SECTION 28 0528 - PATHWAYS FOR ELECTRONIC SAFETY AND SECURITY

These specifications provide basic minimum criteria to be met in preparing the final specifications for this Section, which is the responsibility of the Designer. Revise this Section by deleting and inserting text to meet Project-specific requirements.

Maintain Section format, including the UH Master Spec designation and version date in bold in the center columns in the header and footer. Complete the header and footer with Project information.

Designer is required to adhere to the University's "Electronic Access Control Design Guide" and "Network Infrastructure Design Standards" available in Owner's Design Guidelines on the Facilities Planning and Construction web site.

This Section uses the term "Architect" or "Engineer." Change this term to match that used to identify the design professional as defined in the General and Supplementary Conditions.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

Delete hidden text after this Section has been edited for the Project.

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification sections, apply to work of this Section.

B. The Contractor's attention is specifically directed, but not limited, to the following documents for additional requirements:

1. The current version of the *Uniform General Conditions for Construction Contracts*, State of Texas, available on the web site of the Texas Facilities Commission.
2. The University of Houston's Supplemental General Conditions and Special Conditions for Construction.

1.2 SECTION INCLUDES

A. Interior communications pathways and supports.

B. Outlets and conduit runs.

C. Grounding and bonding of pathways.

D. Pathway fire stopping requirements.

1.3 SUMMARY

A. This Section specifies the requirements for the pathways for electronic safety and security systems.

B. Work furnished and installed by the Contractor as specified in this Section and as shown in Drawings includes:

1. Proper installation of pathway for Electronic Access Control, Intrusion Detection and Surveillance End Devices.
2. Procurement and installation of Security-specific hardware related to pathway installation.
3. Documentation of pathway for use in As-Built drawings.

PART 2 - PRODUCTS

2.1 GENERAL

A. Install composite Electronic Access Control cabling in conduit from each door to Security Room. More than one door may share conduit pathway provided labeling is clear and 40 percent fill ratios are not exceeded.

B. Install the conduit pathway in the most direct route possible from the Security Room to the device location.

C. Install pathway for IP-based cameras or card readers per Section 27 0528 “Pathways for Communications.”

D. Use factory-manufactured sweeps that meet ANSI/TIA569 bend radius requirements for all security conduit.

E. Locate junction boxes in serviceable space.

F. Looping, or “daisy-chaining,” of conduits between outlet boxes is not allowed.

2.2 CONDUITS AND FITTINGS

A. Size all conduit to allow for 25 percent growth in cabling.

B. Install plastic bushings at conduit ends before pulling cable into the conduit.

C. Do not run conduits next to hot water lines, steam pipes, or other utilities that may present a safety hazard or cause a degradation of system performance.

D. Locate conduits entering the Security Room to allow for the most flexibility in the routing and racking of cables.

E. Terminate conduits or conduit sleeves entering through the floor of the Security Room at four inches above the finished floor.

F. Bond all metallic security conduits entering the Security Room, Equipment Room, or Entrance Facility together, and to the room's Grounding Busbar with a #6 AWG ground cable.

G. Seal all in-use and spare conduits entering the Security Room, Equipment Room, or Entrance Facility to prevent the intrusion of water, gasses, and rodents.

H. Provide firestopping for all conduits and cables that penetrate fire rated walls or floors. Label each penetration with a UL tag. Comply with requirements of Section 07 8413 "Penetration Firestopping."

I. Install pull lines rated at a minimum of 90 kg (200 lb) pulling tension in Outside Plant (OSP) conduits. Re-pull the pull lines each time an additional cable is installed.

J. Prior to releasing the conduit for the installation of cables, clean all OSP conduits with a brush pulled through the conduit at least two times in the same direction and swabbed with clean rags until the rag comes out of the conduit clean and dry.

2.3 INTERIOR PATHWAYS

A. Pull boxes used with security conduits in interior locations shall be rated NEMA-1.

B. Pull boxes used in damp or wet locations such as plumbing chases or outdoors shall be rated NEMA-3R.

C. Install pull boxes in conduit runs at intervals no greater than every 100 feet.

D. Install an appropriately sized pull box whenever there are two 90°sweeps, or a total of 180°of sweeps, in a conduit run.

E. Any deviations from these criteria must have prior written approval from Owner's Project Manager and Electronic Access Control and Campus Safety Representatives.

PART 3 - EXECUTION

3.1 SUMMARY

A. Install composite Electronic Access Control cable pathways separate from power and IT pathways.

B. Route conduit system inside ceilings, floors, and walls to the greatest extent possible. Avoid installation of surface-mounted conduit wherever possible.

C. For ground floor slab-on-grade constructed buildings, route conduit in walls and ceilings where possible. Where not possible, route conduit under-slab, directly from the device to the Security Room.

D. Provide minimum 3/4 inch conduit to door rough-in device locations.. All other locations shall have a minimum of 1 inch conduit. Increase the conduit size as necessary for the quantity of cables to be installed.

E. Maintain minimum pathway separation distances from power as listed below:

1. 480V or greater: minimum 10 feet.
2. Large electrical motors or transformers: minimum 14 feet.
3. Lightning protection system conductors (NEC 800-13): minimum 6 feet.
4. Less than 480V: minimum 2 feet.
5. Fluorescent lighting: minimum 5 inches in perpendicular direction; 12 inches in parallel direction.
6. For branch circuits (secondary) power (120/240V, 20A) where electric light or power circuits coexist with security cabling: minimum 2 inches.

3.2 CLOSEOUT DOCUMENTS

A. Provide As-Built Drawings in .dwg, .rvt and .pdf formats showing installed pathway routing and junction box locations for all security devices.

END OF SECTION 28 0528