PART 1 - GENERAL

1.01 WORK INCLUDED

1. Main Switchboards
2. Distribution Panelboards

1.02 RELATED WORK

Section 26 21 16 Service Entrance

1.03 REFERENCES

1. ANSI C12—Code for Electricity Metering
2. ANSI C39.1—Requirements for Electrical Analog Indicating Instruments
3. ANSI C57.13—Requirements for Instrument Transformers
4. FS W-C-375—Circuit Breakers, Molded Case, Branch Circuit and Service
5. NEMA AB 1—Molded Case Circuit Breakers
6. NEMA KS 1—Enclosed Switches
7. NEMA PB 2—Dead Front Distribution Switchboards
8. NEMA PB 2.1—Instructions for Safe Handling, Installation, Operation and Maintenance of Dead front Switchboards Rated 600 Volts or Less.

1.04 SUBMITTALS

A. Submit product data under provisions of Division 01.

B. Include front and side views of enclosures with overall dimensions shown; conduit entrance locations and requirements; nameplate legends; size and number of bus bars per phase, neutral, and ground; switchboard instrument details; instructions for handling and installation of switchboard; and electrical characteristics including voltage, frame size and trip ratings, withstand ratings, and time-current curves of all equipment and components.

1.05 OPERATION AND MAINTENANCE DATA

A. Submit operation and maintenance data under provisions of Division 01.

B. Include spare parts data listing; source and current prices of replacement parts and supplies; and recommended maintenance procedures and intervals.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to the site under provisions of Division 01.

B. Deliver in 48 inch maximum width shipping splits, individually wrapped for protection, and mounted on shipping skids.

C. Store and protect products under provisions of Division 01.

D. Store in a clean, dry space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.

E. Handle in accordance with NEMA PB2.1 and manufacturer's written instructions. Lift only with lugs provided for the purpose. Handle carefully to avoid damage to switchboard internal components, enclosure, and finish.

1.07 SPARE PARTS

Keys: Furnish five (5) each to Owner.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

1. Square D
2. Cutler Hammer
3. Siemens
4. General Electric
5. Substitutions: Under provisions of Division 01

2.02 SWITCHBOARD CONSTRUCTION AND RATINGS

A. Factory-assembled, dead front, metal-enclosed, and self-supporting switchboard assembly conforming to NEMA PB2, and complete from incoming line terminals to load-side terminations with remote monitoring capability (LAN).

B. Switchboard electrical ratings and configurations as shown on drawings.

C. Line and Load Terminations: Accessible from the front only of the switchboard, suitable for the conductor materials used.

D. Main Section Devices: Individually mounted

E. Distribution Section Devices: Panel mounted

F. Auxiliary Section Devices: Individually mounted and compartmented

G. Bus Material: Copper, sized in accordance with NEMA PB 2

H. Bus Connections: Bolted, accessible from front for maintenance

I. Bus spacing based on air insulation

J. Provide a one x 1/4 inch copper ground bus through the length of the switchboard.

K. Enclosure shall be NEMA PB 2 Type 1—General Purpose. Sections shall align at rear only.

L. Switchboard Height: NEMA PB2, excluding floor sills, lifting members, and pull boxes.

M. Finish: Manufacturer's standard light gray enamel over external and internal surfaces.

N. Pull Section: Same construction as switchboard, size as required per NEC and switchboard manufacturer.

O. Future Provisions: Provide a minimum of 20% fully equipped spaces for future devices with bussing and bus connections, suitably insulated, and braced for short circuit currents. Continuous current rating as indicated on drawings.

P. Switchboard shall be UL listed and labeled for service entrance equipment.

Q. Main switchgear shall be provided with digital metering to include phase voltage and amperage.

2.03 SWITCHING AND OVERCURRENT PROTECTIVE DEVICES

* 1. Molded Case Circuit Breakers: NEMA AB 1; provide circuit breakers with integral thermal and instantaneous magnetic trip in each pole.
	2. Minimum Integrated Short Circuit Rating: 42,000 amperes rms symmetrical for all volt switchboards/panelboards, or as shown on drawings. These ratings may be lowered by signed/sealed short circuit calculations performed by manufacturer via a professional engineer stating actual A.I.C. ratings throughout entire system. Submit calculations to Owner.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install switchboards (indoors only) in locations shown on drawings, in accordance with manufacturer's written instructions and NEMA PB 2.1.

B. Tighten accessible bus connections and mechanical fasteners after placing switchboard.

C. Furnish and install 4" housekeeping pad for switchboards.

D. All main service switchboards shall have digital voltage and amperage meters on exterior covers for easy viewing. Whether shown or indicated, it shall be provided.

E. Spaces containing switchboards rated at 1200 amps or greater shall have doors that open in the direction of egress, and shall also include panic hardware.

F. Install in accordance with manufacturer's instructions and per NEC 110-26.

G. Contractor shall field adjust all circuit breaker trip settings as determined by breaker coordination study.

3.02 FIELD QUALITY CONTROL

A. Inspect completed installation for physical damage, proper alignment, anchorage, and grounding.

B. Measure insulation resistance of each bus section phase to phase and phase to ground for one minute each. Test voltage shall be 1,000 volts. Minimum acceptable value for insulation resistance shall be 2 megaohms.

C. Check tightness of accessible bolted bus joints using a calibrated torque wrench. Tightness shall be in accordance with manufacturer's recommended values.

D. Physically test key interlock systems to insure proper function.

3.03 ADJUSTING AND CLEANING

1. Adjust all operating mechanisms for free mechanical movement.

B. Touch up scratched or marred surfaces to match original finish.

**END OF SECTION**