SECTION 271100 - COMMUNICATION RACEWAY SYSTEM

PART 1 - GENERAL

1.1 WORK INCLUDES

A. Contractor Provide:

1. Communication device backboxes (dimensions / height as indicated on plans).
2. Cable supports and Low-Voltage J-Hooks in accessible ceilings.
3. Telecommunications Terminal Board.
4. Telecommunications Ground Bar.

1.2 RELATED SECTIONS

A. Section 260526 – Grounding and Bonding for Electrical Systems.

B. Section 260529 – Hangers & Supports for Electrical Systems.

C. Section 260533 – Raceway and Boxes for Electrical Systems.

D. Section 260553 – Identification for Electrical Systems.

E. Section 262726 – Wiring Devices.

1.3 REFERENCES

A. NFPA 70 (2011) – National Electrical Code (NEC).

B. TIA 569-A (2004) – Commercial Building Standard for Telecommunications Pathways & Spaces.

1.4 COORDINATION

A. Coordinate layout and installation of cable tray with other installations.

1. Revise locations and elevations from those indicated as required to suit field conditions and as approved by A/E.
2. Storage and Handling: Avoid breakage, denting and scoring finishes. Damaged products will not be installed. Store cable trays and accessories in original cartons and in clean dry space; protect from weather and construction traffic. Wet materials will be unpacked and dried before storage.

1.5 SUBMITTALS

A. Submit shop drawings and product data under provisions of Division One specifications.

B. Shop Drawings: Submit shop drawings indicating materials, finish, dimensions, accessories, layout, supports, splices, and installation details.

C. Design Calculations: Verify loading capacities for supports.

D. Coordination Drawings: Include floor plans and sections drawn to scale. Include scaled cable tray layout and relationships between components and adjacent structural and mechanical elements. Data presented on these drawings are as accurate as preliminary surveys and planning can determine. Field verification of all dimensions, routing, etc., is directed.

1.6 PROJECT RECORD DOCUMENTS

A. Submit project record documents under provisions of Division One specifications.

B. Accurately record location of outlets and boxes, cable supports, and routing of raceway.

C. All closeout documents (Record Construction, O&M Manuals, Warranty documents and Testing Reports, as necessary) shall be furnished to the A/E in electronic format.

1.7 OPERATION AND MAINTENANCE MANUALS

A. Submit all data under provisions of Division One specifications.

B. Operation Data: Include instructions for adjusting and operating the system.

C. Maintenance Data: Include repair procedures and spare parts documentation.

D. Each Operations and Maintenance manual will include original manufacturer's equipment specification sheets for all equipment installed on this project. The manuals will be tabulated for quick reference between installed equipment cuts, equipment settings, operations data and maintenance data.

PART 2 - PRODUCTS

2.1 COMMUNICATION DEVICE BACKBOXES

A. Sheet Metal Outlet Boxes: ANSI/NEMA OS 1, galvanized steel. Boxes shall be dimensioned as indicated on drawings with cover as needed. Deep masonry type boxes shall be used in masonry walls. Provide coverplate (with finish matching adjacent wiring devices) at every box. See section 260534 for additional information.

2.2 LOW VOLTAGE J-HOOKS

A. Description: Pre-galvanized steel cable hook designed for support of low voltage cabling. Provide appropriate cable hook configuration for location installed.

B. Size: 2" and 4" as required to accommodate cabling to be installed plus 50% spare.

C. Hooks shall be supported from structural elements with minimum two (2) mechanical fasteners (screw or anchor). Devices designed for friction-fit attachment are not acceptable.

D. J-Hooks shall only be used above accessible ceilings, and shall be installed no greater than every 6'-0" on-center and 18" from each wall partition.

2.3 TELECOMMUNICATIONS (OR SYSTEMS) TERMINAL BOARD

A. Material: Plywood, treated or painted with fire resistive paint.

B. Size: 4’ x 8’ x 3/4” thick, in quantity as indicated on drawings.

2.4 TELECOMMUNICATIONS GROUND BAR

A. Busbar assembly shall include mounting brackets and fasteners (stainless steel construction), all necessary lock and flat washers, and insulators.

B. Hole patterns on busbars shall accommodate two-hole lugs per the recommendation of BICSI and ANSI 607-A standards.

C. Grounding Busbar shall be UL listed and approved by BICSI/TIA.

D. Ground bars identified as Main Ground Bars (“TMGB”) shall be 4”h x 20”l; Branch Ground Bars (“TGB”) shall be 2”h x 12”l (both 1/4” in thickness). Provide the appropriate lug kits for each type of bar.

E. Provide all insulated grounding conductors as indicated on drawings (minimum #6AWG).

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that surfaces are ready to receive work.

B. Verify that field measurements are as shown on Drawings.

C. Beginning of installation means installer accepts existing conditions.

D. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of cable trays. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Support raceways, backboards, and cabinets under the provisions of Section 260529 – Supporting Devices.

B. Install termination backboards plumb, and attach securely at each corner and at intervals no greater than 36”.

C. Install outlet boxes at outlet locations shown on drawings. Provide raceway indicated to above accessible ceilings. Provide bushing at termination of conduit above ceiling.

D. Install pull wire or polyethylene pulling string in each empty conduit.

E. Where indicated, Install faceplates on all sheet metal outlet boxes.

F. Install sheet metal outlet boxes 18 inches above finished floor U.N.O.

G. Install sheet metal outlet boxes for wall phones 48 inches above finished floor.

H. Install sheet metal outlet boxes for future wireless access points (furnished by Owner) at 80 inches above finished floor (or height of notification appliance in corridor, room or area).

I. Provide ground bar connected to main building ground at termination backboards as indicated on drawings.

J. Mark all backboards and cabinets with the legend "COMMUNICATIONS" or as indicated under the provisions of “Electrical Identification”.

K. Provide conduit from empty wall boxes to above nearest accessible ceiling or as indicated on drawings. Exposed ceilings or rooms with no ceilings shall not be considered accessible ceilings, provide conduit to above nearest accessible ceiling or cable tray.

L. Telephone terminal board (TTB) to be located where shown on plans.

M. Clean all empty boxes after installation.

N. Install cable tray level and plumb according to manufacturer's written instructions, Drawings, and referenced standards.

O. Cutting: Field-fabricate changes in direction & elevation by cutting & bending cable tray.

1. Cut cable tray wires in accordance with manufacturer’s instructions.
2. Cable tray wires must be cut with side-action bolt cutters with offset head to ensure integrity of protective galvanic layer.
3. Remove burrs and sharp edges from cable trays.

END OF SECTION 271100