HIGH RISE METERING AND EQUIPMENT

Table of Contents – Section 1300

PARAGRAPH		PAGE
1300.0	**HIGH RISE DEVELOPMENTS**	**1**
1300.1	GENERAL	1
1300.2	DEFINITION FOR HIGH RISE MULTI-FLOOR METERING	1
1300.3	SERVICE REQUIREMENTS	1
1300.4	USE OF SERVICE	1
1300.5	ACCESS TO CUSTOMER PREMISES	1
1300.6	DISCLOSURE OF INTENT	1
1301.0	**SERVICE DELIVERY POINT**	**2**
1301.1	DEFINITION	2
1301.2	HIGH RISE SERVICE DELIVERY POINT	2
1301.2-1	PLACARD AT THE POINT OF SERVICE	3
1301.2-2	SERVICE DELIVERY POINT LOCATION	3
1302.0	**SECURITY**	**4**
1302.1	SECURITY OF EQUIPMENT	4
1302.2	LOCK HARDWARE PROGRAM, SSRC	4
1303.0	**METERING ROOM OR CLOSET REQUIREMENTS**	**5**
1303.1	FLOOR METERING ROOM OR CLOSET REQUIREMENTS	5
1303.2	OTHER UTILITY ROOM REQUIREMENTS	5
1303.3	ROOM ELECTRICAL REQUIREMENTS	5
1304.0	**MASTER METERING**	6
1305.0	**EQUIPMENT: NON-NETWORK**	6

1300.0 HIGH RISE METERING AND EQUIPMENT

1300.1 GENERAL

This section pertains to Condominium type residential dwelling structures. There are specifications and requirements that can also be applied to High Rise commercial projects dealing with the type of equipment used and equipment locations. The objective of the design practices reviewed in this section are to establish an electrical system multi floor metering that will provide a safe, reliable, secure, operable and minimum maintenance requirements for the life of the building.

1300.2 DEFINITION FOR HIGH RISE RESIDENTIAL MULTI-FLOOR METERING

Any multi-residential dwelling building, planned to provide individual meters for each residential dwelling unit having four or more floors above ground level requiring three phase service, qualifies for High Rise multi floor metering. Also, refer to high rise building definition in section 102.12.

Metering rooms can be installed at every other floor.

1300.3 SERVICE REQUIREMENTS

The maximum service entrance section size shall be 3,000 amp. The standard service voltage for these installations is 208Y/120V 3 phase 4 wire. When a 208Y/120V service will result in excessive voltage drop or if additional capacity is required that cannot be delivered at 208Y/120V, the Customer may submit a request for an upgrade to 480Y/277V 3 phase 4 wire. The request shall include all appropriate calculations and shall undergo an engineering review for accuracy. The Developer/Builder/Customer is responsible for any voltage transformation beyond the service delivery point. If 480Y/277 volt service is requested, APS will need to ensure the type of transformation impedance specified prior to any line extension design. Residential metering will be limited to 120/208v single or 208Y/120V three phase. Developer/Customer is responsible for meeting all code and governing agency requirements regarding voltage drop and load balancing. Developer may also be required to pay additional charges, as determined by Company, when voltage delivery is taken at 480Y/277V.

1300.4 USE OF SERVICE

Customer and APS each shall save the other harmless from and against all claims for injury or damage to persons or property occasioned by or in any way resulting from the services being provided by APS or the use thereof on their respective sides of the point of delivery. Customer shall exercise all reasonable care to prevent loss or damage to APS property installed on Customer's premise for the purpose of supplying service to the Customer.

1300.5 ACCESS TO CUSTOMER PREMISES

APS authorized agents shall have unassisted access to Customer's premises at all reasonable hours to install, inspect, read, repair or remove meters or to install, operate or maintain other APS equipment. Also, refer to readily accessible definition in section 100, paragraph 102.20.

Access to APS metering rooms and equipment locations shall be for authorized personnel only not for public use. Alarms for the meter rooms are to be disabled during normal business hours. Normal business hours are from 6am to 5pm Monday through Saturday.

1300.6 DISCLOSURE OF INTENT

Customer/Developer to include explanations and descriptions for the Point of Service, Access to Premise and Equipment, and responsibilities of both parties contained within the Home Owner Association CCR's (Covenants, Conditions and Restrictions) document or by recorded easement that is recorded. This also, will be included within APS extension agreement.

1300.7 BUILDING DIAGRAM

A building diagram shall be permanently posted at the service delivery point and in all meter rooms/locations on the electric pull section cover of the SES. The diagram shall list all meter locations and associated units. See example below:

Meter Floor	Units	Units	Units	Units	Units	Units	Units	Units	Units	Units
1st	100	101	200	201	202	203	204	205		
3rd	300	301	302	303	304	400	401	402	403	404
5th	500	501	502	503	504	600	601	602	603	604
7th	700	701	702	703	704	800	801	802	803	804
9th	900	901	902	903	904	1000	1001	1002	1003	1004
11th	1100	1101	1102	1103	1104	1200	1201	1202	1203	1204

1301.0 SERVICE DELIVERY POINT

1301.1 DEFINITION OF SERVICE DELIVERY POINT

Point of delivery is where APS facilities are connected to those of the Customer. Refer to section 100, paragraph 102.19. This point of delivery will be at the location where APS service conductors terminate at the Customers service entrance section.

1301.2 HIGH RISE SERVICE DELIVERY POINT

APS point of service will end at the service cable terminations at the Customers main SES. A load break disconnect switch will be required in the next compartment just after the APS service cable termination delivery point. This switch or main breaker will have a rating equivalent to 100% rating of the proposed SES size.

Customer shall own, install, operate and maintain all wiring and equipment beyond the point of delivery, including the main switch. APS is not required to install or maintain any lines and equipment on the Customer's side of the point of delivery except for the billing meters. APS will only own, read and maintain the electrical APS billing meters beyond the main SES switch.

APS meters are acceptable at the main SES location. All necessary service entrance sections need to be pre-approved by APS meter shop, please refer to section 300, paragraph 302.9 and 302.10.

1301.2-1 PLACARD AT POINT OF SERVICE

A Placard is required at the service delivery point. Location of this placard shall be outside the metal enclosure where APS service cables terminate. The placard will be red background with 1/4" high white letters. The placard will state:

CAUTION: ENERGIZED EQUIPMENT
DO NOT OPEN

THE "POINT OF DELIVERY" OF APS' ELECTRICAL SERVICE IS IN THIS ENCLOSURE AT THE CABLE TERMINATION. ALL ELECTRICAL WIRING AND EQUIPMENT BEYOND APS' "POINT OF DELIVERY" (OTHER THAN APS' METERS) ARE CONSIDERED "CUSTOMER OWNED" FACILITIES AND ARE OWNED, CONTROLLED, SECURED, SAFEGUARDED AND MAINTAINED BY SOMEONE OTHER THAN APS.

ALTHOUGH THIS ENCLOSURE IS ALSO "CUSTOMER OWNED", ONLY APS' AUTHORIZED EMPLOYEES ARE ALLOWED ACCESS INTO THIS ELECTRICAL ENCLOSURE. ALL UTILITY WIRE SEALS ARE TO REMAIN INTACT WITHOUT BEING CUT OR REMOVED. ANY QUESTIONS CALL 602-371-7171 OR 1-800-253-9405.

1301.2-2 SERVICE DELIVERY POINT LOCATION

APS service delivery point is preferred at the ground level. Metering points also, will be allowed at the first level below grade, but not the lowest level below grade. Vehicle clearance of minimum 8 feet vertical and minimum 11 feet horizontal is required from the ramp opening to the electrical equipment room. A permanent parking spot for maintenance and delivery vehicles shall be provided with a minimum 13' width and 18' depth. Parking spots shall be marked with yellow stripes.

1302.0 SECURITY

1302.1 SECURITY OF EQUIPMENT

The Developer/Owner or Management Company will ensure all the building electrical feeders from main gear to all the floor metering points are properly secured. Secure means no possible access by the public for safety, damage and energy theft concerns. Customer equipment access points shall provide for a sealable means by an APS authorized person.

1302.2 LOCK HARDWARE PROGRAM – SSRC 6300

All High Rise projects shall implement the lock program designated as SSRC or the Sargent Signature Removable Core 6300 program (hardware to be supplied by contractor) during construction. Permanent 6300 cylinder will be supplied by APS. This lock program will allow both APS and the property management authorized personnel access to the SES and meter rooms when appropriate. APS will have a master key and the Owner will be provided ten keys. Each of these keys will operate all of the access doors required for APS entry. Each building will have a unique key configuration. APS master key will provide access to our electrical equipment in all buildings using the SSRC 6300 lock program.

The type of lock required is a Sargent Removable Core 6-pin hardware.

The Customer or Builder will provide the SSRC 6300 door hardware for all of APS termination and metering access points for keyed doors. When the point of service is energized, APS will exchange the lock core and provide the Developer/Owner with ten keys. It is best to have all the metering rooms ready in the building for service prior to the APS security lock technician installing the removable core. APS will coordinate this program and identify on each account, SSRC 6300 under the gate code in CIS.

1303.0 METERING ROOM OR CLOSET REQUIREMENTS

1303.1 FLOOR METERING ROOM OR CLOSET REQUIREMENTS

Each meter room shall be within 100 feet of an elevator.

The meter room will have adequate space for reading meters and allowance for maintenance of equipment. The rooms shall be clear of clutter and will not be used for any type of storage. Hallway meter closets shall have doors that open 180 degrees. All room doors will have panic hardware on the inside door. For air ventilation in meter rooms refer to 301.9-2.

1303.2 OTHER UTILITY ROOM REQUIREMENTS

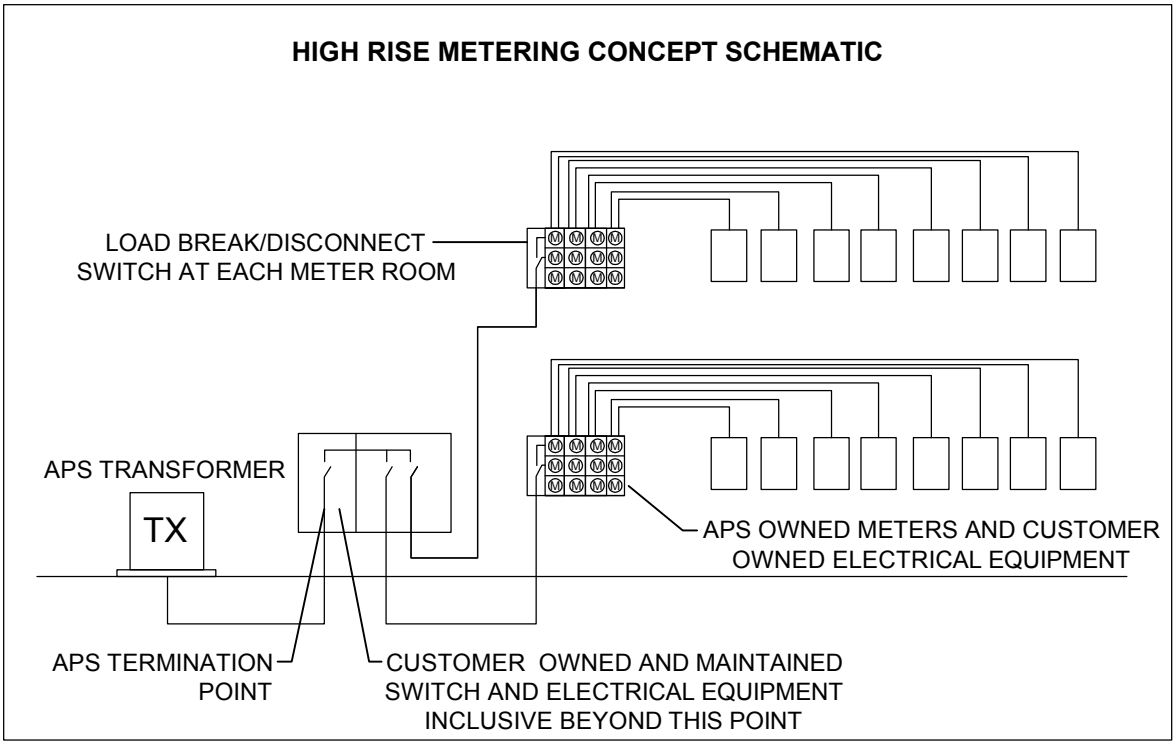
Communications, fire control boxes and electrical equipment can occupy space inside a room without encroaching upon the required equipment and working clearances stipulated by code. Fire risers and water valves are not allowed in these electrical rooms. Fire sprinkler heads should not be directly above the meter panel equipment. Refer to section 301.9-1.

1303.3 ROOM ELECTRICAL REQUIREMENTS

EACH ELECTRICAL SECTION IN THE METER ROOM WILL HAVE A LOAD BREAK DISCONNECT SWITCH ON THE SOURCE SIDE OF EACH MULTI-METER PANEL.

THE ONE-LINE BELOW DISPLAYS THE CONFIGURATION REQUIRED:

HIGH RISE METERING CONCEPT SCHEMATIC



1304.0 MASTER METERING

Master metering is an option for the High Rise project. Please see section 200, paragraph 201.4.

1305.0 EQUIPMENT: NON-NETWORK

APS construction standards for underground installations utilize pad mount equipment, transformers, capacitors and switchgear. Customers/developers are required to provide sufficient space at finished grade level to allow for the equipment to be installed, maintained and operated safely.

If a customer/developer is not able to provide the required space, the Company may provide with prior approval the following optional installations:

a. Front access pad mount switchgear at finished grade.

b. Vault type installations in designated equipment rooms within building structures located at or below finished grade. Below grade installations are limited to one (1) level below ground level.

c. Vault type installations required that the customer/developer service entrance equipment is to be installed on the same level as APS' equipment. Equipment room shall be a minimum of 15' in height.

Additional Vault specifications and access requirements for installations below grade are available from your APS representative under the T&D Construction Standards, Network Requirements section 9500.