SECTION 272133

DATA COMMUNICATIONS – WIRELESS ACCESS POINTS

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**NOTE TO SPECIFIER**

*Use this Specification Section for Mail Processing Facilities.*

***This is a Type 3 Specification with primarily required text; therefore, most of the text cannot be edited, but there is editable text which is noted within the Section with a “Note to Specifier.” Do not revise the required paragraphs without an approved Deviation from USPS Headquarters, Facilities Program Management, through the USPS Project Manager.***

*For Design/Build projects, do not delete the Notes to Specifier in this Section so that they may be available to Design/Build entity when preparing the Construction Documents.*

*For the Design/Build entity, this specification is intended as a guide for the Architect/Engineer preparing the Construction Documents.*

*The MPF specifications may also be used for Design/Bid/Build projects. In either case, it is the responsibility of the design professional to edit the Specifications Sections as appropriate for the project.*

*Text shown in brackets must be modified as needed for project specific requirements.* *See the “Using the USPS Guide Specifications” document in Folder C for more information.*

*The last date that USPS revised this standard specification section occurs in two places, at the end of this section and in the Table of Contents. If the date in this section matches the date in the Table of Contents, then you are using the latest version. Do not delete or revise the “last revised” date at the end of the section during the development of the Project Manual.*

*The footer in this section should be edited to replace the text, “USPS MPF SPECIFICATION” with the project name, and the blank date in the center should be replaced with the submission date, for interim design reviews, or the issue date of the completed Project Manual.*

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1. GENERAL
	1. SUMMARY
		1. Section includes the following:
			1. This section specifies requirements for the design/layout, and installation of Telecommunications outlets (T/Os) that are to serve IEEE 802.11 wireless access points (WAPs).

* + 1. Related Documents:
			1. The Contract Documents, as defined in Section 011000 - Summary of Work, apply to the Work of this Section.
			2. USPS Structured Cabling System Best Practices, 01 October 2022.
			3. Additional requirements and information necessary to complete the Work of this Section may be found in other Documents.
		2. Related Sections:
			1. Section 078400 – Fire stopping.
			2. Section 270500 – Common Work Results for Communications.
			3. Section 271100 – Communications Equipment Room Fittings.
			4. Section 271300 – Communications Backbone Cabling.
			5. Section 271500 – Communications Horizontal Cabling.
	1. REFERENCES
		1. Specified in Section 270500 – Common Work Results for Communications.
	2. DESIGN REQUIREMENTS
		1. Coverage areas
			1. All building spaces shall have full “Workroom” and “Administrative” area coverage for currently supported Wi-Fi standards. This includes 802.11a/g/n/ac.
			2. Coordinate with Raleigh Telecom Service Wireless Team during design for indoor and outdoor locations.
		2. Identification on drawing floor plans
			1. Single telecommunications outlets (T/Os) for WAPs shall have a distinct symbol on the drawings; preferably a number 30 orange dot.
		3. Cabling infrastructure
			1. Each Telecommunications outlet (T/O) for a WAP is to be served by one category 6A cable terminated with an 8P8C connector onto a category 6A Copper Patch Panel.
			2. Cable locations/mounting shall be designed in the administrative areas for below ceiling and flush mounted WAPs. Any exceptions, such as high-density locations, require review by USPS before installation.
		4. Power requirements: All USPS WAP’s utilize PoE (Power over Ethernet). No power outlets (120 Volt) are required to support wireless access points.
	3. SUBMITTALS
		1. The following submittals are due at the Pre-Construction Phase, in accordance with submittal requirements in Section 270500 – Common Work Results for Communications.
			1. Shop Drawings:
				1. Provide scaled drawings (not less than 1/8 inch = 1 foot) indicating location of category 6A telecommunications outlets (T/O’s) for the WAPs and locations of all pull points. These locations shall be coordinated with all other trades.
		2. The following submittals are due Post-Construction, in accordance with the submittal requirements in Section 270500 – Common Work Results for Communications:
			1. Record Drawings.
				1. Provide scaled AutoCAD and PDF drawings (not less than 1/8 inch = 1 foot) indicating actual location of communications outlets for the WAPs, as well as the actual installed routing of cable, conduits and locations of all pull points. Design or shop drawings with field notes will not be accepted.
1. PRODUCTS
	1. GENERAL
		1. USPS Raleigh Telecom Services Wireless Team will provide the WAPs and related equipment (PoE switches, patch cables, controllers).
		2. Typically used WAP models are 802.11ac capable and operate on a 2.4GHz & 5 GHz radio frequency operating mode.
		3. Work Room Floor mounting:
			1. Provide Truss Mounted WAP mount utilizing a minimum 3/4-inch EMT steel conduit stem supported from structure using Uni-Strut, channels and dedicated single category 6A, telecommunication outlet, mounted 12 feet AFF.
			2. Do not mount any WAP higher than 12 feet AFF without prior approval from USPS.
				1. If mounting height requires conduit stems greater than 4 feet long, then additional bracing shall be required. Stems longer than 10 feet shall utilize 1-1/2 inch diameter, rigid aluminum, type IMC, threaded conduit stems.
				2. The “WAP” is factory equipped with a low profile, mounting bracket (Cisco #AIR-AP-BRACKET-1).
		4. Acoustic ceiling tile grid mounting:
			1. The mounting bracket and ceiling grid clip assembly for ceiling tile grid mounted WAP’s are factory furnished as part of the WAP.
				1. WAP’s to be installed in acoustic ceiling tile grids require a dedicated single, category 6A, telecommunications outlet.
				2. The “WAP” is factory equipped with a universal, mounting bracket and ceiling grid clip assembly.
2. EXECUTION
	1. EXAMINATION
		1. Section 017300 - Execution: Verification of existing conditions before starting work.
		2. Verification of Conditions: Verify that field measurements, surfaces, substrates, and conditions are as required, and ready to receive Work.
	2. GENERAL
		1. Exposed structure mounting:
			1. Mount WAPs at 12 feet AFF on the Work Room Floor via 3/4-inch minimum Conduit stems supported from structure utilizing Uni-strut channels. See USPS Structured Cabling System Best Practices for WAP mounting examples.
				1. WAP’s are normally mounted at 12 feet AFF within the workroom, except immediately around FSS machines where the WAP’s are mounted no lower than 16 feet AFF.
				2. Secure WAP to its mount using supplied locking key and tie-wrap fastened through the security hasp.
		2. Acoustic ceiling tile grid mounting:
			1. WAP’s to be installed in acoustic ceiling tile grids require a single, category 6A, telecommunications outlet securely mounted above the accessible ceiling located within 2 feet of the WAP.
			2. Secure WAP to its mount using locking key and tie-wrap fastened through the security hasp.

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**NOTE TO SPECIFIER**

Refer to standard detail G5-4-3b for acoustic ceiling tile grid mounting provisions. Pay close attention to the "Notes to A/E" associated with this detail. Be sure to include the applicable detail in the project drawing set.

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* + 1. Utilize a 3-foot long white colored, category 6A, copper patch cord. Patch the WAP into the port of the single T/O and into the PoE port (not console port) of the WAP. Contractor shall fill out all needed spreadsheet documentation and submit to USPS Raleigh IT. This includes MAC address, Workroom floor location, port WAP is patched to, CCR/TR/TE connected to, etc. Raleigh IT SME will provide needed Spreadsheet with required formatting.
		2. All WAP’s shall be mounted with the PoE port and console ports oriented as close as possible to the “true north” direction for optimal GPS map reading.
		3. WAP’s are furnished by Raleigh Telecom Services Wireless Team and installed by the Contractor. The Contractor shall install and complete the necessary mounting assemblies prior to the attachment of the WAP’s.
		4. Wireless Spectrum Survey shall be performed by the Raleigh Wireless Team after installation to validate the wireless design.
	1. CABLE PATHWAYS
		1. Coordinate all cable pathway routes with other building services (electrical, mechanical, plumbing, etc.) to assure proper clearances and accessibility. Coordinate the cable pathway routes with the electrical distribution system. Where electrical and telecommunications cabling cross, it must be at right angles only. Avoid long runs of telecommunications cable in close proximity to parallel runs of electrical power cable. Maintain a minimum one foot separation between power and communications cables when running in parallel to power cables unless both power and communications cables are in conduit. Distribution of telecommunications cabling must conform to TIA-568-C and TIA-569-B. Install all telecommunications conduit with sweeping 90 degree bends; no LBs must be accepted unless approved by USPS design engineer.
		2. Install the majority of the structured cabling system above ceilings without conduit. All communications cabling used throughout this project must comply with the requirements as outlined in the National Electric Code (NEC) article 725. All cabling must bare CMP and/or appropriate markings for the environment in which they are installed. Interior cabling shall be CMP plenum rated. Refer to requirements of section 270500.
		3. Cabling routed underground, exterior of the building, or through inaccessible ceilings must be contained in conduit. Cabling within exposed workroom areas, not routed within cable trays, must be contained within conduit raceways (3/4 inch minimum). Provide 3/4 inch conduit risers (minimum) with 90 degree bends and bushings.

END OF SECTION

USPS MPF Specification Last Revised: 10/1/2022