SECTION 26 27 13
ELECTRICITY METERING, MODULAR MULTI-TENANT (Unlimited Tenants)

PART 1 - GENERAL

1.1 SCOPE

A. Furnish and install modular tenant metering of the types, sizes and quantities indicated on the contract drawings. Provide all lugs and accessories necessary for proper installation and operation.

1.2 RELATED DOCUMENTS

A. All drawings and general provisions of the Contract including Division 1 requirements apply to this section.

B. ***[The following sections shall be adhered to in the performance of work specified by this section:***
   1. ***Section [26 28 16.01] [16410] – Molded Case Breakers]***

1.3 SUBMITTALS

A. Provide product information prior to fabrication and installation. Product data shall include all dimensions, electrical ratings and maintenance data (if applicable).

1.4 RELATED STANDARDS

A. The modular tenant metering and all accessories shall be designed, manufactured and tested in accordance with the latest applicable standards of the following:
   1. ANSI
   2. NEMA
   3. UL50, UL67, UL414, UL 489, ***[UL 1449*** **Add when SPD option is selected*]***

1.5 QUALITY ASSURANCE

A. The meter center manufacturer shall also be the manufacturer of the circuit breakers ***[and fusible switches].***

B. Manufacturer shall have produced similar electrical equipment for a minimum period of 30 years.

C. Products shall be listed by Underwriters Laboratories, Inc.

1.6 DELIVERY, STORAGE AND HANDLING

A. Handle and store equipment in accordance with manufacturer's Installation and Maintenance Manuals. One (1) copy of this document to be provided with the equipment at time of shipment.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. The modular-tenant metering shall be provided by Siemens or pre-approved equal. Siemens Power Mod with Quick System shall be the basis of design. Approved manufacturers are as follows:
   1. SIEMENS - Power Mod with Quick System
   2. ***[ ]***

2.2 GENERAL REQUIREMENTS

A. The metering specified herein shall be designed and constructed for use in residential or commercial applications. The metering shall be compact, pre-bussed modular construction with the ability to add modules to either side in the future.

B. The meter center shall meet or exceed the local utility and "authority having jurisdiction" requirements". It shall consist of an incoming main module and meter modules. The modular metering shall be UL listed for short circuit current ratings up to ***[35,000] [65,000] [100,000]*** amperes. The incoming service shall be 200-2400 amps as shown on the drawings.

a. The service entrance module shall be of the ratings shown on the drawings. The main shall be:

b. ***Circuit Breaker for [top] [bottom] entry. The main breaker shall be [fully] [series] rated.***

c. ***Fused Disconnect for [top] [bottom] entry.***

d. ***Tap Box for [top] [bottom] entry.***

2. The meters shall be stacked ***[1] [2] [3] [4] [5] [6]*** high in accordance with local requirements.

C. The meter socket devices shall have individual covers of ***[ring] [ringless]*** style design. Meter sockets shall have a sealing provision.

D. The meter sockets shall be made of high impact resistant, non-tracking, glass reinforced resin. Plug-in socket jaws shall be tin-plated copper with spring steel reinforced clips. Individual jaws can be replaced from the front. The sockets shall be rated ***[125] [200] [320] [400]*** amps continuous and ***[120/240 volts at 1 phase, 3 wire service] [120/208 volts at 3 phase, 4 wire service] [240 volts 3 phase, 4 wire service] [as shown on the drawings].*** The 5th jaw required for single-phase meters on three phase supply systems shall also be factory installed in the 9 o'clock position and it shall be field modifiable to the 6 o'clock position. Through bus shall be rated 1200 amperes. ***[Where required by code or utility, sockets shall also include the following:***

1. ***[5th Jaw]***
2. ***[Horn Bypass]]***

E. The bus bar shall be tin-plated aluminum. All unmetered bus shall be barriered and protected. Inaccessible bus connections shall be welded or bolted to assure continued reliability.

F. The joint stacks and meter base bus connections are bolted and accessible from the front. The joint stack shall be a single bolt construction using an assembly of glass reinforced polyester insulator disks sandwiched between heavy-duty conductor disks.

G. ***[Modular-tenant metering that is equipped with a factory installed integrally mounted Surge Protective Device (SPD) shall have the following features:***

1. ***SPD shall be rated as a Type 4 intended for Type 1 applications, verifiable at UL.com, without need for external or supplemental overcurrent controls.***

2. ***SPD shall be UL labeled with 20kA I-nominal (I-n) (verifiable at UL.com) for compliance to UL 96A Lightning Protection Master Label and NFPA 780. SPD shall be UL labeled with 200kA Short Circuit Current Rating (SCCR).***

3. ***Maximum 7-Mode surge current capability shall be [100kA] [200kA] [300kA] [400kA] [500kA] per phase.***

4. ***UL 1449 - Third Edition Revision; effective September 29, 2009 Voltage Protection Ratings shall not exceed the following:***

VOLTAGE	L-N	L-G	N-G	L-L	MCOV
240/120 Split Phase	700V	700V	700V	1200V	150V
208Y/120	700V	700V	700V	1200V	150V
480Y/277	1200V	1200V	1200V	2000V	320V

5. ***SPD shall incorporate a UL 1283 listed EMI/RFI filter with minimum attenuation of -50dB at 100 kHz.***

6. ***SPD shall include a serviceable, replaceable module.***

7. ***SPD shall be equipped with the following diagnostics:***
   a. ***Visual LED diagnostics including a minimum of one green LED indicator per phase, and one red service LED.***
   b. ***Audible alarm with on/off silence function and diagnostic test function (excluding branch).***
   c. ***Form C dry contacts.***
   d. ***Optional – Surge Counter***

8. ***SPD shall have a 10 year warranty.]]***

H. All QC couplers shall be tightened to 400 lbs-in. of torque.

2.3 SWITCH ENCLOSURES

A. The modular-tenant metering shall be continuous duty rated. The enclosure shall be built to ***[NEMA 1 standards for indoor use] [NEMA 3R standards for outdoor use]***.

1. All modules shall have weather proof rain caps and padlockable tenant breaker covers. The enclosures shall be UL Listed rated fabricated from zinc-coated G90 steel and painted with an ANSI 61 light gray paint applied by electro-deposition process. The enclosures shall be mounted as shown on the drawing.

2.4 FACTORY TESTING

A. Standard factory tests shall be performed on the equipment in accordance with the latest version of applicable NEMA and UL standards.

2.5 ***[ARC FLASH*** **[DELETE ONE OR BOTH OF THE FOLLOWING SENTENCES ON ARC FLASH]**

A. ***[Apply in the field, the factory supplied arc flash warning label to all meter centers that are in other than dwelling occupancies and are likely to require examination, adjustment, servicing, or maintenance while energized to warn qualified persons of potential electrical arc flash hazards.]***

B. ***[Provide a complete arc flash study of the entire electrical system from the point of incoming service to all panelboards rated 240V at 10 kaic or greater. Labels shall include the arc flash boundary in feet, hazard category and a list of appropriate PPE.]]***

PART 3 - EXECUTION

3.1 INSTALLATION

A. The contractor shall install all equipment in accordance with the contract drawings and manufacturers recommendations.

B. All metering sections shall be installed plumb.

3.2 ADJUSTMENTS AND CLEANING

A. The contractor shall install the necessary accessories in order to place the modular-tenant metering in final operating condition.

3.3 TESTING

A. Check tightness of all accessible mechanical and electrical connections to assure they are torqued to the minimum acceptable manufacture's recommendations.

B. Check for proper grounding, fastening and alignment.

3.4 WARRANTY

A. Equipment manufacturer warrants that all goods supplied are free of non-conformities in workmanship and materials for one year from date of initial operation, but not more than eighteen months from date of shipment.

END OF SECTION