SECTION 260533

RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

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**NOTE TO SPECIFIER**

*Use this Specification Section for Mail Processing Facilities.*

***This is a Type 1 Specification with completely editable text; therefore, any portion of the text can be modified by the A/E preparing the Solicitation Package to suit the project.***

*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:
         1. Metal conduit.
         2. Flexible metal conduit.
         3. Liquidtight metal conduit.
         4. Electrical metallic tubing.
         5. Fittings and conduit bodies.
         6. Wall and ceiling outlet boxes.
         7. Pull and junction boxes.
         8. Cable trays.
         9. Floor boxes with covers (other uses.)
      2. Related Documents: The Contract Documents, as defined in Section 011000 - Summary of Work, apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other documents.
      3. Related Sections:
         1. Section 230500 – Common Work Results for HVAC.
         2. Section 260500 – Common Work Results for Electrical.
         3. Section 262726 – Wiring Devices.
         4. Section 270500 – Common Work Results for Communication.
         5. Section 281304 – Enterprise Physical Access Control System (ePACS).
         6. Section 281600 – Intrusion Detection.
         7. Section 282305 – Integrated Security and Investigative Platform (ISIP) CCTV System.
         8. Section 283100 – Fire Emergency Voice/ Alarm Communication System (EVACS).
         9. Section 312000 - Earth Moving.
         10. Section 312300 - Excavation and Fill.
   2. REFERENCES
      1. American Society for Testing and Materials (ASTM):
         1. ASTM A 123 - Specification for Zinc (Hot-Galvanized) Coatings on Iron and Steel Products.
      2. American National Standards Institute (ANSI):
         1. ANSI C80.1 - Rigid Steel Conduit, Zinc Coated.
         2. ANSI C80.3 - Electrical Metallic Tubing, Zinc Coated.
         3. ANSI C80.5 - Rigid Aluminum Conduit.
      3. National Electrical Contractors Association (NECA):
         1. NECA "Standard of Installation."
      4. National Electrical Manufacturers Association (NEMA):
         1. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies.
         2. NEMA RN 1 - Polyvinyl Chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit.
         3. NEMA TC 2 - Electrical Plastic Tubing (EPT) and Conduit (EPC-40 and EPC-80).
         4. NEMA TC 3 - PVC Fittings for Use with Rigid PVC Conduit and Tubing.
         5. NEMA VE 1 - Metallic Cable Tray Systems.
      5. National Fire Protection Association (NFPA):
         1. NFPA 70 - National Electrical Code.
   3. SYSTEM DESCRIPTION
      1. Design Requirements
         1. Conduit Size: NFPA 70, unless indicated otherwise on Drawings.
   4. QUALITY ASSURANCE
      1. Regulatory Requirements:
         1. Conform to requirements of NFPA 70.
         2. Provide products listed and classified by Underwriters Laboratories, Incorporated.
   5. PROJECT OR SITE CONDITIONS
      1. Existing Utilities: Contact local utility companies and make arrangements to obtain utility company location and marking service prior to start of Work.
         1. Locate existing underground utilities in areas of Work using “Ground Penetrating Radar (GPR)” detection. If utilities are to remain in place, provide means of support and protection during trenching and excavation operations.
            1. Pothole and locate existing underground utilities at locations to assure that no conflict with Work of this Contract will occur and required clearance is available to prevent damage to existing utilities.
            2. Perform potholing minimum 10 days before start of excavation or underground work.
         2. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility company and Contracting Officer immediately for directions.
         3. Coordinate with Contracting Officer and utility companies to keep existing utility services and facilities in operation.
         4. Repair damaged utilities to satisfaction of utility company, at no additional cost to U.S. Postal Service.
         5. Do not interrupt existing utilities serving facilities occupied and used by U.S. Postal Service or others, during occupied hours, except when permitted in writing by Contracting Officer and then only after acceptable temporary utility services have been provided and approved by Contracting Officer.
   6. DELIVERY, STORAGE, AND HANDLING
      1. Section 016000 - Product Requirements: Transport, handle, store, and protect products.
      2. Accept conduit on site. Contractor inspect for damage prior to acceptance.
      3. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.
      4. Protect PVC conduit from sunlight.
2. PRODUCTS
   1. CONDUIT REQUIREMENTS
      1. Where conduit is required by standards, codes, or required elsewhere, minimum size shall be as follows:
         1. 1/2 inch for power and branch circuit wiring, unless indicated otherwise. All homerun conduits shall be 3/4 inch, minimum.
         2. 3/4 inch for communications cable, unless indicated otherwise.
         3. 3/4 inch for low voltage, control, intercom, security and communications unless indicated otherwise.
         4. Underground conduits shall be sized 1 inch, minimum.
   2. METAL CONDUIT
      1. Manufacturers: Subject to compliance with project requirements, manufacturers offering specified items which may be incorporated in the Work include the following:
         1. Allied Tube & Conduit, Harvey, IL (800) 882-5543.
         2. Wheatland Tube Co., Collinswood, NJ (800) 257-8182.
         3. Republic Wire & Cable, Rocky Mount, NC (800) 533-8198.
         4. Section 016000 - Product Requirements: Product options and substitutions. Substitutions: Permitted.
      2. Rigid Galvanized Steel Conduit (GRC): ANSI C80.1, UL6.
      3. Intermediate Metal Conduit (IMC): UL1242.
      4. Fittings and Conduit Bodies: NEMA FB1 Material to match conduit.
   3. FLEXIBLE METAL CONDUIT (FMC)
      1. Manufacturers: Subject to compliance with project requirements, manufacturers offering specified items which may be incorporated in the Work include the following:
         1. Hubbell, Millford, CT (203) 882-4800.
         2. Electriflex, Roselle, IL (800) 323-6174.
         3. 0-Z/Gedney, Farmington, CT (860) 677-5541.
         4. Section 016000 - Product Requirements: Product options and substitutions. Substitutions: Permitted.
      2. Description: Interlocked steel and aluminum construction.
      3. Fittings: NEMA FB 1.
   4. LIQUID-TIGHT FLEXIBLE METAL CONDUIT
      1. Manufacturers: Subject to compliance with project requirements, manufacturers offering specified items which may be incorporated in the Work include the following:
         1. Hubbell, Millford, CT (203) 882-4800.
         2. Electriflex, Roselle, IL (800) 323-6174.
         3. Anixter, Inc., Skokie, IL (800) ANIXTER.
         4. Section 016000 - Product Requirements: Product options and substitutions. Substitutions: Permitted.
      2. Description: Interlocked steel and aluminum construction with PVC jacket.
      3. Fittings: NEMA FB 1.
   5. ELECTRICAL METALLIC TUBING (EMT)
      1. Manufacturers: Subject to compliance with project requirements, manufacturers offering specified items which may be incorporated in the Work include the following:
         1. Allied Tube & Conduit, Harvey, IL (800) 882-5543.
         2. Wheatland Tube Co., Collinswood, NJ (800) 257-8182.
         3. Republic Wire & Cable, Rocky Mount, NC (800) 533-8198.
         4. Section 016000 - Product Requirements: Product options and substitutions. Substitutions: Permitted.
      2. Description: ANSI C80.3; galvanized tubing.
      3. Fittings and Conduit Bodies: NEMA FB 1; steel set-screw type. Die-cut Zinc not permitted.
   6. NONMETALLIC CONDUIT
      1. Manufacturers: Subject to compliance with project requirements, manufacturers offering specified items which may be incorporated in the Work include the following:
         1. Carlon, Cleveland, OH (800) 322-7566.
         2. Section 016000 - Product Requirements: Product options and substitutions. Substitutions: Permitted.
      2. Description: NEMA TC 2; Schedule 40 PVC.
      3. Fittings and Conduit Bodies: NEMA TC 3.
   7. FITTINGS
      1. Manufacturer: Raco, Inc., South Bend, IN (219) 234-7151.
         1. Subject to compliance with project requirements, one of the following manufacturers may also be provided:
            1. Steel City.
            2. 0-Z/Gedney.
         2. Section 016000 - Product Requirements: Product options and substitutions. Substitutions: Permitted.
      2. Conduits 1/2 inch thru 1 inch enter junction boxes, pull boxes, panels, cabinets, and gutters, provide the following:
         1. Rigid Conduit: Raco 1222, 1223, 1224.
         2. Flexible Metal Conduit: Raco 3302, 3303, 3304, 3305, 3306, 3308.
         3. Liquidtight Flexible Metal Conduit: Raco 3511, 3512, 3513, 3541, 3542, 3543.
      3. Conduits 1-1/4 inch and larger entering junction boxes, pull boxes, panels, cabinets, and gutters, provide Insulated throat type bushings; Raco 1225, 1226, 1228, 1230, 1232, 1234, 1236.
      4. Provide threaded joint connectors and malleable iron no thread compression box connectors on rigid conduit. Do not provide fittings requiring set screws or indentor type applications including BM connectors.
      5. Provide only steel set-screw couplings and connectors on EMT conduit.
   8. CONDUIT STRAPS AND HANGERS
      1. Strap Manufacturer: Raco, Inc., South Bend, IN (219) 234-7151
         1. Subject to compliance with project requirements, one of the following manufacturers may also be provided:
            1. Steel City.
            2. Unistrut.
         2. Section 016000 - Product Requirements: Product options and substitutions. Substitutions: Permitted.
      2. Hanger Manufacturer: Steel City/Thomas & Betts, Memphis, TN (800) 888-0211.
         1. Subject to compliance with project requirements, one of the following manufacturers may also be provided:
            1. Unistrut.
            2. Raco.
         2. Section 016000 - Product Requirements: Product options and substitutions. Substitutions: Permitted.
      3. Straps: Two-hole push on stamped steel straps on surface areas such as concrete, masonry, wide flange beams, columns, and wood.
         1. Rigid Conduit: Raco 2232, 2233, 2234, 2235, 2336, 2238.
         2. Electrical Metallic Tubing: Raco 2092, 2093, 2094.
      4. Hangers: Lay-in pipe hanger.
         1. Conduits 1-1/4 Inch and Larger: Steel-City C-149.
      5. Trapeze Hangers for Conduits Grouped Together: Hangers consisting of all thread rods sized as required and Kingdorff channel.
         1. Steel City B-909, 1/2 inch x 1-7/8 inch (12 gauge) with single bolt channel pipe straps.
         2. Steel City C-105, C-105-AL, or C-106, (no wire permitted for anchoring conduit).
   9. SEAL-OFF AND EXPANSION FITTINGS
      1. Seal-Off Fitting Manufacturer: Crouse-Hinds, Syracuse, NY (315) 477-5531.
         1. Subject to compliance with project requirements, one of the following manufacturers may also be provided:
            1. Killark.
            2. Appleton.
            3. O-Z/Gedney.
         2. Section 016000 - Product Requirements: Product options and substitutions. Substitutions: Permitted.
      2. Expansion Fitting Manufacturer: OZ/Gedney, Farmington, CT (860) 677-5541
         1. Subject to compliance with project requirements, one of the following manufacturers may also be provided:
            1. Crouse-Hinds.
            2. Killark.
            3. Appleton.
         2. Section 016000 - Product Requirements: Product options and substitutions. Substitutions: Permitted.
      3. Provide seal-off fittings where required by governing authority, code, or as indicated on Drawings.
         1. Vertical Runs: Crouse-Hinds Type EYS.
         2. Horizontal and Vertical Runs: Crouse-Hinds Type EZS.
         3. Elbows: Crouse-Hinds Type EYS.
         4. Sealing Compound: "Chico X" fiber and "Chico A".
      4. Provide expansion fittings in conduits where indicated on Drawings or where required to pass through expansion joints embedded in concrete.
         1. O-Z/Gedney Type AX.
   10. OUTLET BOXES
       1. Sheet Metal Outlet Boxes: NEMA OS 1, galvanized steel.
          1. Luminaire and Equipment Supporting Boxes: Rated for weight of equipment supported; include 1/2 inch male fixture studs where required.
          2. Receptacle and Device Boxes - 4 inch square x 2-1/8 inch deep with raised, single gang, plaster ring unless indicated otherwise.
          3. Switch Boxes: 2 inch x 4 inch x 2-1/8 inch deep, unless indicated otherwise.
          4. Communication Boxes: 4 inch square x 3 inch deep with raised gang plaster ring unless indicated otherwise.
       2. Cast Boxes: NEMA FB 1, Type FD, aluminum. Provide gasketed cover by box manufacturer. Provide threaded hubs.
       3. Wall Plates for Finished Areas: Specified in Section 262726.
   11. PULL AND JUNCTION BOXES
       1. Sheet Metal Boxes: NEMA OS 1, galvanized steel.
   12. CABLE TRAY
       1. Manufacturers: Subject to compliance with project requirements, manufacturers offering specified items which may be incorporated in the Work include the following:
          1. Chalfant Cable Trays, Cleveland, OH (216) 521-7922.
          2. Cable Management Solutions, Incorporated, Deer Park, NY (800) 308-6788.
          3. GS Metals Corporation, Pinckneyville, IL (800) 851-9341.
          4. Southwire Co., Carrollton, GA (800) 444-1700.
          5. Mono-Systems, Inc., Rye Brook, N.Y. (914) 934-2075.
          6. Section 016000 - Product Requirements: Product options and substitutions. Substitutions: Permitted.
       2. Provide factory shop drawing submittals for each type of cable tray.
          1. Show fabrication and installation details of cable tray, including plans, elevations and sections of components and attachments to other construction elements. Designate components and accessories, including clamps, brackets, hanger rods, splice-plate connectors, expansion-joint assemblies, straight lengths and fittings.
          2. Seismic-Restraint Details: Signed and sealed by a qualified Professional Engineer, licensed in the state where Project is located, who is responsible for their preparation.
             1. Design Calculations: Calculate requirements for selecting seismic restraints.
             2. Detail fabrication, including anchorages and attachments to structure and to supported cable trays.
       3. Description: NEMA VE 1, ladder tray, wire mesh tray or solid bottom tray as indicated on drawings.
       4. Material: Steel or aluminum.
       5. NEMA Load/Span Class: 20C
       6. Finish: ASTM A 525, pre-galvanized or clear aluminum.
       7. Inside Width and Depth: Indicated on Drawings. Inside Radius of Fittings: 24 inches (minimum).
       8. Provide with compartment dividers as indicated on drawings. Same materials and finish as tray.
       9. Straight Section Rung Spacing: 9 inches on center (ladder tray only).
       10. Provide approved manufacturer's standard clamps, hangers, brackets, splice plates, reducer plates, blind ends, barrier strips, connectors, and grounding straps. Obtain cable tray components from a single manufacturer.
       11. Engraved Nameplates: 1/2 inch high black letters on yellow laminated plastic nameplate, engraved with the following wording:

WARNING! DO NOT USE CABLE TRAY AS WALKWAY, LADDER, OR SUPPORT. USE ONLY AS MECHANICAL SUPPORT FOR CABLES AND TUBING!

* 1. FLOOR BOXES
     1. Type: Modular, flush-type dual-service units suitable for wiring method used. Provide dual-service units within carpeted areas only.
     2. Compartmentation: Barrier separates power and signal compartments.
     3. Housing Material: Die-cast aluminum, satin-finished.
     4. Power Receptacle: NEMA WD 6, Configuration 5-20R, ivory finish, unless otherwise indicated.
     5. Signal Outlet: Blank cover with brushed cable opening, unless otherwise indicated.

1. EXECUTION
   1. EXAMINATION
      1. Section 017300 - Execution: Verification of existing conditions before starting work.
      2. Verification of Existing Conditions: Verify that field measurements, surfaces, substrates and conditions are as required, and ready to receive Work.
         1. Verify routing and termination locations of proposed conduit prior to rough-in.
      3. Existing Utilities, Conduits and Piping:
         1. Locate the routings of the existing underground utilities, conduits and piping in the areas of the Work prior to the installation of the proposed conduit. Trace the locations of existing underground utilities, conduits, and piping using “Ground Penetrating Radar (GPR)” detection.
            1. The routings of these existing underground utilities, conduits and piping shall be identified and marked to avoid any trenching conflicts. These routings shall be recorded on the As‑Built drawings prepared by the Contractor for future reference.
         2. Existing utilities, conduits and piping that are to remain shall be supported and protected during the trenching process.
      4. Report in writing to the USPS Project Manager prevailing conditions that will adversely affect satisfactory execution of the Work of this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.
      5. By beginning Work, Contractor accepts conditions and assumes responsibility for correcting unsuitable conditions encountered at no additional cost to the United States Postal Service.
   2. INSTALLATION - RACEWAYS
      1. Install in accordance with the following schedule, unless indicated otherwise on Drawings: Plastic flexible PVC conduit shall not be permitted. Flexible metal conduit shall be permitted for electrical power and security wiring only and not permitted for fire alarm cables.
         1. Above suspended ceilings: Galvanized or sherardised thick wall rigid steel (GRC) or electrical metallic tubing (EMT).
         2. Metal stud walls: Galvanized or sherardised thick wall rigid steel (GRC) or electrical metallic tubing (EMT).
         3. Exposed interior areas: Galvanized or sherardised thick wall rigid steel (GRC) or electrical metallic tubing (EMT).
         4. Exposed exterior areas: Galvanized or sherardised thick wall rigid steel (GRC).
         5. Underground or below slab areas: Rigid polyvinyl chloride conduit (PVC-Sched. 40).
      2. Install conduit in accordance with NECA "Standard of Installation."
      3. Install nonmetallic conduit in accordance with manufacturer's instructions. Nonmetallic conduit shall only be used under slabs or direct buried in earth. Conduit penetrations through slab including elbows shall be galvanized rigid conduit.
      4. Conduit routing indicated on Drawings are approximate locations unless dimensioned. Route parallel and perpendicular to building construction for complete wiring system regardless whether exposed or concealed.
      5. Arrange supports to prevent misalignment during wiring installation.
      6. Support conduit using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.
      7. Group related conduits; support using conduit rack. Construct rack using approved steel channel and provide space on each rack for 25 percent additional conduits.
      8. Fasten conduit supports to building structure and surfaces under provisions of this section.
      9. Do not support conduit with wire or perforated pipe straps in any type structure. Remove wire used for temporary supports. Steel tie wire may be used to anchor conduit down to reinforcing rods in concrete encasement only.
      10. Do not attach conduit or boxes to ceiling support wires. Boxes shall be independently supported.
      11. Arrange conduit to maintain headroom and present neat appearance. Maintain required clearance between conduit and piping.
      12. Route all conduit, whether exposed or concealed, parallel and perpendicular to walls, ceilings, building structures, etc.
      13. Maintain 12 inch clearance between conduit and surfaces with temperatures exceeding 104 degrees F.
      14. Cut EMT conduit square using saw or pipe cutter; de-burr cut ends and ream. Bring conduit to shoulder of fittings; fasten securely.
      15. Join nonmetallic conduit using cement as recommended by manufacturer. Wipe nonmetallic conduit dry and clean before joining. Apply full even coat of cement to entire area inserted in fitting. Allow joint to cure for 20 minutes, minimum.
      16. Use conduit hubs or sealing locknuts to fasten conduit to sheet metal boxes in damp and wet locations and to cast boxes. Use Myers hub connectors on all conduit entering top or sides of all junction boxes, pull boxes, wiring gutters, exposed to weather.
      17. The number of conduit bends per box shall comply with NFPA 70, Article 360. Conduit bends for “SCS” installation shall not exceed two 90 degree bends or exceed a total of 180 degrees of bend between pull boxes or conduit ends. Pull boxes shall be sized per NEC codes per conduit installed. Use conduit bodies to make sharp changes in direction, as around beams. Use hydraulic one-shot bender to fabricate or use factory elbows for bends in metal conduit larger than 2 inch size.
      18. Avoid moisture traps; provide junction box with drain fitting at low points in conduit system.
      19. Provide suitable fittings to accommodate expansion and deflection where conduit crosses control and expansion joints.
      20. Provide suitable nylon pull string or #14 AWG steel wire in each conduit excluding sleeves and nipples.
      21. Ground and bond conduit per NFPA 70.
      22. Coat all metallic conduit with "General Electric" RTV silicone sealer where conduit is installed in exterior areas or in contact with concrete or earth.
      23. Conduits shall be sized as indicated on Drawings. Where sizes are not indicated, conduit shall be sized per NFPA 70.
      24. Cap all upturned conduits during construction rough-in to prevent moisture or debris from entering. Pull through each and every conduit a dry swab of sufficient size to remove any and all moisture.
      25. Maximum length of flexible metal conduit (Greenfield), or flexible liquid-tight shall be 5 feet.
      26. Assure ground continuity on all branch circuitry conduits with two locknuts, one inside and one outside of all boxes, cabinets and gutters for rigid conduit. One locknut inside of all boxes, cabinets, and gutters for EMT.
      27. Provide conduit supports as follows:
          1. Galvanized rigid thick wall conduit (GRC), intermediate grade rigid conduit (IMC) and electrical metallic conduit (EMT) within three feet of all outlet boxes, junction boxes, cabinets, gutters, or fittings. Horizontally anchored at 10 foot maximum intervals. Other spacings indicated on Drawings.
          2. Flexible metal conduit (Greenfield) and liquid-tight flexible metal conduit, within 12 inches of all outlet boxes, junction boxes, cabinets, gutters, or fittings and bends or turns. Horizontally anchored at 4-1/2 foot intervals. 1/2 inch minimum size permitted.
   3. INSTALLATION - BOXES
      1. Install boxes in accordance with NECA "Standard of Installation."
      2. Install in locations as shown on Drawings, and as required for splices, taps, wire pulling, equipment connections and compliance with NFPA 70.
      3. Set wall mounted boxes at elevations to accommodate mounting heights indicated or as required for specific project requirements. Orient boxes to accommodate wiring devices as specified in Section 262726.
      4. Electrical boxes are indicated on Drawings in approximate locations unless dimensioned. Adjust box location up to 10 feet if required to accommodate intended purpose with no additional cost to contract. Coordinate mounting heights and locations of outlets mounted above counters, benches, and backsplashes.
      5. Maintain headroom and present neat mechanical appearance.
      6. Install pull boxes and junction boxes above accessible ceilings and in unfinished areas only. Install pull boxes in freezer and dock area above bottom chord of structural joist. Pullboxes sized in excess of 12 inches shall be equipped with hinged and hasped covers.
      7. Install outlet and junction boxes within inaccessible ceiling areas, no more than 6 inches from ceiling access panel or from removable recessed luminaire.
      8. Locate outlet boxes to allow luminaires positioned as indicated on Drawings.
      9. Align adjacent wall mounted outlet boxes for switches, thermostats, and similar devices.
      10. Locate flush mounted box in masonry wall to require cutting of masonry unit corner only. Coordinate masonry cutting to achieve neat opening. Use approved raised gang covers in masonry and stud walls.
      11. Flush mounted boxes shall not be mounted back-to-back in walls; provide minimum 6 inches separation. Provide minimum 24 inches separation in acoustic rated walls.
      12. Secure flush mounted box to interior wall and partition studs. Accurately position to allow for surface finish thickness. Use approved stamped steel bridges to fasten box between studs.
      13. Install flush mounting box without damaging wall insulation or reducing its effectiveness.
      14. Use approved adjustable steel channel fasteners spanning joist for hung ceiling outlet box.
      15. Provide factory sectioned multi-gang boxes where more than one adjacent device is to be mounted. Sectional boxes shall not be permitted.
   4. INSTALLATION - CABLE TRAYS
      1. Install trays level and plumb in accordance with manufacturer's published instructions.
      2. Install metallic cable tray in accordance with NEMA VE 2.
      3. Support cable trays as follows:
         1. Use anchors and fasteners as specified in Section 260500.
         2. Provide supports at each connection point and at the end of each run.
         3. Design supports including attachment to structure to carry the greater of calculated load multiplied by a factor of four or the calculated load plus 200 lb.
      4. Locate cable tray with sufficient space to permit access for installing cables.
      5. Make changes in directions and elevations using standard fittings. Use expansion connectors where required.
      6. Ground and bond cable tray under provisions of Section 260500.
      7. Provide continuity between tray components.
      8. Use antioxidant compound to prepare aluminum contact surfaces before assembly.
      9. Provide #2 AWG bare copper equipment grounding conductor through entire length of tray; bond to each section.
      10. Connections to tray may be made using mechanical connectors.
      11. Install warning signs at 50 feet on center along cable tray, located to be visible.
   5. FIELD QUALITY CONTROL
      1. Section 014000 - Quality Requirements: Field inspection.
      2. Inspect conduit installation, types, sizes, fittings and attachment to structure.
      3. Inspect box installation, locations, connection to conduit, and attachment to structure.
      4. Inspect cable tray installation, locations, connection to conduit, and attachment to structure.
   6. ADJUSTING
      1. Adjust flush-mounting outlets to make front flush with finished wall material.
      2. Install knockout closures in unused box openings.
   7. CLEANING
      1. Clean interior of boxes to remove dust, debris, and other material.
      2. Clean exposed surfaces and restore finish like new.

END OF SECTION

USPS MPF Specification Last Revised: 10/1/2022