

## 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- E. This Specification shall not be replaced, omitted or superseded for any Institutional project that includes VSS work, except as approved by UTP-H. In cases of a conflict between this Specification and other documents, this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: 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 shall be 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, unless specifically approved by UTP-H.
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 (hardware): Avigilon AINVR-PRM-PLUS-96TB-NA (AI NVR Premium+ 96 TB with ACC)
- 2. Required (license): 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
- 3. Required: Utilization of POE extenders, POE-over-Coax adapters, and POE-over-Twisted Pair adapters shall be utilized only by approval of UTP-H on a case-by-case basis and shall be manufactured by Veracity.
  - a. Security Contractor shall contact UTP-H for guidance.

## 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. Refer to Design Element D5038 of Owner's Design Guidelines for specific guidance on camera positioning.
  - 3. 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.
  - 4. During camera installation:
    - a. Security Contractor shall ensure network patch cable from the camera is properly secured in accordance to Institutional network cabling requirements.
  - 5. Following camera installation:
  - 6. 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**