

2004 Electric Service Standards Revisions and Addendum

SUMMARY OF REVISIONS TO 2004 ELECTRIC SERVICE STANDARDS

There have been some minor changes in wording that are not included in this summary of changes. These changes do not change the meaning but are for clarification only.

The section order has been revised in this new addition and they are as listed below.

Name of Section	New Section No.	Old Section No.
Definitions of Terms	100	100
Characteristics, types and availability of Electric Service	200	200
Use of Electric Service	300	1800
Service Equipment and Overcurrent Protection	400	1600
Overhead Service (Service Drops Under 600 volts)	500	300
Underground Residential Distribution (URD) Service	600	400
Overhead-to-Underground Secondary Service	700	500
Underground Service in Apartment Complexes	800	600
Service in high-rise Residential Buildings	900	700
Commercial or Industrial Services from large Padmount Distribution Transformers	1000	800
Services in Underground Distribution District	1100	900
Primary-Voltage Service-Overhead	1200	1000
Primary-Voltage Service-Underground (In Overhead or Underground Distribution District)	1300	1100
Service to Customer-Owned Meter Pole	1400	1200
Service in Mobile Home Parks	1500	1300
Temporary Service	1600	1400
Grounding of Service	1700	1700
Metering Equipment and its Installation	1800	1500

Changed all Subsection titles to "Article".

TABLE OF CONTENTS

SECTION ~~900-1100~~ – SERVICE IN UNDERGROUND DISTRIBUTION DISTRICT
will change to:

SECTION ~~900-1100~~ – SERVICE IN *NETWORK DISTRIBUTION AREA*
(CENTRAL BUSINESS DISTRICT SAN ANTONIO)

Added Article 209 **Single-Phase** Service Lateral Lengths

Added Article 608 Commercial Service from URD Area

Added Article 1206 Parallel Primary Voltage Service

Added Article 1305 Parallel Primary Voltage Service

SECTION 1500 - SERVICE IN MOBILE HOME PARKS, change to "**SERVICE IN MANUFACTURED HOME COMMUNITIES**"

Article 1817 - Mobile Home Park Pedestal, change to "**Manufactured Freestanding Meter Pedestal**"

Updated CPS Service Center Service Boundary Lines

SECTION 100 - DEFINITIONS OF TERMS

107 Building: Added to fire wall description by adding ...separation by firewalls "~~or area separation~~**fire barrier**".

120 Electric Service:

Added: Electric power and energy transmitted, distributed, and provided or made available by CPS at the point of delivery.

127.1 Effectively Grounded:

Intentionally connected to earth through a ground connection or connections of sufficiently low impedance and having sufficient current-carrying capacity to prevent buildup of voltages that may result in undue hazards to connected equipment or to persons.

130 Grounding Electrode Conductor:

Changed to: "The conductor used to connect the grounding electrode(s) to the equipment grounding conductor or to the grounded conductor, or to both, at the service, at each building or structure where supplied from a common service, or at the source of a separately derived system."

132 Meter Loop:

Changed to: "The meter loop, is all wiring and connections within the meter or instrument transformer enclosure or meter socket required to connect metering equipment to a customer's residence or place of business. This equipment usually consists of service lateral or service entrance conductors within the meter or instrument transformer enclosure or meter socket for connection to the line and load side of metering equipment."

133 Meter Pole:

Changed creosoted pine pole to chemically treated wood pole.

140 Point of Delivery

Also see "service point" NEC 230-200, has been removed. NEC 230-200 is no longer in the 1993 NEC. Added NEC Service point reference.

140.1 Common Points of Delivery:

(B) URD Areas and Apartment Complexes with UG Service:

URD Areas and Apartment Complexes In URD areas was changed to URD Areas and Apartment Complexes with UG Service, because apartments are not only in URD areas that have underground services.

Added that duplex's and double mobile home spaces will not need a junction box on underground services. The service lateral will connect directly to the customers wire gutter.

Added Exception 3. Where one to six meters are served from a customer owned Meter Module, the point of delivery will be at the Meter Module main lug only bus, or main breaker if present. Meter Modules are owned and maintained by the customer.

(E) Service in ~~Underground Network Distribution District~~ Area:

Was changed to "Services in Network Distribution Area".

CPS will no longer have a service switch ahead of CPS metering and customers service equipment. This switch will now be customer owned, see Section 1100.

(H) Primary-voltage Cable to High-rise Residential Buildings:

Point of delivery was stated as the transformer vault, for Clarification, at the secondary spades of transformer was added.

141 Portable:

Added: Manufactured homes installed on permanent foundations are still by design, structures that may be re-located from one site to another.

145 Service Conductors:

Changed to: The conductors from the service point (point of delivery) to the service disconnecting means.

Service Drop: Changed from: last pole or other aerial support to and including the splices, if any,; changed to: CPS' overhead distribution system.

153 Service-lateral Conductors - Types Furnished by CPS:

Moved this section into the appropriate section of the standards book and left this Article blank intentionally.

158 Transocket

Changed existing Section 158 to 159 and inserted Transocket definition.

159 Underground Distribution District:

Changed to: **Underground Network Distribution Area:**

SECTION 200 - CHARACTERISTICS, TYPES AND AVAILABILITY OF ELECTRIC SERVICE

201 Characteristics of Service:

Reworded first paragraph.

Added the last paragraph regarding customer expense.

202 Types of Electric Service, Overhead Distribution Area:

202.2 Voltage for Combination Power and Lights - Single-phase and Three-phase:

Third paragraph, Single-phase transformers mounted on overhead platform has been deleted for installation and customer must make provisions for a padmount transformer. CPS strongly advises customer to switch to the standard three-phase 208Y/120-volt or 480Y/277-volt service. Reduced demand load from 75 kVA to 45kVA to qualify for a 480Y/277-volt service.

202.3 Three-phase Primary-voltage Service:

Minimum load requirements are now stated for Primary-voltage service.

202.4 Single-phase Primary-voltage Service:

This article was added with minimum kVA loads required for this service.

203 Demand Loads in Overhead Distribution Area:

203.3 Changed to Demand Loads through 167kVA, Single-Phase:

167 is also the maximum kVA for OH transformers

203.4 Maximum Demand Load Served at a Single Point of Delivery with One Standard-size Pad-mounted Transformer , 480-volts and Less:

(c) 240Δ/120-volt padmount services, has been removed for new installations.

(d) was changed to (3) and single phase transformer size was reduced from 500 kVA to 250 kVA. **Added (4) 240/120-volt three-phase service - 1000 kVA - See Article 202.2.**

205 Types of Electric Service and Demand Loads - Underground Distribution

District (Network Grid): was changed to:

Types of Electric Service and Demand Loads in Underground Network Distribution Area, (San Antonio Central Business District):

205.1 Voltage for Combination Power and Lights:

With special permission, a 120/208-volt single-phase service of 15 kVA or less may be granted by CPS has been added.

207 Separate Services Supplied:

Added firewall definition. **(A minimum two hour fire barrier)**

Also added "Services in buildings with multiple services shall not cross fire barrier."

209 Single-Phase Service Lateral Lengths:

Added paragraph addressing maximum service lateral lengths.

SECTION 300 - USE OF ELECTRIC SERVICE**303 Continuity of Service and System Protection:**

Second paragraph, Protection for **unbalanced voltage** was added.

304 Load Balancing and Voltage Drop:

Included statement for conductor sizes to be approved by CPS.

305 Interference:

Added specifications to limit interference caused by customer equipment. Clarified customer to contact Engineer for installation of equipment that may cause interference to CPS system.

307 Emergency Power Systems:

Added "break before make" clarification.

SECTION 400 - SERVICE EQUIPMENT AND OVERCURRENT PROTECTION**402 Location of Disconnects and Overcurrent Protection:**

Added requirement to locate main disconnect for access to CPS personnel at all times. Added that special circumstances will be considered for the location of the disconnect when shown that the outside location may create an undue hardship for the customer

402.1 Fire Pumps:

This is a new article to clarify the installation of fire pump overcurrent devices.

404 Service Equipment at Self-contained 480Y/277-volt Meters:

Removed customers service equipment ratings. Added requirement that customer's service disconnecting device on the line side of the meter shall not be utilized as a switching device.

404.1 Grounding of Service Equipment at self-contained 480Y/277-volt Meters:

This is an added article stating that it is permissible to route the grounding electrode conductor through CPS meter socket with a factory insulated conductor if no auxiliary gutters are installed.

405 Sealing of Disconnecting Devices:

Added that under emergency conditions a customer may break the CPS security seal to disconnect the service.

SECTION 500 - OVERHEAD SERVICES (SERVICE DROPS UNDER 600 VOLTS)**501 General:**

Added a description of where new overhead services will be prohibited. Where, how and under what conditions new services may be installed.

502 Clearances: (See Figure 500.1)

Updated vertical clearances

502.1 Above roofs:

Inserted exception No. 1 for service drop clearances above a roof surface structure.

Exception No. 3, a change in NEC 230.24, exception No. 3, now allowing 6 feet instead of 4 feet of service drop conductors to pass over not more than 4 feet of roof overhang.

502.2 Vertical Clearance from Ground:

Removed clearances and referenced Figure 500.1

502.3 Clearance from Building Openings:

Added vertical and horizontal clearances; and obstructions to building openings.

502.4 Overhead Conductor Clearances (Swimming Pools):

Added 10-foot horizontal clearance to figure 500.7.

503 Length:

Reworded. Added service drop length may be limited by voltage drop.

504 Anchorage:**504.3 Types:**

If standard type CPS anchors cannot be used, customer is to provide the anchor. This is for adobe, metal or any other structures that the normally installed CPS anchors cannot be used on.

506 Service Raceway:**506.1 Location:**

Added couplings and fittings shall be threaded

506.5 Service Masts:

Exception: Telephone or CATV drops, when approved, may be supported by the service mast has been eliminated. Per NEC 230.28, only power service drop conductors shall be permitted to be attached to a service mast.

CPS normally furnishes a 200-ampere meter socket for single-phase service.

508.5 Means of Identifying Ungrounded Conductors:

Changed high-leg location on 240Δ/120-volt socket

Updated Figure 500.1 on vertical clearances.

SECTION 600: UNDERGROUND RESIDENTIAL DISTRIBUTION (URD) SERVICE**602 Standard Installation:**

(3) A change in service laterals from direct buried to in service laterals in conduit

← - - - - Formatted: Bullets and Numbering

(5) Noting that all CPS cables will be in conduit.

603 Service Lateral:

A change in service laterals from direct buried to in 2 1/2-inch conduit. Added maximum length value and explanation.

603.1 Depth:

A change in service laterals from direct buried, 24 inches deep to service laterals in 2 1/2-inch conduit, 24 inches deep minimum.

Second paragraph, this is stating that if customer desires to install driveways or sidewalks prior to CPS installing cable and conduit, they are to install a 6-inch ~~and a 4-inch~~ conduit sleeve extending 12 inches on each side. ~~The 4-inch sleeve was added for meter communications conduit.~~ **Removed the 4-inch conduit sleeve for meter communications. This will not be installed in URD applications. Only the 6-inch conduit sleeve will be required for URD applications.**

603.2 Service-lateral Trench:

Customer is responsible for all revision and construction costs for final grade changes after CPS has begun construction.

Customer shall identify all property lines was added to this paragraph.

603.4 Clearance from Swimming Pools:

A change from direct buried to service lateral in conduit and must have 5 foot of clearance from the waters edge. If 5 feet is no attainable, the service lateral conduit must have supplemental mechanical protection. CPS approval is required. Added to this paragraph is reference to Article 607 on easements.

603.5 Clearance from Other Buried Facilities:

Clearances shall be governed by the NEC and/or NESC and CPS Engineering approval.

604 Service-lateral Raceway:

This section was totally rewritten from customer installing the raceway to 12 inches below finished grade, to CPS making the service lateral raceway an extension of CPS service lateral conduit. Customer will install meter socket and fasten the raceway to the wall. It is also noted that a duplex service will not require a junction box. CPS will terminate the service lateral in customer's wireway.

Customer shall provide a 2 1/2-inch PVC male adapter for a 200-ampere meter socket or 3-inch PVC male adapter for a 320-ampere meter socket.

604.1 Approved Types: (This has been eliminated)

This was the approved types of service raceway a customer could install. With CPS making the service-lateral raceway and extension of the conduit, this was no longer necessary.

604.2 Size and Number: (This has been eliminated)

Conduit sizing of service-lateral raceway for each type of meter socket by the customer is no longer necessary due to CPS standardizing on 2 1/2-inch conduit and making it an extension of the CPS installed conduit.

606 URD Service from CPS Poles:

CPS will install all service lateral raceways (ducts) in URD areas even if service cable size is larger than # 4/0.

608 Commercial Service from URD Area:

New Article. **Removed the detail of Articles 608.1-608.6. This is a special installation and shall be approved by CPS' Engineering Department.**

Figure 600.1:

URD electric service depth was corrected to reflect 24 inches. Removed the 1-4-inch PVC conduit reference for sidewalks, driveways, or other obstruction to service lateral.

SECTION 700 OVERHEAD-TO-UNDERGROUND SECONDARY SERVICE**702 Service-lateral Duct:**

A second paragraph was added addressing future communications to electric meters.

702.3 Number of Conduits:

A 2-inch conduit for future communications to metering was added on the number of conduits to be installed

703 Service Lateral and Load:

Table 700.1 and 700.2 added.

Table 700.1

OVERHEAD TO UNDERGROUND SERVICE LATERAL CONDUIT AND CONDUCTOR SIZES

120/240	TOTAL WIRE DISTANCE IN FEET (TRANSFORMER TO METER)						
SVC	XFMR SIZES	125ft.	126ft. to 150ft.	151ft. to 175ft.	176ft. to 200ft.	201ft. to 225ft.	226ft. to 250ft.
10	10 kVA	#1/0 URD 1-3" PVC	#1/0 URD 1-3" PVC	#1/0 URD 1-3" PVC	#1/0 URD 1-3" PVC	#1/0 URD 1-3" PVC	#1/0 URD 1-3" PVC
10	15 kVA	#1/0 URD 1-3" PVC	#1/0 URD 1-3" PVC	#1/0 URD 1-3" PVC	#1/0 URD 1-3" PVC	#1/0 URD 1-3" PVC	#3/0 URD 1-3" PVC
10	25 kVA	#3/0 URD 1-3" PVC	#3/0 URD 1-3" PVC	#3/0 URD 1-3" PVC	#3/0 URD 1-3" PVC	#4/0 URD 1-3" PVC	#4/0 URD 1-3" PVC
10	37.5 kVA	#4/0 URD 1-3" PVC	#4/0 URD 1-3" PVC	#4/0 URD 1-3" PVC	#4/0 URD 1-3" PVC	#4/0 URD 1-3" PVC	#4/0 URD 1-3" PVC
10	50 kVA	#4/0 URD 1-3" PVC	#4/0 URD 1-3" PVC	2-250 EPR 1-2/0 EPR 1-3" PVC	2-250 EPR 1-2/0 EPR 1-3" PVC	2-250 EPR 1-2/0 EPR 1-3" PVC	2-250 EPR 1-2/0 EPR 1-3" PVC
10	75 kVA	2-350 EPR 1-3/0 EPR 1-4" PVC	2-350 EPR 1-3/0 EPR 1-4" PVC	2-350 EPR 1-3/0 EPR 1-4" PVC	2-500 EPR 1-4/0 EPR 1-4" PVC	2-500 EPR 1-4/0 EPR 1-4" PVC	4-4/0 EPR 1-1/0 EPR 2-3" PVC
10	100 kVA	2-500 EPR 1-4/0 EPR 1-4" PVC	2-500 EPR 1-4/0 EPR 1-4" PVC	2-4/0 URD 2-3" PVC	2-250 EPR 2-2/0 EPR 2-3" PVC	2-250 EPR 2-2/0 EPR 2-3" PVC	2-350 EPR 1-3/0 EPR 2-3" PVC
10	167 kVA	4-350 EPR 2-3/0 EPR 2-3" PVC	4-350 EPR 2-3/0 EPR 2-3" PVC	4-500 EPR 2-4/0 EPR 2-4" PVC	4-500 EPR 2-4/0 EPR 2-4" PVC	N.A.	N.A.

"URD" IS 3-CONDUCTOR CABLE, ALUMINUM (#4/0 IS COPPER), 90°C INSULATION.

"EPR" IS 1-CONDUCTOR CABLE, COPPER, 90°C INSULATION.

Table 700.1 (cont.)

OVERHEAD TO UNDERGROUND SERVICE LATERAL CONDUIT AND CONDUCTOR SIZES

208/120	TOTAL WIRE DISTANCE IN FEET (TRANSFORMER TO METER)						
SVC	XFMR SIZES	125ft.	126ft. to 150ft.	151ft. to 175ft.	176ft. to 200ft.	201ft. to 225ft.	226ft. to 250ft.
6	3-10 kVA	4-4 EPR 1-2 1/2" PVC	4-4 EPR 1-2 1/2" PVC	3-2 EPR 1-4 EPR 1-2 1/2" PVC	3-1 EPR 1-4 EPR 1-2 1/2" PVC	3-1 EPR 1-4 EPR 1-2 1/2" PVC	3-1/0 EPR 1-2 EPR 1-2 1/2" PVC
6	3-15 kVA	3-2 EPR 1-4 EPR 1-2 1/2" PVC	3-1 EPR 1-4 EPR 1-2 1/2" PVC	3-1/0 EPR 1-2 EPR 1-2 1/2" PVC	3-1/0 EPR 1-2 EPR 1-2 1/2" PVC	3-2/0 EPR 1-2 EPR 1-3" PVC	3-3/0 EPR 1-1 EPR 1-3" PVC
6	3-25 Kva	3-3/0 EPR 1-1 EPR 1-3" PVC	3-3/0 EPR 1-1 EPR 1-3" PVC	3-3/0 EPR 1-1 EPR 1-3" PVC	3-4/0 EPR 1-1/0 EPR 1-3" PVC	3-250 EPR 1-2/0 EPR 1-3" PVC	6-2/0 EPR 2-2 EPR 2-3" PVC
6	3-37.5 kVA	3-350 EPR 1-4/0 EPR 1-4" PVC	3-350 EPR 1-4/0 EPR 1-4" PVC	3-350 EPR 1-4/0 EPR 1-4" PVC	6-3/0 EPR 2-1 EPR 2-3" PVC	6-3/0 EPR 2-1 EPR 2-3" PVC	6-4/0 EPR 2-1/0 EPR 2-3" PVC
6	3-50 kVA	3-500 EPR 1-4/0 EPR 1-4" PVC	3-500 EPR 1-4/0 EPR 1-4" PVC	6-4/0 EPR 2-1/0 EPR 2-3" PVC	6-4/0 EPR 2-1/0 EPR 2-3" PVC	6-250 EPR 2-2/0 EPR 2-3" PVC	N.A.
6	3-75 kVA	6-350 EPR 2-4/0 EPR 2-4" PVC	6-350 EPR 2-4/0 EPR 2-4" PVC	N.A.	N.A.	N.A.	N.A.
6	3-100 kVA	6-500 EPR 2-4/0 EPR 2-4" PVC	6-500 EPR 2-4/0 EPR 2-4" PVC	N.A.	N.A.	N.A.	N.A.

"URD" IS 3-CONDUCTOR CABLE, ALUMINUM (#4/0 IS COPPER), 90°C INSULATION.

"EPR" IS 1-CONDUCTOR CABLE, COPPER, 90°C INSULATION

Table 700.1 (cont.)

OVERHEAD TO UNDERGROUND SERVICE LATERAL CONDUIT AND CONDUCTOR SIZES

240/120	TOTAL WIRE DISTANCE IN FEET (TRANSFORMER TO METER)						
SVC	XFMR SIZES	125ft.	126ft. to 150ft.	151ft. to 175ft.	176ft. to 200ft.	201ft. to 225ft.	226ft. to 250ft.
12	10 kVA & 5 kVA	4-4 EPR 1-2 1/2" PVC	4-4 EPR 1-2 1/2" PVC	4-4 EPR 1-2 1/2" PVC	4-4 EPR 1-2 1/2" PVC	4-4 EPR 1-2 1/2" PVC	4-4 EPR 1-2 1/2" PVC
12	10 kVA & 10 kVA	4-4 EPR 1-2 1/2" PVC	4-4 EPR 1-2 1/2" PVC	4-4 EPR 1-2 1/2" PVC	4-4 EPR 1-2 1/2" PVC	4-4 EPR 1-2 1/2" PVC	4-4 EPR 1-2 1/2" PVC
12	15 kVA & 5 kVA	4-4 EPR 1-2 1/2" PVC	4-4 EPR 1-2 1/2" PVC	4-4 EPR 1-2 1/2" PVC	2-2 EPR 2-4 EPR 1-2 1/2" PVC	2-2 EPR 2-4 EPR 1-2 1/2" PVC	2-2 EPR 2-4 EPR 1-2 1/2" PVC
12	15 kVA & 10 kVA	4-4 EPR 1-2 1/2" PVC	4-4 EPR 1-2 1/2" PVC	4-4 EPR 1-2 1/2" PVC	2-2 EPR 2-4 EPR 1-2 1/2" PVC	2-2 EPR 2-4 EPR 1-2 1/2" PVC	2-2 EPR 2-4 EPR 1-2 1/2" PVC
12	15 kVA & 15 kVA	3-2 EPR 1-4 EPR 1-2 1/2" PVC	3-2 EPR 1-4 EPR 1-2 1/2" PVC	3-2 EPR 1-4 EPR 1-2 1/2" PVC	3-2 EPR 1-4 EPR 1-2 1/2" PVC	3-2 EPR 1-4 EPR 1-2 1/2" PVC	3-2 EPR 1-4 EPR 1-2 1/2" PVC
12	25 kVA & 5 kVA	2-2 EPR 2-4 EPR 1-2 1/2" PVC	2-2 EPR 2-4 EPR 1-2 1/2" PVC	2-1 EPR 2-4 EPR 1-2 1/2" PVC	2-1/0 EPR 2-4 EPR 1-2 1/2" PVC	2-1/0 EPR 2-4 EPR 1-2 1/2" PVC	2-2/0 EPR 2-2 EPR 1-2 1/2" PVC
12	25 kVA & 10 kVA	2-2 EPR 2-4 EPR 1-2 1/2" PVC	2-2 EPR 2-4 EPR 1-2 1/2" PVC	2-1 EPR 2-4 EPR 1-2 1/2" PVC	2-1/0 EPR 2-4 EPR 1-2 1/2" PVC	2-1/0 EPR 2-4 EPR 1-2 1/2" PVC	2-2/0 EPR 2-2 EPR 1-2 1/2" PVC
12	25 kVA & 15 kVA	2-2 EPR 2-4 EPR 1-2 1/2" PVC	2-2 EPR 2-4 EPR 1-2 1/2" PVC	2-1 EPR 2-4 EPR 1-2 1/2" PVC	2-1/0 EPR 2-4 EPR 1-2 1/2" PVC	2-1/0 EPR 2-4 EPR 1-2 1/2" PVC	2-2/0 EPR 2-2 EPR 1-2 1/2" PVC
12	25 kVA & 25 kVA	3-2 EPR 1-4 EPR 1-2 1/2" PVC	3-2 EPR 1-4 EPR 1-2 1/2" PVC	3-1 EPR 1-4 EPR 1-2 1/2" PVC	3-1/0 EPR 1-2 EPR 1-2 1/2" PVC	3-1/0 EPR 1-2 EPR 1-2 1/2" PVC	3-2/0 EPR 1-2 EPR 1-2 1/2" PVC
12	37 1/2 kVA & 5 kVA	2-1/0 EPR 2-4 EPR 1-2 1/2" PVC	2-1/0 EPR 2-4 EPR 1-2 1/2" PVC	2-2/0 EPR 2-2 EPR 1-2 1/2" PVC	2-3/0 EPR 2-2 EPR 1-3" PVC	2-3/0 EPR 2-2 EPR 1-3" PVC	2-4/0 EPR 2-1 EPR 1-3" PVC
12	37 1/2 kVA & 10 kVA	2-1/0 EPR 2-4 EPR 1-2 1/2" PVC	3-1/0 EPR 2-4 EPR 1-2 1/2" PVC	2-2/0 EPR 2-2 EPR 1-2 1/2" PVC	2-3/0 EPR 2-2 EPR 1-3" PVC	2-3/0 EPR 2-2 EPR 1-3" PVC	2-4/0 EPR 2-1 EPR 1-3" PVC
12	37 1/2 kVA & 15 kVA	2-1/0 EPR 2-4 EPR 1-2 1/2" PVC	2-1/0 EPR 2-4 EPR 1-2 1/2" PVC	2-2/0 EPR 2-2 EPR 1-2 1/2" PVC	2-3/0 EPR 2-2 EPR 1-3" PVC	2-3/0 EPR 2-2 EPR 1-3" PVC	2-4/0 EPR 2-1 EPR 1-3" PVC

"URD" IS 3-CONDUCTOR CABLE, ALUMINUM (#4/0 IS COPPER), 90°C INSULATION.
 "EPR" IS 1-CONDUCTOR CABLE, COPPER, 90°C INSULATION

Table 700.1 (cont.)

OVERHEAD TO UNDERGROUND SERVICE LATERAL CONDUIT AND CONDUCTOR SIZES

240/120	TOTAL WIRE DISTANCE IN FEET (TRANSFORMER TO METER)						
SVC	XFMR SIZES	125ft.	126ft. to 150ft.	151ft. to 175ft.	176ft. to 200ft.	201ft. to 225ft.	226ft. to 250ft.
12	37 1/2 kVA & 25 kVA	2-1/0 EPR 2-4 EPR 1-2 1/2" PVC	2-1/0 EPR 2-2 EPR 1-2 1/2" PVC	2-2/0 EPR 2-2 EPR 1-2 1/2" PVC	2-3/0 EPR 2-1 EPR 1-3" PVC	2-3/0 EPR 2-1 EPR 1-3" PVC	2-4/0 EPR 2-1/0 EPR 1-3" PVC
12	37 1/2 kVA & 37 1/2 kVA	3-1/0 EPR 1-2 EPR 1-2 1/2" PVC	3-1/0 EPR 1-2 EPR 1-2 1/2" PVC	3-1/0 EPR 1-2 EPR 1-2 1/2" PVC	3-2/0 EPR 1-2 EPR 1-3" PVC	3-3/0 EPR 1-1 EPR 1-3" PVC	3-3/0 EPR 1-1 EPR 1-3" PVC
12	50 kVA & 5 kVA	2-3/0 EPR 2-2 EPR 1-3" PVC	2-3/0 EPR 2-2 EPR 1-3" PVC	2-3/0 EPR 2-2 EPR 1-3" PVC	2-4/0 EPR 2-1 EPR 1-3" PVC	2-250 EPR 2-1 EPR 1-3" PVC	2-350 EPR 2-1/0 EPR 1-3" PVC
12	50 kVA & 10 kVA	2-3/0 EPR 2-2 EPR 1-3" PVC	2-3/0 EPR 2-2 EPR 1-3" PVC	2-3/0 EPR 2-2 EPR 1-3" PVC	2-4/0 EPR 2-1 EPR 1-3" PVC	2-250 EPR 2-1 EPR 1-3" PVC	2-350 EPR 2-1/0 EPR 1-3" PVC
12	50 kVA & 15 kVA	2-3/0 EPR 2-2 EPR 1-3" PVC	2-3/0 EPR 2-2 EPR 1-3" PVC	2-3/0 EPR 2-2 EPR 1-3" PVC	2-4/0 EPR 2-1 EPR 1-3" PVC	2-250 EPR 2-1 EPR 1-3" PVC	2-350 EPR 2-1/0 EPR 1-3" PVC
12	50 kVA & 25 kVA	2-3/0 EPR 2-2 EPR 1-3" PVC	2-3/0 EPR 2-2 EPR 1-3" PVC	2-3/0 EPR 2-2 EPR 1-3" PVC	2-4/0 EPR 2-1 EPR 1-3" PVC	2-250 EPR 2-1 EPR 1-3" PVC	2-350 EPR 2-1/0 EPR 1-3" PVC
12	50 kVA & 37 1/2 kVA	2-3/0 EPR 2-1/0 EPR 1-3" PVC	2-3/0 EPR 2-1/0 EPR 1-3" PVC	2-3/0 EPR 2-1/0 EPR 1-3" PVC	2-4/0 EPR 2-2/0 EPR 1-3" PVC	2-250 EPR 2-3/0 EPR 1-3" PVC	2-350 EPR 2-3/0 EPR 1-3" PVC
12	50 kVA & 50 kVA	3-3/0 EPR 1-1 EPR 1-3" PVC	3-3/0 EPR 1-1 EPR 1-3" PVC	3-3/0 EPR 1-1 EPR 1-3" PVC	3-4/0 EPR 1-1/0 EPR 1-3" PVC	3-4/0 EPR 1-1/0 EPR 1-3" PVC	3-250 EPR 1-2/0 EPR 1-3" PVC
12	75 kVA & 5 kVA	2-350 EPR 2-1/0 EPR 1-3" PVC	2-350 EPR 2-1/0 EPR 1-3" PVC	2-350 EPR 2-1/0 EPR 1-3" PVC	2-500 EPR 2-2/0 EPR 1-4" PVC	2-500 EPR 2-3/0 EPR 1-4" PVC	4-4/0 EPR 4-1 EPR 2-3" PVC
12	75 kVA & 10 kVA	2-350 EPR 2-1/0 EPR 1-3" PVC	2-350 EPR 2-1/0 EPR 1-3" PVC	2-350 EPR 2-1/0 EPR 1-3" PVC	2-500 EPR 2-2/0 EPR 1-4" PVC	2-500 EPR 2-2/0 EPR 1-4" PVC	4-4/0 EPR 4-1 EPR 2-3" PVC
12	75 kVA & 15 kVA	2-350 EPR 2-1/0 EPR 1-3" PVC	2-350 EPR 2-1/0 EPR 1-3" PVC	2-350 EPR 2-1/0 EPR 1-3" PVC	2-500 EPR 2-2/0 EPR 1-4" PVC	2-500 EPR 2-2/0 EPR 1-4" PVC	4-4/0 EPR 4-1 EPR 2-3" PVC
12	75 kVA & 25 kVA	2-350 EPR 2-1/0 EPR 1-3" PVC	2-350 EPR 2-1/0 EPR 1-3" PVC	2-350 EPR 2-1/0 EPR 1-3" PVC	2-500 EPR 2-2/0 EPR 1-4" PVC	2-500 EPR 2-2/0 EPR 1-4" PVC	4-4/0 EPR 4-1 EPR 2-3" PVC

"URD" IS 3-CONDUCTOR CABLE, ALUMINUM (#4/0 IS COPPER), 90°C INSULATION.

"EPR" IS 1-CONDUCTOR CABLE, COPPER, 90°C INSULATION

Table 700.1 (cont.)

OVERHEAD TO UNDERGROUND SERVICE LATERAL CONDUIT AND CONDUCTOR SIZES

240/120	TOTAL WIRE DISTANCE IN FEET (TRANSFORMER TO METER)						
SVC	XFMR SIZES	125ft.	126ft. to 150ft.	151ft. to 175ft.	176ft. to 200ft.	201ft. to 225ft.	226ft. to 250ft.
12	75 kVA & 37 1/2 kVA	2-350 EPR 2-1/0 EPR 1-3" PVC	2-350 EPR 2-1/0 EPR 1-3" PVC	2-350 EPR 2-1/0 EPR 1-3" PVC	2-500 EPR 2-2/0 EPR 1-4" PVC	2-500 EPR 2-3/0 EPR 1-4" PVC	4-4/0 EPR 4-1 EPR 2-3" PVC
12	75 kVA & 50 kVA	2-350 EPR 2-3/0 EPR 1-3" PVC	2-350 EPR 2-3/0 EPR 1-3" PVC	2-350 EPR 2-3/0 EPR 1-3" PVC	4-3/0 EPR 4-1 EPR 2-3" PVC	4-3/0 EPR 4-1 EPR 2-3" PVC	4-4/0 EPR 4-1/0 EPR 2-3" PVC
12	75 kVA & 75 kVA	3-350 EPR 1-3/0 EPR 1-4" PVC	3-350 EPR 1-3/0 EPR 1-4" PVC	3-350 EPR 1-3/0 EPR 1-4" PVC	6-3/0 EPR 2-1 EPR 2-3" PVC	6-3/0 EPR 2-1 EPR 2-3" PVC	6-4/0 EPR 2-1/0 EPR 2-3" PVC
12	100 kVA & 5 kVA	2-500 EPR 2-3/0 EPR 1-4" PVC	2-500 EPR 2-3/0 EPR 1-4" PVC	4-3/0 EPR 4-1 EPR 2-3" PVC	4-4/0 EPR 4-1 EPR 2-3" PVC	4-250 EPR 4-1/0 EPR 2-3" PVC	4-350 EPR 4-1/0 EPR 2-3" PVC
12	100 kVA & 10 kVA	2-500 EPR 2-3/0 EPR 1-4" PVC	2-500 EPR 2-3/0 EPR 1-4" PVC	4-3/0 EPR 4-1 EPR 2-3" PVC	4-4/0 EPR 4-1 EPR 2-3" PVC	4-250 EPR 4-1/0 EPR 2-3" PVC	4-350 EPR 4-1/0 EPR 2-3" PVC
12	100 kVA & 15 kVA	2-500 EPR 2-3/0 EPR 1-4" PVC	2-500 EPR 2-3/0 EPR 1-4" PVC	4-3/0 EPR 4-1 EPR 2-3" PVC	4-4/0 EPR 4-1 EPR 2-3" PVC	4-250 EPR 4-1/0 EPR 2-3" PVC	4-350 EPR 4-1/0 EPR 2-3" PVC
12	100 kVA & 25 kVA	2-500 EPR 2-3/0 EPR 1-4" PVC	2-500 EPR 2-3/0 EPR 1-4" PVC	4-3/0 EPR 4-1 EPR 2-3" PVC	4-4/0 EPR 4-1 EPR 2-3" PVC	4-250 EPR 4-1/0 EPR 2-3" PVC	4-350 EPR 4-1/0 EPR 2-3" PVC
12	100 kVA & 37 1/2 kVA	2-500 EPR 2-3/0 EPR 1-4" PVC	2-500 EPR 2-3/0 EPR 1-4" PVC	4-3/0 EPR 4-1 EPR 2-3" PVC	4-4/0 EPR 4-1 EPR 2-3" PVC	4-250 EPR 4-1/0 EPR 2-3" PVC	4-350 EPR 4-1/0 EPR 2-3" PVC
12	100 kVA & 50 kVA	2-500 EPR 2-3/0 EPR 1-4" PVC	2-500 EPR 2-3/0 EPR 1-4" PVC	4-3/0 EPR 4-1 EPR 2-3" PVC	4-4/0 EPR 4-1 EPR 2-3" PVC	4-250 EPR 4-1/0 EPR 2-3" PVC	4-350 EPR 4-1/0 EPR 2-3" PVC
12	100 kVA & 75 kVA	2-500 EPR 2-350 EPR 1-4" PVC	2-500 EPR 2-350 EPR 1-4" PVC	4-3/0 EPR 4-1/0 EPR 2-3" PVC	4-4/0 EPR 4-2/0 EPR 2-3" PVC	4-250 EPR 4-3/0 EPR 2-3" PVC	4-350 EPR 4-4/0 EPR 2-3" PVC
12	100 kVA & 100 kVA	3-500 EPR 1-4/0 EPR 1-4" PVC	3-500 EPR 1-4/0 EPR 1-4" PVC	6-3/0 EPR 2-1 EPR 2-3" PVC	6-3/0 EPR 2-1 EPR 2-3" PVC	6-4/0 EPR 2-1/0 EPR 2-3" PVC	6-250 EPR 2-2/0 EPR 2-3" PVC

"URD" IS 3-CONDUCTOR CABLE, ALUMINUM (#4/0 IS COPPER), 90°C) INSULATION.
 "EPR" IS 1-CONDUCTOR CABLE, COPPER, 90°C INSULATION

Table 700.1 (cont.)

OVERHEAD TO UNDERGROUND SERVICE LATERAL CONDUIT AND CONDUCTOR SIZES

480/277		TOTAL WIRE DISTANCE IN FEET (TRANSFORMER TO METER)					
SVC	XFMR SIZES	125ft.	126ft. to 150ft.	151ft. to 175ft.	176ft. to 200ft.	201ft. to 225ft.	226ft. to 250ft.
18	3-10 kVA	4-4 EPR 1-2 1/2" PVC	4-4 EPR 1-2 1/2" PVC	4-4 EPR 1-2 1/2" PVC	4-4 EPR 1-2 1/2" PVC	4-4 EPR 1-2 1/2" PVC	4-4 EPR 1-2 1/2" PVC
18	3-15 kVA	4-4 EPR 1-2 1/2" PVC	4-4 EPR 1-2 1/2" PVC	4-4 EPR 1-2 1/2" PVC	4-4 EPR 1-2 1/2" PVC	4-4 EPR 1-2 1/2" PVC	4-4 EPR 1-2 1/2" PVC
18	3-25 kVA	4-4 EPR 1-2 1/2" PVC	4-4 EPR 1-2 1/2" PVC	4-4 EPR 1-2 1/2" PVC	4-4 EPR 1-2 1/2" PVC	4-4 EPR 1-2 1/2" PVC	4-4 EPR 1-2 1/2" PVC
18	3-37 1/2 kVA	3-1 EPR 1-4 EPR 1-2 1/2" PVC	3-1 EPR 1-4 EPR 1-2 1/2" PVC	3-1 EPR 1-4 EPR 1-2 1/2" PVC	3-1 EPR 1-4 EPR 1-2 1/2" PVC	3-1 EPR 1-4 EPR 1-2 1/2" PVC	3-1 EPR 1-4 EPR 1-2 1/2" PVC
18	3-50 kVA	3-2/0 EPR 1-2 EPR 1-3" PVC	3-2/0 EPR 1-2 EPR 1-3" PVC	3-2/0 EPR 1-2 EPR 1-3" PVC	3-2/0 EPR 1-2 EPR 1-3" PVC	3-2/0 EPR 1-2 EPR 1-3" PVC	3-2/0 EPR 1-2 EPR 1-3" PVC
18	3-75 kVA	3-250 EPR 1-2/0 EPR 1-3" PVC	3-250 EPR 1-2/0 EPR 1-3" PVC	3-250 EPR 1-2/0 EPR 1-3" PVC	3-250 EPR 1-2/0 EPR 1-3" PVC	3-250 EPR 1-2/0 EPR 1-3" PVC	3-250 EPR 1-2/0 EPR 1-3" PVC
18	3-100 kVA	3-500 EPR 1-4/0 EPR 1-4" PVC	3-500 EPR 1-4/0 EPR 1-4" PVC	6-2/0 EPR 2-2 EPR 2-3" PVC	6-2/0 EPR 2-2 EPR 2-3" PVC	6-2/0 EPR 2-2 EPR 2-3" PVC	6-2/0 EPR 2-2 EPR 2-3" PVC

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"EPR" IS 1-CONDUCTOR CABLE, COPPER, 90°C INSULATION

Table 700.2

**UNDERGROUND FACILITIES
(INSTALLATION/OWNERSHIP)**

TYPE	PRIMARY		SECONDARY	
	CONDUIT	CABLE	CONDUIT	CABLE
1. RESIDENTIAL URD 10 LOOP	CPS ENERGY INSTALLED	CPS ENERGY INSTALLED	N.A.	CPS ENERGY INSTALLED
	CPS ENERGY OWNED	CPS ENERGY OWNED	N.A.	CPS ENERGY OWNED
2. APARTMENT URD 10 LOOP	CPS ENERGY INSTALLED	CPS ENERGY INSTALLED	CUSTOMER INSTALLED	CPS ENERGY INSTALLED
	CPS ENERGY OWNED	CPS ENERGY OWNED	CPS ENERGY OWNED	CPS ENERGY OWNED
3. COMMERCIAL URD 10 LOOP	CPS ENERGY INSTALLED	CPS ENERGY INSTALLED	CUSTOMER INSTALLED	CUSTOMER INSTALLED
	CPS ENERGY OWNED	CPS ENERGY OWNED	CUSTOMER OWNED	CUSTOMER OWNED
4. COMMERCIAL URD 10 RADIAL	CUSTOMER INSTALLED	CPS ENERGY INSTALLED	CUSTOMER INSTALLED	CUSTOMER INSTALLED
	CPS ENERGY OWNED	CPS ENERGY OWNED	CUSTOMER OWNED	CUSTOMER OWNED
5. COMMERCIAL URD 30 LOOP	CUSTOMER INSTALLED	CPS ENERGY INSTALLED	CUSTOMER INSTALLED	CUSTOMER INSTALLED
	CPS ENERGY OWNED	CPS ENERGY OWNED	CUSTOMER OWNED	CUSTOMER OWNED
6. COMMERCIAL URD 30 RADIAL	CUSTOMER INSTALLED	CPS ENERGY INSTALLED	CUSTOMER INSTALLED	CUSTOMER INSTALLED
	CPS ENERGY OWNED	CPS ENERGY OWNED	CUSTOMER OWNED	CUSTOMER OWNED
7. OVERHEAD TO UNDERGROUND SERVICE, (RES. APT. & COMMERCIAL)	N.A.	N.A.	CUSTOMER INSTALLED	CPS ENERGY INSTALLED
	N.A.	N.A.	CPS ENERGY OWNED	CPS ENERGY OWNED

NOTE: CPS ENERGY "ELECTRIC SERVICE STANDARDS" APPLIES TO ALL JOBS.

702.4 Installation:

Second Paragraph, Customer shall maintain all conduits within the building or slab.

Sixth paragraph, for inspections customer is now to call 353-6850 and reference job/sketch information (name, number, address, etc.) ~~and not the CPS Customer Services Department representative~~ or contact the CPS Customer Service Representative whose name and telephone number is on the CPS Job Sketch.

SECTION 800 - UNDERGROUND SERVICE IN APARTMENT COMPLEXES

803 Transformers:

Transformer pads, may be preformed plastic or concrete was changed to "shall be concrete". Added: Pads for single-phase transformers up to 167 kVA shall be concrete and will be furnished by CPS. For 250 kVA transformers, customer will have the option of either having CPS provide the concrete pad or he may elect to build a 6 x 6 foot concrete pad per CPS specifications. For transformers larger than 250 kVA, the customer shall build a 6 x 6 foot concrete pad per CPS specifications.

804 Primary-voltage Cable:

This article was rewritten for cable in conduit stating that if customer desires to install sidewalks, driveways or parking lots prior to CPS installing cable and conduit, they are to install a 6-inch conduit sleeve extending 12 inches on each side of sidewalks, driveways or parking lots. Also, a separate sleeve shall be specified and provided for each utility.

805 Service-lateral Duct:

805.4 Installation:

Second paragraph. Minimum cover to the top of the duct line to grade is 24-inches.

Fourth paragraph, for inspections customer is now to call ~~353-4015 or 353-4461~~ **210-353-6850** and reference job/sketch information (name, number, address, etc.) ~~and not the CPS Customer Services Department representative~~ **or contact the CPS Customer Service Representative whose name and telephone number is on the CPS Job Sketch.**

806 Service-lateral and Load:

Revised Exception 2 to allow second service lateral at one location due to utility transformer limitations.

At the end of the last paragraph, it was added that for two unit apartments (duplex) with a 3-wire 120/240-volt service, a junction box is not required. The service lateral will terminate in customers wire gutter establishing this as the point of delivery.

**Figure 800.2: Underground Service and Metering in Apartment Complexes and Similar Multiple Occupancy Buildings:
Removed in title, "Loads up to 167 kVA"**

SECTION 900 SERVICES IN HIGH-RISE RESIDENTIAL BUILDINGS

903 Primary-voltage Distribution System:

903.3 Primary Service lateral Ductline to Main Vault or Slab (Overhead Distribution District Area):

District was changed to Area.

Conduit size was changed from 3 to 4 inches for primary voltage cables.

SECTION 1000 COMMERCIAL OR INDUSTRIAL SERVICES FROM LARGE PADMOUNT TRANSFORMERS

1001 General:

First paragraph, terminal pole was changed to riser pole, and has been changed throughout this section.

1002 Standard Installation:

1002.1 Primary-voltage Cable:

Added primary may exit from a padmount switch.

1002.2 Ductline:

Customer will furnish and install the primary cable ductline to the CPS riser pole or CPS padmount switch for all installations. Added 2-inch PVC conduit in all primary and secondary duct banks for meter communications.

(A) Location:

Location of the ductline must be approved by CPS was added.

(B) Length:

Added: padmount switch.

All primary ducts will be built by the customer. The primary cable ducts and distance to the riser pole was changed.

(D) Approved Types:

The standard installation for a 3-conduit underground ductline shall consist of 2-4 inches and 1-2 inches (for meter communications)

If it is determined by CPS, rigid metal conduit (RMC) or intermediate metal conduit (IMC) shall be installed by the Customer.

(E) Installation:

2000 PSI pea gravel added to concrete encasement.

(F) Inspections:

For inspections, customer is to call ~~353-4015 or 353-4461~~ 353-6850 and reference job/sketch information (name, number, address, etc.) and not the CPS Customer Services Department representative **or contact the CPS Customer Service Representative whose telephone number is listed on the CPS Job Sketch.**

1002.3 Transformer:**(1) Location:**

(b) Allow close approach (be within eight-feet of a hard driving surface 15 feet wide minimum) with CPS' crane and truck.

(h) Protection by use of concrete-filled guard post was changed to protection by use of removable concrete-filled guard post. This is around transformers where exposed to vehicular traffic.

(2) Transformer Slab:

First paragraph. Concrete strength of 2500 PSI was Customer shall construct all slabs.

Third paragraph. Customer is to call ~~353-4015 or 353-4461~~ 353-6850 for ground rods and reference job/sketch information (name, number, address, etc.) and not the CPS Customer Services Department representative. Delivery must be requested at least 24 hours in advance.

(3) Inspections:

A change in whom to call for inspections. Customer is now to call 353-4015 or 353-4461 and reference job/sketch information (name, number, address, etc.) and not the CPS Customer Services Department representative.

1002.4 Secondary Feed to Customer:**(C) Load-side Conduit or Wireway:**

CPS will no longer permit conduits to exit the side of a padmount transformer. Maximum conduits allowed to exit a padmount was change from 8 to 10 – 4-inch and 8 – 5-inch.

Wireways larger than 20 x 18 inches must also exit the bottom of the transformer.

(D) Cable Tap-box:

The tap-box foundation shall be a part of the CPS transformer foundation.

Customer cables and conduits shall not obstruct the cable raceway area from the transformer, and shall not interfere with CPS cable and cable terminations.

End of last paragraph, tap box drawings shall be submitted to CPS for review and approval by the Electric Service and Metering Standards

1002.5 Metering:

First paragraph, Clarification of upright supports for mounting the meter enclosure, must be two, 2-inch rigid pipe set in 2 feet of concrete.

Third paragraph, the future indicates that there will be smaller padmount transformers set, 150 kVA and less. Added to this paragraph is a listing of each type of service voltage and the maximum kVA a self-contained meter can be used on. Larger loads will require instrument transformers. Figures are referenced for installation and that customer installs conduit with cables and provides lugs.

Table 1000.1:

~~There will be no change to Table 1000.1.~~ **There were changes to the allowable number of conductors per phase and their sizes. On the single phase, the 37 kVA 120/240volt transformer was removed from the table since it is not installed by CPS.**

Table 1000.2:

This conduit and wireway table was divided into two parts for ease of reading.

**SECTION 1100 - SERVICE IN UNDERGROUND DISTRIBUTION DISTRICT
(DOWNTOWN SAN ANTONIO)**

THIS SECTION WILL CHANGE TO:

**SECTION 1100 - SERVICE IN NETWORK DISTRIBUTION AREA,
(CENTRAL BUSINESS DISTRICT SAN ANTONIO)**

1103 Demand loads Up to 300 kVA.

Added: If capacity is not available, Customer shall be required to install a transformer vault. See Article 1104.

CPS will no longer install fuse pads or a disconnecting device in or on customers premises. Customer must now install a disconnecting means on the line side of CPS meters and/or metering equipment and this device must meet CPS approval.

1103.1 Service Switch or Fuse Pad has been changed to "**Customer-owned Service Disconnect or Overcurrent Device**":

It has been a standard that CPS installs a disconnecting means, (fuse pad or switch) at the service end of the service lateral. The customer was charged for this disconnecting means and it was not an integral part of their service equipment. Therefore the customer had to install an overcurrent device next to the CPS disconnecting means. The change is for CPS not to install a disconnecting means, (for which the customer paid for) and let the customer install a service disconnect or overcurrent device ahead of the meter or meters and equipment. This device shall be an integral part of the service disconnecting means. It must also be lockable and sealable by CPS and be operable by designated CPS personnel during emergency conditions. It may also be operable by designated CPS personnel for the sole purpose of servicing CPS owned equipment during regular conditions after notifying

the customer. In effect this means that a customer must provide a main disconnect at the end of all CPS service laterals that do not have a CPS provided fuse pad in a vault.

Customer shall not use this disconnect as a switching device.

(a) Enclosure:

Is no longer needed because CPS will not be installing fuse pads on the service end of the service lateral.

(b) Connectors:

Connectors are no longer needed due to no CPS fuse pads.

(c) Load-side Cable and Conduit:

(c) was changed to **(A) Load-side Cable and Conduit:**

Fuse pad or switch was changed to customers disconnect or over current device.

(d) Metering:

(d) was changed to **(B) Metering:**

Fuse pad or switch was changed to customers disconnect or over current device. Also non-magnetic has been added to enclosures that a customer must provide if CPS standard instrument transformer enclosures are too small.

1103.2 Disconnect Switch or Fuse Pad Services Located Outside a Building:

Disconnect Switch or Fuse Pad has been removed from this title. 1103.2 is now **Services Located Outside a Building**. The meter heights may vary from 3 to 6 feet in height was changed to "The special Meter enclosure heights may vary from 3 to 6 feet in height".

1104 Demand Loads Over 300 kVA:

This paragraph was reworded regarding vault construction

1104.1 Customer-built Vaults:

Added general overall description of vault requirements of size, other utilities not allowed in the vault, equipment installation, and general code compliance.

(1) Location and accessibility:

All vault designs are subject to review and approval by CPS' Network engineering Section. Added 24 hour immediate access and close approach.

(2) Walls, Roof and Floor:

A roof must be able to meet the requirements of the H-20, highway loading specification.

(3) Added more detail for sump pump requirements

(4) Ventilation:

Ventilation opening gratings, screens, or louvers, will no longer be provided by CPS. Gratings, etc. used to cover the openings shall be furnished and installed by Customer, in accordance with CPS specifications.

(8) Inspections:

Changed phone number for CPS inspections.

(9) Fire Rating for vault construction.**1104.3 Service Raceway:****(A) Approved Types:**

Second paragraph, rigid aluminum conduit has been added for types of conduit a customer may use.

Wireways will not be acceptable.

1105 Service-entrance Conductors:

Paralleled conductors must be electrically joined at both ends to form a single conductor.

1106 Metering:

Installations must be accessible to CPS personnel during normal working hours for maintenance and inspection.

At the end of the second paragraph, multiple-meters must be approved by CPS Engineering Department and the Electric Service and Metering Standards Section.

SECTION 1200 - PRIMARY-VOLTAGE SERVICE - OVERHEAD**1203 Customer's System:**

Customer must terminate his electrical system on a pole located within 100 feet of the CPS primary-meter pole. Added a minimum of 50 feet and a maximum of 100 feet.

1206 Parallel Primary Voltage Service:

This article has been added to this section. Customer shall not allow circuits within the customer's system to tie CPS circuits together.

**SECTION 1300 - PRIMARY-VOLTAGE SERVICE - UNDERGROUND
(IN OVERHEAD DISTRIBUTION DISTRICT)**

this section will be:

SECTION 1300 - PRIMARY-VOLTAGE SERVICE - UNDERGROUND

1302 Primary-voltage Service Cable:

First paragraph, 34.5 kV can not be metered in customers switchgear. Also added that primary service may be served from a riser pole or a padmount switch in a three-phase underground distribution district.

Second paragraph 34.5 kV metering must be and 13.2 kV may be installed in a padmount primary CT/VT enclosure. Customer to build slab per CPS specifications was added.

1303 Ductline for Primary-voltage Cable:

Added was that ductlines could come from a riser pole or a padmount distribution switch. Customer is to install all ductlines.

1304 Customer's Service Equipment:

Customer shall submit switchgear drawings for approval by CPS for metering equipment.

1305 Parallel Primary Voltage Service:

This article has been added to this section. Customer shall not allow circuits within the customer's system to tie CPS circuits together.

SECTION 1400 - SERVICE TO CUSTOMER-OWNED METER POLE**1401 General:**

Meter pole location must not be located under the CPS distribution line or in the CPS distribution line easement.

Meter poles shall be maintained by Customer in a safe condition determined by CPS, has been added.

1401.2 Approved Types of Poles:

Creosoted pine was changed to chemically treated wood pole.

A pipe or I-beam shall be a minimum of 4 inches in diameter. This was rewording for clarification. A pipe shall be a minimum of 4 inches in diameter. An I beam must be a minimum of 4 inches.

1401.3 Installation of Pole:

Creosoted pine was changed to chemically treated wood pole.

Added for rotted wood, or deteriorated steel poles or I-beams, or poorly set meter poles, may be unsafe as determined by CPS. If repairs are not made by customer within 90 days of written notice, there will be cause for disconnecting the service.

1401.6 Other Equipment:

Security lights may be installed on customers meter pole when approved by CPS for proper clearance of service drop conductors has been added.

SECTION 1500 - SERVICE IN MANUFACTURED HOME COMMUNITIES**1502 Underground Distribution System:**

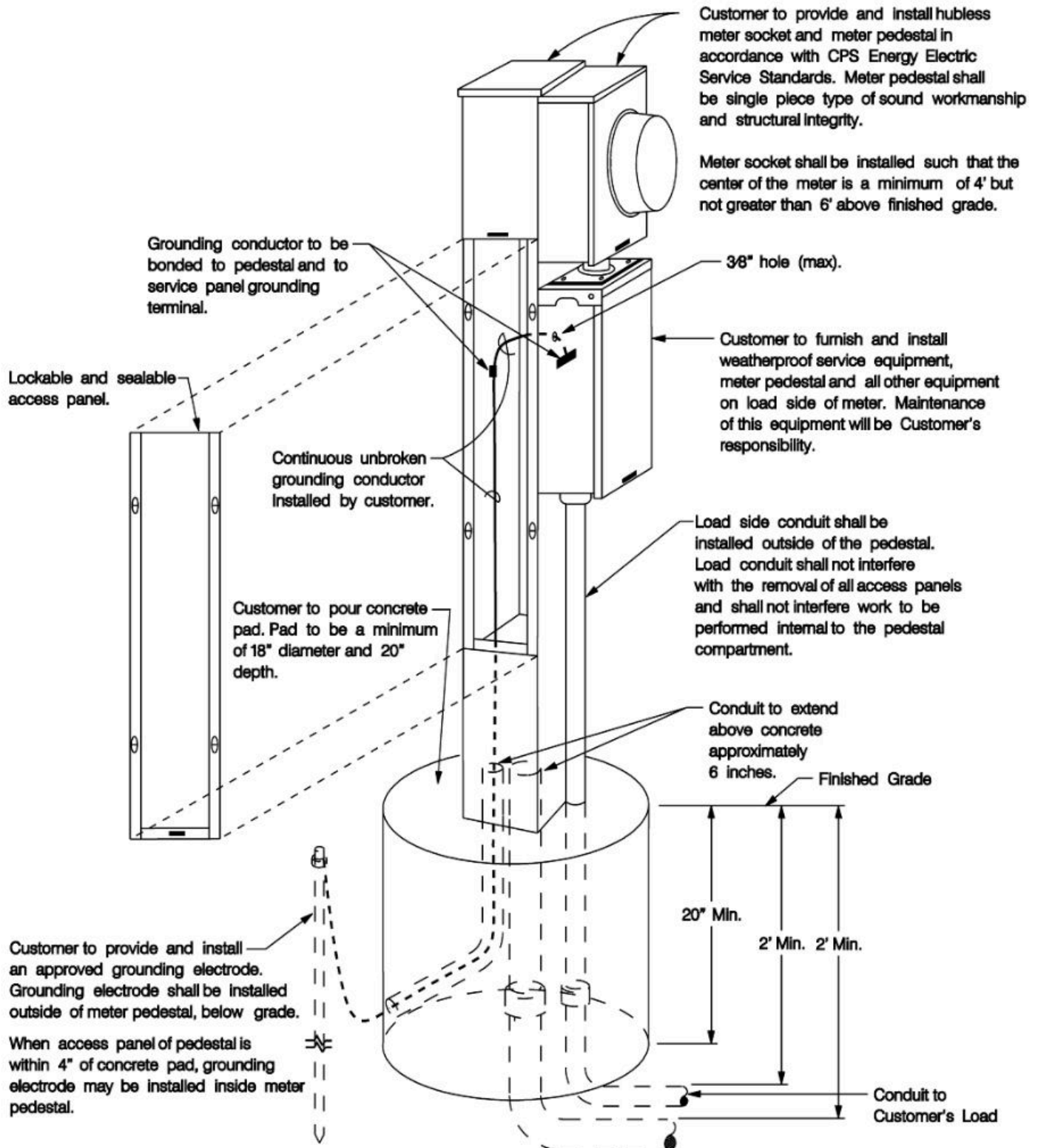
- (5) Customer may also use ~~CPS furnished~~ **customer furnished** single-position meter sockets mounted on supports of his own design. All designs to be submitted in advance to CPS Energy' Electric Service and Metering Standards Section for approval. For a two-unit manufactured home space with a three-wire 120/240-volt service, a junction box is not required. The service lateral will terminate in customers wire gutter establishing this as the point of delivery. CPS Energy to make connections. See Figure ~~600-2~~. For three or more meters, a junction box is required. See Figure 800.2 or 1800.15.

1503 Overhead Distribution System:

- (5) Meter sockets are not to be mounted on manufactured (mobile) homes was added.

Figure added.
Figure 1500.1

FIGURE 1500.1



3" conduit elbow for receiving CPS Energy's service lateral conductors, furnished and installed by Customer. It may be Schedule 40 or 80 PVC, or rigid galvanized steel or IMC corrosion protected.

SECTION 1600 - TEMPORARY SERVICE

1601 General

Added customer must obtain permits from the authority having jurisdiction and the authority having jurisdiction must release these permits before CPS Energy will connect the service drop or lateral.

1602.1 Location of Temporary Meter Structure:

Location of temporary meter structure was changed. Also, customer is to call for locate when a temporary service is to be provided from a secondary enclosure or transformer. Notes were added on installing ground rods near URD transformers

1602.2 Service Lateral:

Added to first paragraph: Customer shall provide and install service lateral conductors **conduit** up to transformer; CPS will bring **install** the service lateral **conductor and terminate the service lateral conductor in** into the transformer compartment and terminate. Customer shall not dig under CPS Energy transformer.

A second paragraph was added to allow customers to run a temporary service in schedule 40 or 80 PVC conduit above ground upon approval of the authority having jurisdiction. **CPS Energy.**

1603 Temporary Service Drops in Overhead Areas:

The temporary structure shall not be moved while energized. The street address shall be placed on the structure and not on the meter socket cover. All temporary service installations must be inspected and approved by the authority having jurisdiction.

Added Section 1603.1 Location of Temporary Meter Structure:

Added Section 1603.2 Construction of Temporary Meter Structure:

SECTION 1700 - GROUNDING OF SERVICES

1702 Customer's Grounding Conductor:

Exception: Grounding of Service Equipment at Self Contained 480Y/277-volt Meters: This exception was added stating that it is permissible to route the grounding electrode conductor through CPS meter socket with a factory insulated conductor if no auxiliary gutters are installed

SECTION 1800- METER EQUIPMENT AND ITS INSTALLATION

1801 General

Third paragraph changed to read:

“CPS will furnish single position meter sockets, meter enclosures, standard instrument transformer enclosures and transformer mounting brackets for installation by the Customer. (See Table 1800.1 for equipment furnished by CPS.)”

Paragraphs added:

Customer will be required to purchase single phase self contained (S/C) meter sockets, approved by CPS Energy, from local meter socket manufacturers' utility distributors.

The CPS Energy approved single phase S/C meter sockets will have "CPSB" stamped on the outside of the meter socket and contain a "CPSB" tag on the inside of the meter socket, to identify that the meter socket is approved. For a list of the currently approved CPS Energy single phase S/C meter sockets, with associated CPS Energy material numbers, CPS Energy code numbers, descriptions, and manufacturers reference numbers (See Table 1800.2).

Table 1800.1

Revised Maximum wire size and added Maximum Conduit Size column.

Code No. 01, 02, 03, 04 meters removed from table.

Table added:

Table 1800.03

TABLE 1800.1

METERING EQUIPMENT FURNISHED BY CPS							
Equipment Code No.	Equipment Description	Maximum Wire Size	Maximum Amperes	Hub Size (inches)	Drawing Figure	Wiring Figure	Max Conduit Size (inches)
05	Meter Socket 1-Phase, UG	#4/0 Cu or Al	200	None	1800.1	1800.3	2-1/2
06	Meter Socket 3-Phase, OH or UG	#3/0 Cu or Al	200	2	1800.2	1800.6 1800.7 1800.8	2
07	**Meter Socket 3-Phase, OH or UG	#500 kCM Cu or Al	200	3-1/2	1800.2	1800.6 1800.7	3-1/2
10	Enclosure, CT 26"x30"x9"	N/A	N/A	None	1800.9(a)	1800.11 1800.13	3
11	Enclosure, CT 50"x32"x14"	N/A	N/A	None	1800.9(b)	1800.11 1800.13	4
12	Enclosure, CT 60"x48"x14"	N/A	N/A	None	1800.9(c)	1800.11 1800.13	4
14	Enclosure, CT 30"x12-1/4"x11-1/2"	N/A	N/A	None	1800.10 (a)	N/A	2
15	Enclosure, CT 32"x32"x11-1/2"	N/A	N/A	None	1800.10 (b)	N/A	2
16	Transformer Mounting Bracket, 16", 2-Position	N/A	N/A	N/A	500.6	500.6	N/A
17	Transformer Mounting Bracket, 23", 3-Position	N/A	N/A	N/A	300.5 300.6	500.6	N/A
18	Socket Opening Cover Plate for Ring-Type Socket	N/A	N/A	N/A	N/A	N/A	N/A
19	Socket Opening Cover Plate for Ringless-Type Socket ***	N/A	N/A	N/A	N/A	N/A	N/A
20	Transformer-Rated Meter Socket, 6 Terminal, 1-Phase	N/A	N/A	None	1800.10	N/A	2
21	Transformer-Rated Meter Socket, 8 Terminal, 3-Phase	N/A	N/A	None	1800.10	N/A	2
22	Transformer-Rated Meter Socket, 13 Terminal, 3-Phase	N/A	N/A	None	1800.10	N/A	2
23	Transocket, 3-Phase 4-Wire	#350 kCM Cu or Al	400	4	1800.16	1800.16	4
24	Transocket, 3-Phase 4-Wire	#350 kCM Cu or Al	800	4	1800.16	1800.16	4

TABLE 1800.2

CPS Energy Authorized Single Phase Self Contained Meter Sockets

<u>CPS ENERGY MATERIAL NUMBERS</u>	<u>CPS ENERGY CODE NUMBERS</u>	<u>METER SOCKET DESCRIPTION</u>	<u>DURHAM CATALOG NUMBERS</u>	<u>MILBANK CATALOG NUMBERS</u>	<u>CUTLER HAMMER CATALOG NUMBERS</u>
1006484	01	METER SOCKET – 1 PHASE – OH – #1 CU OR AL MAX WIRE SIZE– 100A MAX – 1¼” MAX CONDUIT SIZE	1004931B	U7487-YL-KK-CPSB	1004931B-CH
1006488	02	METER SOCKET – 1 PHASE – OH – #4/0 CU OR AL MAX WIRE SIZE– 200A MAX – 2” MAX CONDUIT SIZE	1004455B	U7021-DL-KK-CPSB	1004455B-CH
1006571	03	METER SOCKET – 1 PHASE – OH OR UG – #500 kCM CU OR AL MAX WIRE SIZE– 320A MAX – 3” MAX CONDUIT SIZE	1004771B	U1079-F-CPSB	1004771B-CH
1006486	04	METER SOCKET – 1-PHASE – UG – #1 CU OR AL MAX WIRE SIZE – 100A MAX – 1¼” MAX CONDUIT SIZE	1005826A	U7487-O-KK-CPSB	1005826A-CH
1032783	27	METER SOCKET – 1 PHASE – 200A – NO HUB – URD – 3” KNOCK OUT	1009874A	U7043-XL-KK-CPSB	1009874A-CH
1032610	31	METER SOCKET – 320A – DOUBLE LUG –HEAVY DUTY – 350kCM MAX WIRE SIZE – WITH BYPASS LEVER	1009760A	U2448-F-2K/2-CPSB	1009760A-CH

1802.2 Application for Meter Sockets or Enclosures:

CPS will release single position meter sockets immediately upon obtaining all information for the cabinet order work request.

The last paragraph was rewritten for clarification

Fouth paragraph changed to read:

Customer will receive a Work Request number that will be used when requesting the status of the meter cabinet order. ~~CPS will release the Work Request for single position residential meter sockets immediately after entering all the information for the cabinet order.~~ CPS will release the Work Request for single-position meter sockets for commercial services and metering enclosures for a job only after CPS' Service and Meter Foreman has approved the installation. Customer must pick up equipment at the CPS storage facility located at 100 Gugert St. between the hours of 8:00 AM and 3:30 PM Monday-Friday. Customer must, before CPS issues material, be prepared to furnish the necessary work request number (furnished by the cabinet clerk or CPS customer service representative) and present personal identification. See Table 1800.1 for types of metering equipment furnished by CPS.

1807 Clearances Required at Meters:

Electrical equipment shall not be located within three (3) feet of a gas meter per NFPA 54, 2.7.2 (c) was added.

1807.4 Heights of Meters:

First paragraph, heights of meters was revised for 4, 5 and 6 stack modular metering to 2 1/2-feet and 6 1/2-feet respectively.

1808 Layout of Meter Installations:

At the end of the fourth sentence, for engineering review was changed to Electric Service and Metering Standards review.

1811 Types of Single-position Meter Sockets Furnished by CPS:

1811.3 Cable Size Limitations on Single-phase Meter Sockets:

Cable insulation has been eliminated and we now have socket ampacity and maximum wire size allowed only:

100 amp socket #1 AWG Copper or Aluminum.

200 amp socket #4/0 AWG Copper or Aluminum.

320 amp socket 500 kCM Copper or Aluminum.

Under NOTES: Exception has been added stating that line and load wires do not have to be the same size when CPS service laterals terminate in the meter socket, (URD and OH to UG services).

1811.4 Overhead Service, Three-phase Meter Sockets:

Figure 1800.2(a), maximum wire size was changed to 4/0 copper or aluminum.

Figure 1800.2(b), maximum wire size was changed to 500 kCM copper or aluminum.

1811.5 Underground Three-phase Service:

Under NOTES: Exception has been added stating that line and load wires do not have to be the same size when CPS service laterals terminate in the meter socket on underground services.

1814 Selection of Overhead or Underground-type Meter Sockets:

Sockets shall not be installed both above and below the same meter gutter.

1816 Modular Meter Sockets/Service Equipment**1816.1 General Requirements of Modular Metering Equipment:**

- (8) The Electric Service and Metering Standards group will review and may approve meter modules that may meet the required meter installed heights with more stacked meters.

1817 Manufactured Freestanding Meter Pedestal:

Meter loops shall not be placed on manufactured homes. A separate meter rack or pedestal must be used to mount the meter. A pedestal is a freestanding, pre-bussed device consisting of a vertically mounted channel that supports meter socket and service equipment, both integral to the pedestal. Its general design is similar to modular metering described in Article 1816. Meter pedestals may be used but only in accordance with the general provisions of Article 1801. There are many variations on this type of equipment; therefore no standard drawings are included in these standards (see Figure 1500.1 for typical installation). Customers planning to use these devices must first coordinate their installation with CPS' Customer Service Representative. The Customer through CPS' Customer Service Representative must obtain approval of meter pedestals.

Where Customer elects not to use pre-fabricated meter pedestals he may use supports of his own design on which, CPS-furnished single-position meter sockets and Customer-furnished service equipment can be mounted. The Customer must obtain approval for the equipment support design prior to installation. CPS' Customer Service Representative will submit the design to the Electric Service and Metering Standards Section for review. Submittal must include the number of meters to be installed and the size and rating of service equipment, conductors' sizes and estimated demand load requirements.

1817.1 General Requirements for Manufactured Freestanding Meter Pedestals and their Installation:

- (2) Pedestals may be padmount or have an underground concrete-encased mounting support. Underground portions must have sufficient strength to support the unit and be coated or otherwise protected to prevent corrosion. The underground portion shall be made rigid by pouring a minimum ~~six-inch~~ 20-inch thick by 18-inch diameter concrete base around the unit's stabilizing foot or other extension.

- (3) Customer must install a ~~2-1/2-inch~~ **3-inch** minimum schedule 40 PVC conduit 24-inch radius elbow at the base of the unit. The elbow shall be clean and extend six inches into the service lateral terminating compartment. The elbow shall be encased in the concrete and its outside end shall extend approximately six inches beyond the concrete footing. The end of the elbow that extends out of the concrete shall be 24 inches below finished grade and be plugged. Its end shall face the CPS transformer or other device from which, the service-lateral conduit will originate. The conductors will enter the pedestal's terminal compartment via the ~~2-1/2-inch~~ **3-inch** conduit elbow and will be terminated by CPS with Customer-furnished CPS approved lugs.
- (5) An approved grounding electrode shall be installed at each pedestal and be located outside the pedestal. Customer must install the grounding-electrode conductor that must be continuous (unbroken) from the grounding electrode to the grounding lug within the service equipment, it must be bonded to the pedestal.
- (6) Except for normal bussing, load conductors shall be isolated from line conductors. If load-side conduit is used it must be outside of the pedestal and not interfere with access panels. (~~See Figure 1500.16.~~) (**See Figure 1500.1.**)

1819 Instrument Transformer-rated Metering:

Added description for Transocket meter installation.

1819.6 Standard Instrument Transformer Enclosures:

- (a) 2 - 250 or equivalent kCM in fewer conductors.
- (b) 3 - 500 or equivalent kCM in fewer conductors.
- (c) 4 - 750 or equivalent kCM in fewer conductors.

Equivalent kCM in fewer conductors was added to match what was stated in figure 1500.9, in the 1992 Electric Service Standards. This is now figure 1800.9.

1819.7 Enclosures for Instrument Transformer-rated Meters:

Added was the of type of conduit to be used for metering control cable from the VT/CT enclosure to the metering enclosure.

1819.8 Weatherproof VT/CT Installations:

Second paragraph toward the end, Service head for meter control cable must be a minimum of 10 1/2 feet from finish grade was added, this is to coincide with the 1992 Electric Service Standards, figure 300.5.

1819.9 Enclosed Metering Enclosures:

- (D) Multiple service laterals from padmount transformers.
(special cases, such as the Hemisphere area, Urban Loop and the OH to UG conversion projects) was added for this is not a common practice by CPS.

1820.2 Grouping Meters with an Auxiliary Bus Gutter:

1820.2 was changed to "Grouping Meters with an Auxiliary Busbar Gutter". This was for clarification for bus bars and wire bus.

1820.3 Grouping Meters with an Auxiliary Wire Gutter:

1820.3 was changed to "**Grouping Meters with an Auxiliary Wire Bus Gutter**"
Second paragraph, conductors in the gutter do not exceed two 350 kCM or one 500 kCM conductor was added.

The last paragraph, Paralleled or multiple conductors shall be bonded in the wire gutter was added.

1822 Metering in Customer-owned Switchgear or Switchboard:

1822.3 Installation of VT's and CT's:

Fourth paragraph, sixth sentence added is that the 8-point terminal block must be accessible within the VT/CT compartment, located on the outside of the high voltage barrier. Also added is that all wiring from the VT's and CT's to the terminal block shall be contained in the CPS dedicated compartment of the switchgear. The last sentence is a clarification that CPS wires from the metering to the terminal block.

1822.6 Installation of CPS Meter Enclosure and Conduit

This article was rewritten to clarify size and type of conduit for meter control cable for indoor and outdoor switchgear or switchboard.

1824 Identification of Service Equipment and Disconnecting Devices, and Painting of Metering Equipment:

Address markings are now to be put on instrument transformer and meter enclosures, but not on meter sockets

THIS COMPLETES THE SUMMERY OF REVISIONS;