3. Required: Life Safety Power (LSP) FPO250-2C8P2D8PE2.

4. Alternate: Software House PSX Power Solutions series.

O. Power Supplies, Elevator Access Controllers

1. Required: Contractor's preference

2. Note: Elevator access controllers require a key switch override for each bank. Key switch cylinder shall accept a small format, BEST 7-pin interchangeable core (I/C).

3. Note: Elevator interface shall be equipped w/ ACM8 series relay boards or equivalent, Form C, 5 amp relay contacts minimum.

4. Note: Some elevators may require additional relays; these relays shall be configured fail-safe. Relays shall be Idec Model #RH1B-UDC24V series relays and bases, 10A SPDT.

5. Note: Elevator controllers shall be equipped with power and key switch status monitoring.

P. Power Supplies, All

1. Note: All power supplies for security systems devices, other than readers, shall be 24VDC.

2. Note: All power distribution boards shall include independent fused outputs and relays for locking hardware and all other outputs; bussing of any device requiring power is prohibited.

Q. Power Transfer Hinges/Devices

1. Required: Von Duprin EPT-10.

2. Alternate (requires UTP-H approval): Securitron (SDC) CE, EPT or PTH-2+4.

3. Alternate (requires UTP-H approval): Detex or SDC PT-5.

R. Pull Stations, Emergency Door Release

1. Required: RSG/AAMES (Potter) RMS-6T-KL-LP (yellow) (Cat30 Key for reset)

S. Reader/Door Modules / Terminal Module Enclosures / Interfaces

1. Required: Software House RM-DC-M2 (including RM4E and enclosure).

T. Card Readers

1. Required: HID Signo Proximity Reader Part #40NKS-00-000000 (Color – Black) (utilized for all standard mount applications).

2. Required: HID Signo Proximity Reader Part #20NKS-00-000000 (Color – Black) (utilized for all mullion/narrow mount applications).

3. Required: Software House RM2L-PH (utilized for all intrusion zone applications).

4. Required: (biometric readers / Scramble keypad readers): Coordinate with UTP-H.

U. Request-to-Exit, PIR Sensors

1. Required: Tyco T.REX-LT2-NL request to exit detector (T.Rex request-to-exit detector with tamper, timer and 2 relays, white (unbranded)

2. Alternate: Bosch/Detection Systems Inc. (DSI) DS160i.

V. Request-to-Exit (REX), Push Buttons

1. Note: REX buttons shall be equipped with adjustable, pneumatic time delay to meet code requirements for egress paths. Push button REX devices may be set to 1 second time delay in specific cases, as identified only by UTP-H and the institutional Environmental Health and Safety (EH&S) group.

2. Required: Rutherford Controls RCI-991REX32D (Pneumatic Exit Button, Red, “Push to Exit” verbiage, brushed stainless, set to 30 seconds) (utilized for all standard mount applications)

3. Required: Rutherford Controls RCI-991NREX32D (Pneumatic Exit Button, Red, “Push to Exit” verbiage, brushed stainless, set to 30 seconds) (utilized for all mullion/narrow mount applications)

W. Request-to-Exit, Specialty Buttons and Devices:

1. Automatic Door Actuator for Card Reader controlled door (Automatic Exit): Rutherford Controls RCI-991-BHX32D (Pneumatic Exit Button, blue handicap symbol engraved on brushed stainless, configured to 1 second) (utilized for all standard mount applications)

2. Automatic Door Actuator (Touchless) for Card Reader controlled door (Automatic Exit): RCI 910TC-HC-SS (Wheelchair, stainless touchless actuator) (utilized for standard mount applications)

3. Automatic Door Actuator (Touchless) for Card Reader controlled door (Automatic Exit): RCI 910NTC-HC-SS (Wheelchair, stainless touchless actuator) (Narrow/Mullion Mount Applications)

X. Switches, Door Contacts (Position Sensors), Roll-up/overhead Doors and Hatches.

1. Required: General Electric / Interlogix: 2200 Series w/ armored cable

2. Alternate (where appropriate): General Electric / Interlogix: 2300 Rail Mount -Series w/ armored cable.

3. Alternate: Honeywell: 959-XTP Series

4. Required (high security applications, with UTP-H approval only): Magnasphere HSS-L2S.

Y. Switches, Door Contacts (Position Sensors), Swing Doors

1. Required: Sentrol 1076 (DPDT) or 1078 (Series), as appropriate, color matched to frame.

2. Required (high security applications, with UTP-H approval only): Magnasphere HSS-L2C.

Z. Switches, Keyed Override (general)

1. Note: Each elevator override switch shall control a single elevator cab.

2. Note: Keyed switches shall accept the BEST Locking Systems small format, 7-pin, interchangeable core.

3. Required: DSI ES450-K3.

4. Alternate: RCI 960-MA X 28.

5. Alternate: On approval of UTP-H RPS.

AA. Wire and Cable, Armored

1. Required (3/16” I/D): Interlogix 1980.

2. Alternate (3/16” I/D): GRI 5702.

3. Required (5/16” I/D): GRI 8449.

4. Alternate (5/16” I/D): On approval of UTP-H RPS.

5. Required (7/32” I/D): GRI 8296.

6. Alternate (7/32” I/D): On approval of UTP-H RPS.

BB. Wire and Cable, General

1. Note: All access control wire and cable shall utilize a brown jacket.

2. Note: Refer to Division 27 for all other cable specifications

3. Required: Belden.

4. Alternate: Requires UTP-H Approval.

2.03 INTRUSION DETECTION SYSTEMS (IDS)

A. IDS Solution

1. Note: IDS shall be intrusion zones within the ACS.

B. Alarms, Wireless Management

1. Note: Use of wireless security devices requires UTP-H approval.

C. Motion Detectors, Microwave

1. Alternate: Upon UTP-H Approval.

D. Motion Detectors, PIR

1. Alternate: Upon UTP-H Approval.

E. Switches, Door Contacts

Refer to Section 2.02.

F. Switches, Tamper

1. Submit for UTP-H Approval.

2.04 SECURITY-RELATED NOTIFICATION/COMMUNICATION DEVICES

A. Buttons, Duress/Panic

1. Note: When concealed, Security Contractor shall install duress/panic buttons at a 90 degree angle to the user.

2. Note: Security Contractor shall use armored cable for any exposed area between the wall or ceiling penetration and the device.

3. Required: United Security Products HUB2SA (SPDT, momentary switch, 3 screw terminals).

B. Intercoms, Audio/Video

1. Note: Audio/video intercoms shall not be installed under Division 28 10 00 for emergency notification purposes.

2. Note: Security Contractor shall use only manufacturer-approved power supplies and manufacturer’s cabling when required by manufacturer for warranty extensions, product communication effectiveness or any other reasons provided by the manufacturer.

3. Note: Security Contractor shall closely coordinate specification and installation with UTP-H.

4. Required: Aiphone KB Series (up to three door stations and five monitor stations, handset).

C. Pull Stations, Duress/Panic (blue)

1. Required: RSG/AAMES (Potter) RMS-6T-UT, blue in color, keyed to CAT30.

D. Telephones, Emergency (ETD's - "Emergency Telephone Devices")

1. Note: Emergency phone stanchions shall be blue in color, with a blue, flashing LED, and prominently displaying the word "EMERGENCY" in 3.25" high, raised, reflective, while lettering.

2. Required (phone): Talk-A-Phone ETP-400.

3. Alternate (phone, requires UTP-H approval): Talk-A-Phone ETP-500.

4. Required (tower stanchion): Talk-A-Phone ETP-MT.

5. Required (wall stanchion): Talk-A-Phone ETP-WM.

E. Telephones, Entry (multi-line)

1. Note: Installation of direct-dial entry telephones shall be upon UTP-H approval only.

2. Required: SES TEC4 (phone capacity as required)

3. Required: SES TEC10 (phone capacity as required)

PART 3 - EXECUTION

3.01 ACCESS CONTROL SYSTEM

A. Where electronic access controls are indicated in Construction Documents, Security Contractor shall comply with the provisions of this section and Division 28 00 00, Part 3

B. Security Contractor shall furnish all labor, materials, tools, equipment, and services necessary to install, modify as required, integrate, program and configure all access control components into Owner's access control solution.

1. Security Contractor shall furnish and install all supporting and miscellaneous items required to render the access control system and its components fully-functional.

C. Access Control Panel Installation and Configuration

1. Security Contractor shall provide and install access control panels, as specified herein, in centralized locations.

a. If panel locations are not specified or depicted in referenced construction documents, Security Contractor shall closely coordinate panel locations with UTP-H RPS.

2. Security Contractor shall ensure each access control and power supply panel is supported by the building's emergency power.

3. Security Contractor shall configure all access control panels to communicate to the ACS server via the Owner's existing LAN.

4. Security Contractor shall program each access control panel and its attached devices according to the referenced UTP-H Programming Guidelines.

D. Auto-operator Access Control Installation and Configuration

1. Where portals with auto-operators are equipped with access controls, Security Contractor shall connect and configure the ACS to the auto-operator interface board(s), and then to auto-operator control boards.

2. Security Contractor shall closely coordinate sequence of operations with UTP-H RPS.

E. Button, Door Release Installation and Configuration

1. Security Contractor shall provide and install momentary-function door release buttons, as specified herein, in the quantity, locations and manner indicated in referenced construction documents.

2. Security Contractor shall directly connect and configure all door release buttons to activate an input in an access control panel to facilitate an unlock event for the subject door(s).

F. Card Reader Installation and Configuration

1. Security Contractor shall provide and install card readers, as specified herein, in the quantity and locations indicated in referenced construction documents.

2. Security Contractor shall ensure all card readers are configured to transmit the full card number to the access control panels to facilitate access decisions against Owner's ACS database.

3. Security Contractor shall ensure all card/badge readers are installed level and securely, at a uniform ADA-compliant height, within five feet of the controlled door, all black in color, with no exposed wiring, and labeled per UTP-H specifications.

4. Security Contractor shall wire and program card reader LEDs to indicate conditions and functions as follows:

a. Red LED in the normal locked state

b. Green LED upon a valid card read and the door is the unlocked mode

c. Slow flashing red LED upon held open condition

d. Fast flashing red LED upon an invalid card read or forced door condition

e. Card reader LEDs shall operate identically throughout the project

G. Elevator Access Control Installation and Configuration

1. Where elevator access controls are required, Security Contractor shall provide a relayed interface board to be the demarcation between the elevator signal wires and the security system relay boards (R8 or ACM outputs).

2. Security Contractor shall install all elevator access controls such that normal elevator operations shall be unimpeded in the event of a power failure.

3. Security Contractor shall install a dedicated keyed override switch (per Part 2 of this specification) for each elevator bank.

4. Security Contractor shall install one keyed override switch (per Part 2 of this specification) on each elevator power distribution unit.

    a. The keyed override switch shall disengage the ACS and allow the elevator to operate normally.

    b. The keyed override switch shall generate a signal to the ACS upon activation.

5. In-cab Elevator Access Control Installation and Configuration

    a. Security Contractor shall install card readers, as specified herein, in elevator cabs according to the quantity and locations indicated in referenced construction documents.

    b. Security Contractor shall configure in-cab readers to allow the operation of any floor button only when authorized by a user's access privileges, for a period of five seconds following a valid badge read.

    c. Where indicated, Security Contractor shall install a card reader in each elevator cab, in the space provided by the elevator manufacturer. If no space is provided, Security Contractor shall coordinate the location of the card reader with UTP-H RPS.

    d. Security Contractor shall supply one relay per cab, per restricted floor, to ensure floor-level control.

    e. Security Contractor shall program the ACS to allow a five-second time window during which the appropriate floor button can be activated following a valid card read.

    f. Security Contractor shall ensure the ACS has no effect on elevator control during programmed unlock times for those elevator banks.

    g. Security Contractor shall install an independently-operated override switch, with a key cylinder configured to the BEST small format I/C system, in the elevator room(s) to bypass card reader operations for each bank of elevators.

6. Hall-call Elevator Access Control Installation and Configuration

    a. Security Contractor shall install card readers, as specified herein, in elevator lobbies in the quantity and locations indicated in referenced construction documents.

    b. Security Contractor shall configure hall call readers to allow hall call buttons to be operated for a period of five seconds following a valid card read.

    c. Security Contractor shall provide a relay for every button being controlled at the hall call station.

H. Locks, Electromechanical / Electromagnetic Installation and Configuration

1. Typically, electromechanical and electromagnetic locking hardware is provided by others, but shall be installed by Security Contractor if required by the referenced construction documents, in the quantity and locations indicated therein.

    a. Security Contractor shall install locking devices according to manufacturer's instructions, with minimal modification to doors and frames, in a manner that does not void the fire rating of a door or frame, in compliance with all applicable codes and regulations, and in the locations and configurations identified in referenced construction documents.

2. Regardless of the installer of electromechanical and electromagnetic locking hardware, Security Contractor shall provide and install all power supplies and low voltage cabling required to integrate the locking devices into the Owner's access control system.

    a. Security Contractor shall not be required to provide or install power supplies for high-inrush locking devices specified and installed by others.

3. Security Contractor shall coordinate the interfacing of all electromechanical and electromagnetic locks with other devices.

4. Security Contractor shall install Electrical Power Transfer (EPT) hinges and devices, even if provided by others, to ensure proper integration.

5. Security Contractor shall ensure all delayed egress locking devices are configured to be monitored for door position with a door contact (as specified herein) and connectivity through an ACS panel.

6. Security Contractor shall configure delayed egress locking devices with the capability of reset via keyed switch located at the door, configured to the BEST small format I/C system.

7. Security Contractor shall ensure all fail safe electromechanical and electromagnetic locking devices controlled by the ACS are configured to unlock upon activation of fire or smoke sensing systems, per applicable codes, standards and regulations.

I. Power Supplies (general) Installation and Configuration

1. Except for locally-powered, high-inrush exit devices, Security Contractor shall provide and install manufacturer-approved power supplies for all access control, intrusion detection, and security-related notification/communication devices provided or installed by Security Contractor.

2. Security Contractor shall provide and install back-up batteries for each ACS panel provided or installed by Security Contractor, sufficient for four-hour operation of the panel. These back-up power supplies shall not be utilized for back-up of locks or any other devices.

3. Security Contractor shall provide and install back-up batteries for electromechanical or electromagnetic locking devices provided or installed by Security Contractor, except delayed egress locking devices and electric latch retraction devices.

4. Fail Secure Locks shall operate normally upon fire alarm activation and during power failure conditions.

5. Fail Safe Locks shall unlock under the following conditions:

    a. Building Fire Alarm

    b. Loss of Istar Power

    c. Failure of the Power Supply

J. Request-to-Exit Device Installation and Configuration

1. Security Contractor shall provide and install request-to-exit devices, as specified herein, at all access-controlled doors in a manner consistent with applicable codes, standards and regulations.

2. Security Contractor shall program all PIR REX devices to be non-resettable with a two-second activation duration, and shall ensure the coverage pattern of the motion detector creates a detection zone the full width of the door, no more than two feet out from the door.

    a. Security Contractor shall install PIR REX devices directly above outswing doors, and one to two feet away (ninety degrees from door center) for all inswing doors.

3. Security Contractor shall ensure all REX buttons are dual-relay, pneumatic in operation, and provide a door lock release for thirty seconds with no requirement for the user to continuously depress the button.

4. If an electrified lockset does not incorporate a REX function, Security Contractor shall provide and install a PIR REX device configured to shunt the door contact.

5. Security Contractor shall ensure all electrified exit devices (crash/push bars) installed on access-controlled doors, regardless of the installer, are equipped with an integrated REX switch configured to shunt the door contact.

K. Switches, Door Contact Installation and Configuration

1. Security Contractor shall provide and install normally-closed (N/C) door contacts, as specified herein, in the quantity and locations indicated in the referenced construction documents.

2. Security Contractor shall configure door contacts to activate an alarm in the Owner’s ACS upon the opening of a controlled door either by sliding, swinging, folding, rolling, or “crashing” out, if not preceded by a valid card read or REX.

3. Security Contractor shall ensure all door contacts are installed at the top of the door, within twelve inches of the non-hinged door edge, in holes appropriately sized for the switch and magnet, with the magnet securely embedded and not visible in the top of the door, the switch mounted securely and flush within the door frame, in a color closely matching the door frame, and in a manner that does not expose wiring to view.

4. Security Contractor shall ensure all door contacts are supervised with End-of-Line resistors installed at the contacts.

5. Security Contractor shall ensure all overhead door contacts are normally-closed (N/C), DPDT, heavy-duty, floor-mounted units with armored cable to the nearest junction box.

3.02 INTRUSION DETECTION SYSTEM

A. Where physical intrusion detection systems or devices are indicated in referenced construction documents, Security Contractor shall comply with the provisions of this section and Division 28 00 00, Part 3.

B. Security Contractor shall furnish all labor, materials, tools, equipment, and services necessary to install, modify as required, integrate, program and configure all physical intrusion detection components into Owner's access control solution and IDS, if existing.

C. Security Contractor coordinate with UTP-H to connect intrusion sensors to inputs in Owner's ACS panels, and audio/visual alarms to outputs in Owner's ACS panels.

D. Keypads and Arming/Disarming Reader Installation and Configuration

1. Security Contractor shall provide and install new or connect to existing keypads and/or card readers, as specified herein, in the quantity and locations indicated in referenced construction documents.

2. Security Contractor shall configure connected keypads and card readers to arm, disarm, and perform other specified operational commands on the ACS.

E. Motion Detectors, All Technologies Installation and Configuration

1. Security Contractor shall provide and install dual-technology (PIR/Microwave) motion detectors, as specified herein, in the quantity and locations indicated in referenced construction documents.

2. Security Contractor shall install motion detector devices in a point-to-point configuration: one device to one input. Zoning or series-connectivity of any intrusion sensor shall require the approval of UTP-H RPS.

3. Security Contractor shall closely coordinate with UTP-H to configure and tune motion detection devices to obtain optimal detection capability.

F. Sensors, General Installation and Configuration

1. Security Contractor shall install only hard-wired intrusion sensors and components unless specifically approved by UTP-H RPS.

G. Switches, Tamper Installation and Configuration

1. Security Contractor shall provide (if not integrated into devices), install and configure tamper switches on access control panels, power distribution units, APS units, RM enclosures in Security Sensitive Areas, and in other quantities and locations indicated in referenced construction documents.

2. Security Contractor shall install all tamper switches in a manner that precludes access to the switch without activating it.

3. Security Contractor shall install tamper switches in a point-to-point configuration: one device to one input. Zoning or series-connectivity of any intrusion sensor shall require the approval of UTP-H RPS.

3.03 SECURITY-RELATED NOTIFICATION/COMMUNICATION DEVICES

A. Where security-related notification/communication devices are indicated in referenced construction documents, Security Contractor shall comply with the provisions of this section and Division 28 00 00, Part 3.

B. Security Contractor shall furnish all labor, materials, tools, equipment, and services necessary to install, modify as required, integrate, program and configure all security-related notification/communication devices.

C. Buttons, Duress/Panic Installation and Configuration

1. Security Contractor shall provide and install concealed duress buttons, as specified herein, in the quantity and locations indicated in the referenced construction documents *and in close coordination with UTP-H RPS.*

D. Intercoms, Audio

1. Security Contractor shall provide and install audio intercoms, as specified herein, in the quantity and locations indicated in referenced construction documents.

E. Intercoms, Audio/Video

1. Security Contractor shall provide and install audio/video intercoms, as specified herein, in the quantity and locations indicated in referenced construction documents.

F. Pull Stations, Duress/Panic (blue)

1. Security Contractor shall provide and install blue, duress/panic pull stations, as specified herein, in the quantity and locations indicated in referenced construction documents.

G. Telephones, Blue Emergency

1. Security Contractor shall provide and install emergency telephones, as specified herein, in the quantity and locations indicated in referenced construction documents.

H. Telephones, Entry (direct dial and multi-line) Installation and Configuration

1. Security Contractor shall provide and install telephone entry devices, as specified herein, in the quantity and locations indicated in referenced construction documents.

2. Security Contractor shall program Relay 1 for activation of device (future alarm call up capability).

3. Security Contractor shall program Relay 2 for door release through an input on Owner's ACS solution.

4. Security Contractor shall coordinate with Owner to program all phone numbers, sequence and naming of phone lines, and digital display content.

5. Security Contractor shall flush-mount all telephone units to the mounting surface, unless otherwise approved by UTP-H RPS.

END OF SECTION 28 10 00

SECTION 28 20 00 – ELECTRONIC SAFETY AND SECURITY

PART 1 - GENERAL

1.01 OVERVIEW

A. This Specification provides direction to ESS Integrators (Security Contractors) for all Video Management Systems (VMS) work performed under Division 28 for the University of Texas MD Anderson Cancer Center and the University of Texas Health Science Center at Houston, both referred to herein as “Institution” or “Institutional.”

B. All Security Contractors and their subcontractors shall comply with this Specification when performing VMS work for the Institution under Division 28, Electronic Safety and Security.

C. The University of Texas Police at Houston (UTP-H) administers this Specification, and UTP-H is solely responsible for its additions, revisions, updates, corrections, deletions and clarifications.

D. This Specification is the “project specification” for all Division 28 VMS work for the Institution, and may include any or all the following Construction Documents (CDs):

1. Floor plans.

2. Elevation plans.

3. Riser Diagrams.

4. Component Detail Drawings.

5. Component schedules, parts lists, or bills of materials (BOMs).

6. Other project-specific, supporting documentation issued by the Institution or its representative.

E. This Specification shall not be replaced, omitted or superseded for any Institutional project that includes VSS work, except as approved by UTP-H. In cases of a conflict between this Specification and other documents, this Specification shall prevail, except as approved by UTP-H.

1.02 REFERENCE DOCUMENTS

Refer to Division 28 00 00 Electronic Safety and Security.

1.03 SECURITY CONTRACTOR QUALIFICATIONS

Refer to Division 28 00 00 Electronic Safety and Security.

1.04 DEFINITIONS

Refer to Division 28 00 00 Electronic Safety and Security.

1.05 QUALITY ASSURANCE

Refer to Division 28 00 00 Electronic Safety and Security.

1.06 SUBMITTALS

Refer to Division 28 00 00 Electronic Safety and Security.

1.07 DELIVERY, STORAGE AND HANDLING

Refer to Division 28 00 00 Electronic Safety and Security.

1.08 EXTRA MATERIALS

Refer to Division 28 00 00 Electronic Safety and Security.

1.09 WARRANTY

Refer to Division 28 00 00 Electronic Safety and Security.

PART 2 - PRODUCTS

2.01 GENERAL

A. Refer to Division 28 00 00 Electronic Safety and Security.

2.02 VIDEO MANAGEMENT SYSTEM (VMS)

A. VMS Solution

1. Note: The Owner's VMS solution is an Internet Protocol (IP) – based video system utilizing digital/IP and encoded analog cameras recorded across a network of digital video recorders (DVRs) and network video recorders (NVRs).

2. Note: The Owner's VMS DVR or NVR's head-end location shall not be assumed to be in the same building as any specific Project; coordinate closely with UTP-H to determine communication parameters for the provided or installed VMS components.

3. Note: Where practical, and as a preferred solution, Owner's IP megapixel network cameras and analog encoder devices, utilize Power over Ethernet (PoE) via Owner-provided, PoE-enabled network switches.

4. Note: Security Contractor shall contact UTP-H for latest software version/build identification.

5. Required: Security Contactor shall coordinate closely with UTP-H to determine which of the following VMS solutions is applicable to this Project.

a. Avigilon Control Center

1) Security Contractor shall contact UTP-H on an individual project basis to determine if NVR's shall be required to be provided by the Security Contractor or provided by Owner.

2) Security Contractor shall coordinate closely with UTP-H to determine specific Avigilon licenses required, if any; these include, but are not limited to, ACC7-ENT, ACC7-LPR, ACC7-ENT-FO and ACC7-ENT-10C Avigilon licenses.

B. Cameras, General Requirements

1. All security cameras shall be Avigilon IP cameras as identified by application in this Specification.

2. All wall-mounted cameras shall be pendant mount, unless otherwise approved by UTP-H

3. All exterior camera domes shall be smoke domes.

4. All exterior cameras shall include weather resistant housing installed according to manufacturer's specifications.

C. Cameras, Dome, Interior, General Coverage

1. In-ceiling (ceiling tile):

a. Required: Avigilon H5A Series 4.0C-H5A-DC1-IR (4MP, WDR, IR, 3.3-9mm lens)

b. Alternate (upon request by UTP-H): Avigilon H5A Series 8.0C-H5A-DC1-IR (8MP, WDR, IR, 4.9-8mm lens)

2. Surface mount (hard ceiling):

a. Required: Avigilon H5A Series 4.0C-H5A-D1-IR (4MP, WDR, IR, 3.3-9mm lens)

b. Alternate (upon request by UTP-H): Avigilon H5A Series 8.0C-H5A-D1-IR (8MP, WDR, IR, 4.9-8mm lens)

D. Cameras, Dome, Exterior, General Coverage

1. Surface mount (ceiling)

a. Required: Avigilon H5A Series 8.0C-H5A-DO1-IR (8MP, WDR, IR, 4.9-8 mm lens)

b. Required Dome: Avigilon smoke dome, H4A-DO-SMOK1

2. Pendant mount (wall)

a. Required: Avigilon H5A Series 8.0C-H5A-DP1-IR (8MP, WDR, IR, 4.9-8 mm lens)

b. Required: Avigilon smoke dome, H4A-DO-SMOK1

c. Required: Avigilon indoor/outdoor pendant wall arm mount, H4A-MT-WALL1

3. Pole mount

a. Required: Avigilon H5A Series 8.0C-H5A-DP1-IR (8MP, WDR, IR, 4.9-8 mm lens)

b. Required: Avigilon smoke dome, H4A-DO-SMOK1

c. Required: Avigilon indoor/outdoor pendant wall arm mount, H4A-MT-WALL1

d. Required: Avigilon aluminum pole mount bracket for pendant dome cameras, H4-MT POLE1

E. Cameras, Dome, Interior, Special, Panoramic View (panoramic requires UTP-H approval)

1. In-ceiling (ceiling tile)

a. 180-degree view

1) Required: Avigilon 15C-H4A-3MH-180 (3x5MP, WDR, 4mm, camera only)

2) Required: Avigilon in-ceiling adapter, H4AMH-AD-CEIL1

3) Required: Avigilon IR illuminator ring, H4AMH-AD-IRIL

4) Required: Avigilon clear dome and cover, H4AMH-DC-COVR1

b. 270-degree view

1) Required: Avigilon 15C-H4A-3MH-270 (3x5MP, WDR, 2.8mm, camera only)

2) Required: Avigilon in-ceiling adapter, H4AMH-AD-CEIL1

3) Required: Avigilon IR illuminator ring, H4AMH-AD-IRIL

4) Required: Avigilon clear dome and cover, H4AMH-DC-COVR1

c. 360-degree view

1) Required: Avigilon 20C-H4A-4MH-360 (4x5MP, WDR, 2.8mm, camera only)

2) Required: Avigilon in-ceiling adapter, H4AMH-AD-CEIL1

3) Required: Avigilon IR illuminator ring, H4AMH-AD-IRIL

4) Required: Avigilon clear dome and cover, H4AMH-DC-COVR1

2. Surface mount (hard ceiling)

a. 180-degree view

1) Required: Avigilon 15C-H4A-3MH-180 (3x5MP, WDR, 4mm, camera only)

2) Required: Avigilon outdoor surface mount adapter, H4AMH-AD-DOME1

3) Required: Avigilon IR illuminator ring, H4AMH-AD-IRIL

4) Required: Avigilon clear dome and cover, H4AMH-DC-COVR1

b. 270-degree view

1) Required: Avigilon 15C-H4A-3MH-270 (3x5MP, WDR, 2.8mm, camera only)

2) Required: Avigilon outdoor surface mount adapter, H4AMH-AD-DOME1

3) Required: Avigilon IR illuminator ring, H4AMH-AD-IRIL

4) Required: Avigilon clear dome and cover, H4AMH-DC-COVR1

c. 360-degree view

1) Required: Avigilon 20C-H4A-4MH-360 (4x5MP, WDR, 2.8mm, camera only)

2) Required: Avigilon outdoor surface mount adapter, H4AMH-AD-DOME1

3) Required: Avigilon IR illuminator ring, H4AMH-AD-IRIL

4) Required: Avigilon clear dome and cover, H4AMH-DC-COVR1

F. Cameras, Dome, Exterior, Special, Panoramic View (panoramic requires UTP-H approval)

1. Surface mount

a. 180-degree view

1) Required: Avigilon 24C-H4A-3MH-180 (3x8MP, WDR, 4mm, camera only)

2) Required: Avigilon outdoor surface mount adapter, H4AMH-AD-DOME1

3) Required: Avigilon IR illuminator ring, H4AMH-AD-IRIL

4) Required: Avigilon smoke dome and cover, H4AMH-DC-COVR1-SMOKE

5) Alternate (requires UTP-H approval): Avigilon clear dome and cover, H4AMH-DC-COVR1

b. 270-degree view

1) Required: Avigilon 24C-H4A-3MH-270 (3x8MP, WDR, 5.2mm, camera only)

2) Required: Avigilon outdoor surface mount adapter, H4AMH-AD-DOME1

3) Required: Avigilon IR illuminator ring, H4AMH-AD-IRIL

4) Required: Avigilon smoke dome and cover, H4AMH-DC-COVR1-SMOKE

5) Alternate (requires UTP-H approval): Avigilon clear dome and cover, H4AMH-DC-COVR1

c. 360-degree view

1) Required: Avigilon 32C-H4A-4MH-360 (4x8MP, WDR, 5.2mm, camera only)

2) Required: Avigilon outdoor surface mount adapter, H4AMH-AD-DOME1

3) Required: Avigilon IR illuminator ring, H4AMH-AD-IRIL

4) Required: Avigilon smoke dome and cover, H4AMH-DC-COVR1-SMOKE

5) Alternate (requires UTP-H approval): Avigilon clear dome and cover, H4AMH-DC-COVR1

2. Pendant wall mount

a. 180-degree view

1) Required: Avigilon 24C-H4A-3MH-180 (3x8MP, WDR, 4mm, camera only)

2) Required: Avigilon outdoor pendant mount adapter, H4AMH-AD-PEND1

3) Required: Avigilon pendant wall arm adapter, IRPTZ-MNT-WALL1

4) Required: Avigilon IR illuminator ring, H4AMH-AD-IRIL

5) Required: Avigilon clear dome and cover, H4AMH-DC-COVR1

6) Alternate (if no IR ring and approved by UTP-H): Avigilon smoke dome and cover, H4AMH-DC-COVR1-SMOKE

b. 270-degree view

1) Required: Avigilon 24C-H4A-3MH-270 (3x8MP, WDR, 5.2mm, camera only)

2) Required: Avigilon outdoor pendant mount adapter, H4AMH-AD-PEND1

3) Required: Avigilon pendant wall arm adapter, IRPTZ-MNT-WALL1

4) Required: Avigilon IR illuminator ring, H4AMH-AD-IRIL

5) Required: Avigilon clear dome and cover, H4AMH-DC-COVR1

6) Alternate (if no IR ring and approved by UTP-H): Avigilon smoke dome and cover, H4AMH-DC-COVR1-SMOKE

c. 360-degree view

1) Required: Avigilon 32C-H4A-4MH-360 (4x8MP, WDR, 5.2mm, camera only)

2) Required: Avigilon outdoor pendant mount adapter, H4AMH-AD-PEND1

3) Required: Avigilon pendant wall arm adapter, IRPTZ-MNT-WALL1

4) Required: Avigilon IR illuminator ring, H4AMH-AD-IRIL

5) Required: Avigilon clear dome and cover, H4AMH-DC-COVR1

6) Alternate (if no IR ring and approved by UTP-H): Avigilon smoke dome and cover, H4AMH-DC-COVR1-SMOKE

3. Specialty pendant mount

a. Required: Avigilon aluminum pole-mounting bracket for H4 pendant cameras, H4-MT-POLE1

b. Required: Avigilon aluminum corner-mounting bracket for H4 pendant cameras, H4-MT-CRNR1

G. Cameras, Specialized, Advanced Features (requires UTP-H approval)

1. Pan-tilt-zoom (PTZ)

a. Note: Installation of PTZ cameras shall require UTP-H approval

b. Note: PTZ cameras are utilized by the Institution as live-view and inspection camera, and are not intended to be recorded unless approved by UTP-H

c. Note: Security Contractor shall contact UTP-H for required PTZ part number

2. Fisheye (low profile, single lens, 360-degree view, fixed iris)

a. Note: Installation of fisheye cameras shall require UTP-H approval

b. Note: Fisheye cameras are utilized by the Institution for overhead, 360-degree monitoring and recording of a specific device, equipment or space

c. Note: Security Contractor shall contact UTP-H for required fisheye part number

3. Outdoor bullet camera

a. Note: Installation of outdoor bullet cameras shall require UTP-H approval

b. Note: Outdoor bullet cameras are utilized by the Institution for specialized, exterior applications in which wall- or pole-mounted, fixed camera coverage is desired

c. Note: Outdoor bullet cameras shall be used for license plate recognition (LPR) applications unless otherwise specified or approved by UTP-H

d. Note: All outdoor bullet cameras shall include sun shrouds unless otherwise specified or approved by UTP-H

e. Note: Security Contractor shall contact UTP-H for required outdoor bullet camera part number

H. Network Video Recorders

1. Required: Avigilon AINVR-PRM-PLUS-96TB-NA (AI NVR Premium+ 96 TB with ACC)

2. Required: Avigilon IDRAC9-ENT-UPG (iDRAC Enterprise upgrade)

I. Wire and Cable, General

1. Note: Institutional standard network drops and cabling shall be provided by others.

2. Note: Network patch cables shall be provided by others

PART 3 - EXECUTION

3.01 VIDEO MANAGEMENT SYSTEM (VMS)

A. Where VMS components are indicated in Construction Documents, Security Contractor shall comply with the provisions of this section and Division 28 00 00, Part 3.

B. Security Contractor shall furnish all labor, materials, tools, equipment, and services necessary to install, modify as required, integrate, program and configure all VMS components into Owner's VMS solution.

C. Owner shall provide network, POE switches, IP addresses, and NAC exemptions.

D. Camera Installation and Configuration

1. Security Contractor shall provide and install video cameras, as specified herein, in the quantity and locations indicated in Construction Documents.

2. Prior to camera installation:

a. Security Contractor shall field-verify the exact location, position and mounting of each camera with the architect/design team and UTP-H

b. Security Contractor shall work with UTP-H to determine specific camera names based on the camera fields-of-view (FOV) and note utilize these names on the FPT (Functional Performance Test)

c. Security Contractor shall field-verify and confirm camera fields-of-view (FOV) with UTP-H and shall adjust camera positions and lens requirements as necessary to achieve the Owner's desired FOV.

3. During camera installation:

a. Security Contractor shall ensure network patch cable from the camera is properly secured in accordance to Institutional network cabling requirements.

4. Following camera installation:

5. Security Contractor shall aim and focus camera on site, with UTP-H guidance, to achieve required views

a. Security Contractor shall use a microfiber cloth to clean the exterior and interior of the camera dome

b. UTP-H shall configure and route all cameras, and analog encoders, upon verified completion of the above items by Security Contractor.

E. NVR Installation and Configuration

1. Security Contractor shall provide and install NVRs as specified herein and verified with UTP-H, in the quantity and locations indicated in Construction Documents.

2. Security Contractor will work with UTP-H to coordinate install location(s) and device naming conventions for labeling.

3. Security Contractor shall adhere to equipment installation and cabling requirements specified in Division 27 within the Data Center environments.

END OF SECTION 28 20 00