

# HIGH RISE METERING AND EQUIPMENT

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**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.

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**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.

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**1300.3 SERVICE REQUIREMENTS**

The maximum service entrance section size shall be 3,000amp, 120/208v preferred or 277/480v. Developer/Builder/Customer is responsible for any voltage transformation beyond the service delivery point. If 277/480volt 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 three phase. Developer/Customer is responsible for meeting all code and governing agency requirements regarding voltage drop and load balancing.

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**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.

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**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.

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**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 that is recorded. This also, will be included within APS extension agreement.

Each project will require a meter access recorded easement.

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## 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
1 <sup>st</sup>	100	101	200	201	202	203	204	205		
3 <sup>rd</sup>	300	301	302	303	304	400	401	402	403	404
5 <sup>th</sup>	500	501	502	503	504	600	601	602	603	604
7 <sup>th</sup>	700	701	702	703	704	800	801	802	803	804
9 <sup>th</sup>	900	901	902	903	904	1000	1001	1002	1003	1004
11 <sup>th</sup>	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 switch gear (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 white letters and will be provided by APS. 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.

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**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 8 feet 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**

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**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.

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**1302.2 LOCK HARDWARE PROGRAM - SSIC**

All High Rise projects shall implement the lock program designated as SSIC or the Sargent Signature Interchangeable Core program. 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 SSIC lock program.

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

The Customer or Builder will provide the SSIC 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 interchangeable core. APS will coordinate this program and identify on each account, SSIC 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 or stairway.

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**

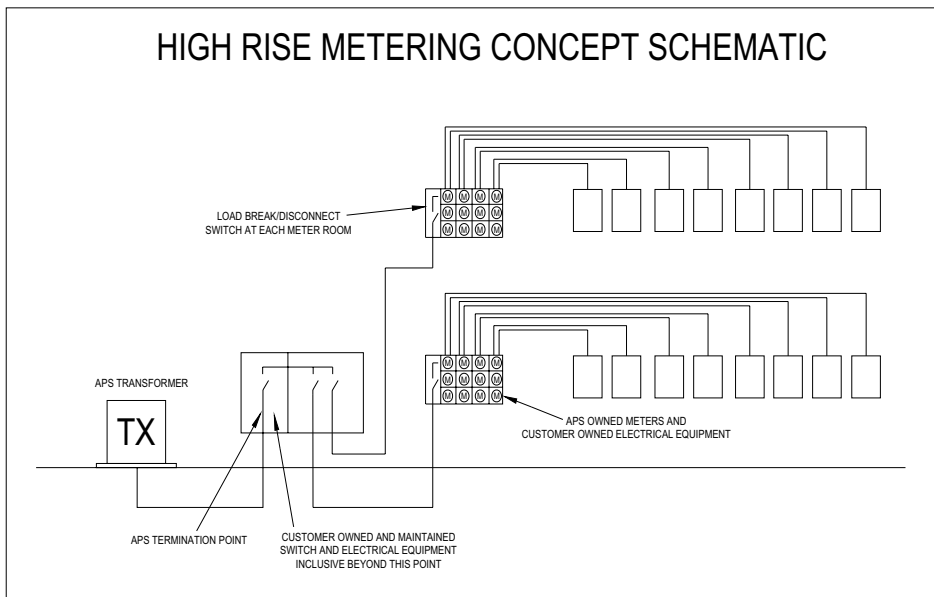
Each meter room will have an individual phone line pair located near a meter panel. Only one active phone line is required for the building.

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:



**1304.0 MASTER METERING**

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

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**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.

