SECTION 262416

PANELBOARDS

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

**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.*

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

1. GENERAL
   1. SUMMARY
      1. This section includes:
         1. Panelboards.
      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 260500 – Common Work Results for Electrical.
   2. REFERENCES
      1. As specified in Section 260500 - Common Work Results for Electrical.
      2. National Electrical Manufacturers Association (NEMA):
         1. NEMA AB 1 – Molded Case Circuit Breakers.
         2. NEMA ICS 2 – Industrial Control Devices, Controllers, and Assemblies.
         3. NEMA KS 1 – Enclosed Switches.
         4. NEMA PB 1 – Panelboards.
         5. NEMA PB 1.1 – Instructions for Safe Installation, Operation and Maintenance of Panelboards Rated 600 Volts or Less.
      3. Underwriters Laboratories (UL):
         1. UL 486 – Molded Case Circuit Breakers.
         2. UL 67 – Heat Rise Test for Panelboards.
         3. UL 50 – Steel Gauge Requirements for Cabinets and Enclosures.
         4. UL 1449 4th Edition – Standard for Transient Voltage Surge Suppressors.
   3. SUBMITTALS
      1. As specified in Section 260500 – Common Work Results for Electrical.
         1. Shop Drawings: Indicate outline and support point dimensions, voltage, main bus ampacity, integrated short circuit ampere rating, circuit breaker and fusible switch arrangement and sizes.
         2. Manufacturer’s Installation Instructions: Indicate application conditions and limitations of use stipulated by Product testing agency. Include instructions for storage, handling, protection, examination, preparation, installation, and starting of Product.
         3. Shall include UL 1449 Listing documentation verifying the following:
            1. Short Circuit Current Rating (SCCR).
            2. Voltage Protection Ratings (VPRs) for all modes.
            3. Maximum Continuous Operating Voltage Rating (MCOV).
            4. I-nominal rating (I-n).
      2. Section 017704 – Closeout Procedures and Training: Procedures for closeout submittals:
         1. Project Record Documents: Record actual locations of Products; indicate actual branch circuit arrangement.
         2. Operation and Maintenance Data: Include spare parts data listing; source and current prices of replacement parts and supplies; and recommended maintenance procedures and intervals.
         3. Submit data showing compliance with UL 1449.
   4. QUALITY ASSURANCE
      1. As specified in Section 260500 - Common Work Results for Electrical
      2. Panelboards shall be UL Listed and labeled and shall be designed in accordance with the applicable standards of ANSI and NEMA.
      3. Qualifications
         1. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum five years documented experience.
2. PRODUCTS

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

**NOTE TO SPECIFIER**

Verify manufacturer information, products, and availability at time of Project Manual preparation for Project.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

* 1. GENERAL CLASSIFICATION
     1. Manufacturers: ABB/G.E. Industrial Solutions (ABB/GEIS) Catalog numbers are used to identify type of equipment specified. Equivalent products by the following manufacturers are acceptable:
        1. Siemens
        2. Square-D
        3. Eaton/Cutler Hammer
           1. Branch Circuit Panels:

120/208V: ABB/GEIS Type ReliaGear.

* + - * 1. Distribution Panels:

Circuit breaker: ABB/GEIS Type ReliaGear nexT.

* + - 1. No substitutions permitted.
  1. BRANCH CIRCUIT PANELS
     1. Cabinet: Construct cabinet with code gauge galvanized steel. Provide minimum 20 inch wide cabinets, and extra wiring space where incoming feed-through or parallel lines are required.
     2. Doors: Provide single door construction, made of cold-rolled steel. Door shall have concealed hinges, flush catch, and lock. (Tee bar handles not acceptable). Secure top and bottom of door to cabinet by slotted steel bolts. Release shall be by one-half turn with a screwdriver. All panels shall be keyed alike.
        1. Panelboards shall be equipped with “door within door” type trim.
     3. Panels located adjacent to each other shall have identically sized enclosures and trims.
     4. Finish: Finish exposed parts with one coat of primer and one coat of light gray enamel suitable for overpainting in field if desired.
     5. Phase, neutral and ground bus bars shall be tin plated copper.
     6. Provide all hardware for future breakers, identified on drawings as SPACES, or for the full length of usable bus, whichever is longer.
     7. Provide ground bus with full complement of terminals in addition to insulated neutral bus.
     8. Circuit Breakers:
        1. Provide multi-pole units with common trip elements. Handle ties are not acceptable.
        2. Provide circuit breakers equipped with padlockable handle attachments, padlocks and keys for padlocking the breaker in the “on” position when used to serve Fire Alarm. Security and CCTV Systems. Handle padlock attachment shall be similar to Square D types #QOHPL or #QO1PA with padlock and keys or Garvin Industries #UBL2-UPC. Key operated, circuit breaker attachments utilizing a screwdriver or allen wrench shall not be acceptable.
        3. 120/208V branch circuit panelboards: Molded cast bolt-on type designed for 120/208V, three phase, four wire service with minimum 10,000 amperes rms short circuit rating.
        4. 277/480V branch circuit panelboards: Molded cast bolt-on type designed for 277/480V, three phase, four wire service with minimum 14,000 amperes rms short circuit rating.
     9. Main circuit breakers shall be individually mounted. The panelboard interior assembly shall be dead front with panelboard front removed. Main lugs or main breakers shall have barriers on five sides. The barrier in front of the main lugs shall be hinged to a fixed part of the interior. The end of the bus structure opposite the main shall have barriers.
     10. Provide all panelboards with lockout/tagout devices; Circuit-Safe type as manufactured by Stranco, Inc. or approved equal.
     11. Nameplates: Provide engraved plastic nameplate identification on outside of each panel to include the voltage and source of power upstream, as specified in section 260500.
     12. Circuit directories: Provide a metal-framed circuit directory on inside of inner door, with plastic protector.
     13. Provide two 3/4 inch and one 1 inch spare empty conduits routed above into accessible ceiling space from all flush mounted panelboards.
     14. Panels serving electronic equipment and/or other harmonic producing loads shall be equipped with double neutral bus bars.

1. EXECUTION
   1. EXAMINATION
      1. As specified in Section 260500 – Common Work Results for Electrical.
   2. CLEARANCES
      1. Minimum code required clearances around panelboards must be maintained.
   3. INSTALLATION
      1. Install panelboards in accordance with NEMA PB 1.1.
      2. Install panelboards plumb. Provide supports in accordance with Section 260500.
      3. Provide filler plates for unused spaces in panelboards.
   4. MOUNTING HEIGHT
      1. Typically mount panel boards top at 6 feet above finished floor but no more than 6 feet 6 inches above finished floor to top of circuit breaker handle.
   5. MOUNTING HARDWARE
      1. Provide all necessary blocking, channels and other hardware for securing panelboards to wall, column, or other parts of building structure.
   6. FIELD CONTROL
      1. Section 014000 – Quality Requirements: Field Testing and Inspection.
      2. Perform inspections and tests listed in NETA ATS, Section 7.6.
      3. Measure steady state load currents at each panelboard feeder; rearrange circuits in the panelboard to balance the phase loads to within 20 percent of each other. Maintain proper phasing for multi-wire branch circuits.
      4. Inspect for physical damage, proper alignment, anchorage, and grounding. Check proper installation and tightness of connections for circuit breakers.

END OF SECTION

USPS MPF Specification Last Revised: 10/1/2022