



Residential Electrical Services Permit Requirements

Planning Building & Transportation
2263 Santa Clara Ave., Room 190
Alameda, CA 94501
510.747.6800

Hours: 8:30-3:00 Mon-Thur

To Schedule Utility Disconnect and Reconnect: ampinspect@alamedamp.com

CODE SECTIONS

Alameda Municipal Power (AMP) Regulations

CEC Articles 110, 230, 250, 300, 344, 404

CPC 1211

PERMITS & INSPECTIONS

- A permit is required for installation, modification, removal, or replacement of an electrical service.
- Do not cover any portion of the installation until inspected and instructed: "*Okay to cover*".
- Modification of any portion of the existing service requires a complete service upgrade to the current code. (AMP)

PERMIT APPLICATION REQUIRED DETAILS

- Service size. ≤ 200 amps for R3 single fam dwellings may use Express permitting. All others must apply for a standard permit and provide load calcs.
- Service entrance conductor size and type.
- Conduit size and type.
- Number of meters with each corresponding disconnect size.
- Panel make and model number.
- **IMPORTANT: the service panel must be selected from the EUSERC-compliant list attached.**

PROTECTION OF SERVICE ENTRANCE (SE) CONDUCTORS

- Main service disconnect shall have a rating not less than the calculated load.
- SE conductors shall be sized based on the busbar rating of the service meter main panel.
- All services supplying dwelling units shall be provided with surge-protection devices. CEC 230.67

GENERAL REQUIREMENTS

- Each service shall have only one disconnecting means unless the requirements of CEC 230.71(B) are met.

(B) Two to Six Service Disconnecting Means

Two to six service disconnects shall be permitted for each service permitted by 230.2 or for each set of service-entrance conductors permitted by 230.40, Exception No. 1, 3, 4, or 5. The two to six service disconnecting means shall be permitted to consist of a combination of any of the following:

- (1) Separate enclosures with a main service disconnecting means in each enclosure
- (2) Panelboards with a main service disconnecting means in each panelboard enclosure
- (3) Switchboard(s) where there is only one service disconnect in each separate vertical section where there are barriers separating each vertical section
- (4) Service disconnects in switchgear or metering centers where each disconnect is located in a separate compartment

Informational Note No. 1: Metering centers are addressed in UL 67, *Standard for Panelboards*.

Informational Note No. 2: Examples of separate enclosures with a main service disconnecting means in each enclosure include but are not limited to motor control centers, fused disconnects, circuit breaker enclosures, and transfer switches that are suitable for use as service equipment.

- Meter locations shall be accessible and outdoors. All electrical meter installations shall be located to be accessible to authorized representatives of AMP for installation, removal, reading, testing, and inspection. AMP
- LBs or gutters shall not be installed between the service panel and the weatherhead or vault. AMP

- Conduit Type and Size: Rigid conduit sized per CEC. Min of ≥ 1.25 " and threaded. (NO COMPRESSION FITTINGS) CEC 230.50
- The service panel shall be installed ≥ 10 " from the corner of the house to the center of the meter. AMP
- Drip loops are required. CEC 230.54.F.
- The weatherhead shall be installed ≥ 8 " beyond the edge of the roof. AMP
- Double conduit straps are required at the corner adjacent to the weatherhead. AMP
- A conduit riser clamp must be installed within 3' of all conduit terminations. CEC 344.30
- Conductors shall be ≥ 18 " proud of the weatherhead. AMP
- The service panel must be ≥ 3 ' from the gas riser & meter. AMP
- Max breaker height is $\leq 6'7$ ". CEC 404.8
- Panel circuits must be labeled. CEC 110.22.A
- There shall be no gate between the street and the meter. AMP
- All conduits below grade require duct seal. CEC 300.5.G
- **Meter height:** 48"-66" or 72"-75" (driveway) from the centerline of the meter to the standing surface. Where the meter location does not meet the minimum height clearances, protective bollards shall be installed. AMP

WORKING SPACE

- The meter shall be ≥ 3 ' from the property line. AMP
- A level standing surface with a clear and unobstructed working space must be provided and maintained in front of each metering installation. The working space must have a width of ≥ 30 " and a height of ≥ 75 " for individual field-installed meter panels (78" minimum from the standing surface for all other installations).
- The working space must extend ≥ 36 " in front of the service panel and be free from all obstructions and vegetation.

RESIDENTIAL SERVICE SIZE REQUIREMENTS AND LIMITATIONS

- **Minimum Service:**
 - Single family: 100 amps.
 - Multi-family: 60 amps.
 - Attached & detached ADUs: 100 amps each.
- **Size Limitations:**
 - ≤ 200 amps: No restrictions. Express permitting is allowed.
 - > 200 amps and R2 multifamily: Apply for a standard permit and requires load calcs.

GROUNDING AND BONDING

- #4 rebar or bare copper UFER (20') or 8' x 5/8" rod with #4 copper. CEC 250.52.3.2
- GEC shall be protected. CEC 250.64.B.
- Ground rod shall be placed as close as practicable to the service. CEC 250.30.A.4
- All metallic piping systems shall be bonded. CPC 1211
- #6 copper cold water bond shall be installed **outside & accessible**. AMP

SERVICE OVERHEAD CLEARANCES CEC 230.24

- ≥ 8' above roofs < 4:12 pitch.
- ≥ 3' above roofs ≥ 4:12 pitch.
- ≥ 18" at eaves.
- ≥ 18' above nonresidential driveway.
- ≥ 10' above walkways.
- ≥ 12' above driveways.
- ≥ 18' above roadway.

EUSERC APPROVED PANELS

EATON Catalog No:

1MBE1428B100BS
CMBE1212L200BS
CMBE24L125BTS
CMBE24L200BTS
CMBE3242B150BS
CMBE3242B200BS
CMBE3242B225BS
CMBE4242B200BTS
CMBE88B150BTS
CMBE88B200BTS
CMBEB150BTS
CMBEB200BTS
CMBER88B150BTS
MBE1212L200BTS
MBE1224B100BTS
MBE1224B100TS
MBE1224B125BTS
MBE1224B125TS
MBE1224PV100BTS
MBE1428B100BS
MBE2040B150BTS
MBE2040B200BS
MBE2040B200BTS
MBE2040B200TS
MBE2040B225BTS
MBE2040BH200BTS
MBE2040PV200BTS
MBE24L125BTS
MBE24L200BTS
MBE4040B200BSH
MBE4040B200BTS
MBE4040PV200BTS
MBE48B150BTS
MBE48B200BTS
MBE816P200TS
MBE816P200TSCU
MBE88B200BTS
MBEB200BTS
MBER48B150BTS
MBER48B200BTS

GENERAL ELECTRIC Catalog No:

TSF420CSCU
TSM1212CSCU
TSM1610CSCU

TSM1612CSCU
TSM2020CSCU
TSM2022USCU
TSM2420US42
TSM3220USCU
TSM3220UWCU
TSM3222USCU
TSM4020UWCU

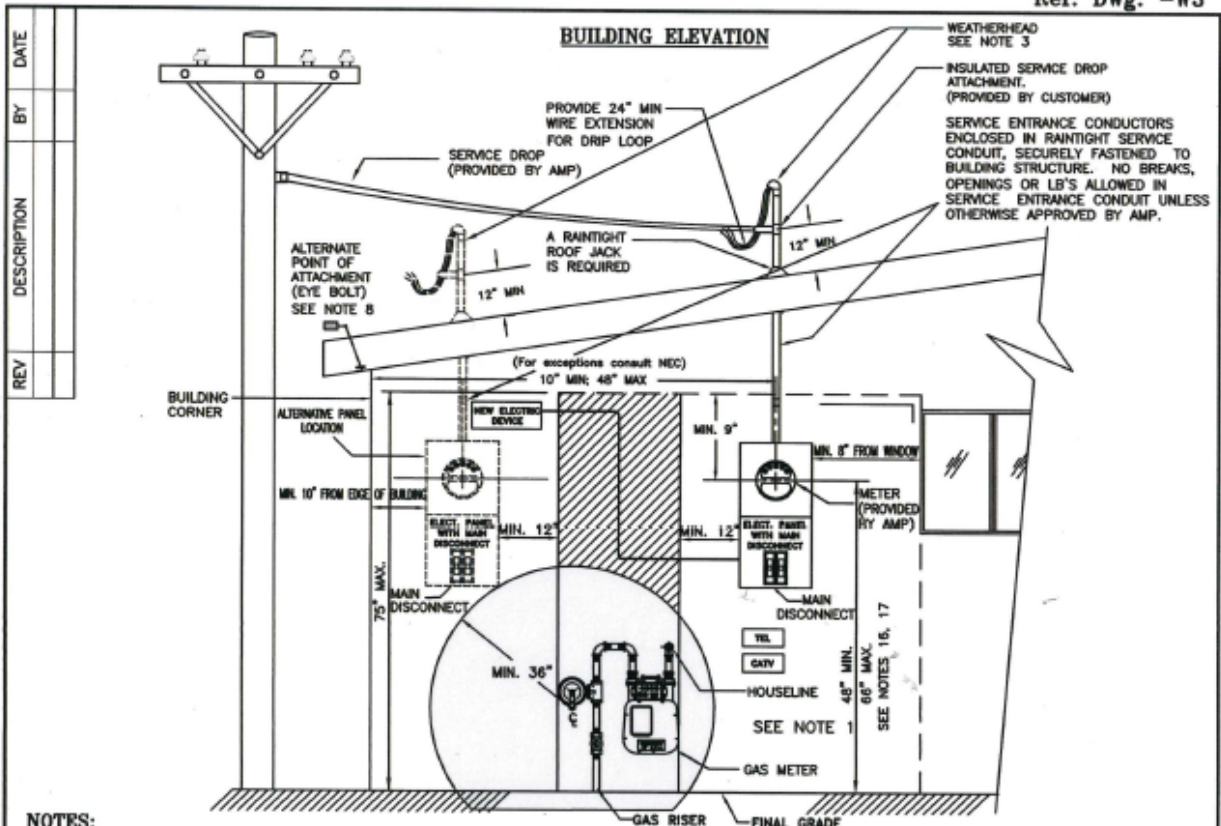
SIEMENS Catalog No:

MC0816B1200ESN
MC0816B1200EST
MC0816S1200SCT
MC1212L1200SED
MC1224B1100ESC
MC1224B1125ESC
MC2040B1200ESC
MC2040B1200SED
MC2442B1200ESC
MC2442B1200ESV
MC2442B1225ESC
MC2442S1200SC
MC3040B1200SECW
MC3040S1200SC
MC3042B1200SED
MC3042B1225SED
MC3042B1400SC
MC4040B1200SECW
MC4040S1200SC
MM2020B100ESC
MM2020L1125ESC
MM2020L1200ESC
MM2020B1200ESC

SQUARE D Catalog No:

SC1624M100S
SC1624M125S
SC2040M200C
SC2040M200PS
SC2040M200S
SC3042M200PS
SC40M200S
SC42M200PS
SC816F150PS
SC816F200PS
SU2040M200C

If your EUSERC panel is not listed above then contact Reynaldo Bascara at AMP for approval.
bascara@alamedamp.com



NOTES:

1. NO OBSTRUCTIONS ARE PERMITTED WITHIN THE AREA AROUND THE METER, SEE DWG 1-L-451 FOR DETAILS.
2. MAINTAIN A 30" WIDE X 36" DEEP CLEAR AND LEVEL WORKING SPACE IN FRONT OF THE ELECTRIC METER
3. THE WEATHERHEAD SHALL BE LOCATED NO MORE THAN 24" FROM THE SERVICE ATTACHMENT POINT AND BETWEEN 18" AND 48" ABOVE THE ROOF, 24" TO 30" RECOMMENDED. IF THE PERISCOPE EXTENDS MORE THAN 30" ABOVE THE ROOF IT SHALL BE BRACED AGAINST THE SERVICE CONDUCTOR PULL.
4. THE POINT OF ATTACHMENT MAY BE EITHER ON THE BUILDING WALL NEAR THE UTILITY LINE OR ON A PERISCOPE FIXED TO THE BUILDING'S ROOF NOT MORE THAN 18 INCHES BACK OF THE ROOFLINE.
5. THE POINT OF ATTACHMENT SHALL BE BETWEEN 12 AND 18 FEET ABOVE GRADE AND SAFELY ACCESSIBLE BY LADDER. WORKING SPACE FOR A LADDER EQUAL TO A DEPTH OF 1/4 THE HEIGHT OF THE LADDER TOP SUPPORT IS REQUIRED.
6. BRACING SHALL BE TWO GALVANIZED STEEL BRACES (3/4" RIGID STEEL PIPE OR 1-1/4" X 1-1/4" X 1/8" STEEL ANGLE IRON MINIMUM) SECURELY BOLTED OR LAGGED TO THE FRAMEWORK WITH 3/8" X 3" LAG SCREWS WITH A 90° SPREAD AND SECURED TO THE PERISCOPE NO MORE THAN 6" BELOW THE SERVICE POINT OF ATTACHMENT.
7. ROOF CLEARANCES FOR THE SERVICE DROP MUST MEET THE REQUIREMENTS OF CEC ARTICLE 230.24.
8. ONLY ELECTRICAL FACILITIES MAY BE ATTACHED TO THE ELECTRICAL WEATHERHEAD.
9. ONLY THREADED PIPE COUPLINGS ARE ALLOWED (NO COMPRESSION COUPLINGS) AND BRACING IS REQUIRED BOTH ABOVE AND BELOW THE COUPLING.
10. METER SOCKET CLEARANCE FROM THE GROUND SHALL BE MEASURED FROM THE FINAL GRADE
11. WHERE LOAD REQUIRES HEAVY SERVICE DROP CONDUCTORS, THE SERVICE DROP WILL BE 3 SINGLE CONDUCTORS INSTEAD OF CABLE AND 3 EYEBOLTS OR INSULATED CLEVICES WILL BE REQUIRED.
12. METER MOUNTING DEVICE SHALL HAVE A MAIN DISCONNECT IN THE SAME CABINET.
13. FOR MORE DETAILED INFORMATION CONSULT AMP ELECTRIC SERVICE REQUIREMENTS.
14. UNLESS OTHERWISE NOTED, ALL SERVICE FACILITIES ARE THE RESPONSIBILITY OF THE CUSTOMER.
15. SERVICE ENTRANCE CONDUIT AND CABLE MUST MEET CEC REQUIREMENTS.
16. PER CEC ARTICLE 404.8(A) THE HIGHEST POINT OF THE BREAKER HANDLE CANNOT BE MORE THAN 79" ABOVE GRADE/FLOOR.
17. SEE AMP ENG STD DWG 1-L-624 FOR METER DETAILS ON METER INSTALLATIONS IN DRIVEWAYS.

LEGEND:

- NO EXISTING ELECTRIC METER/PANEL AND NO NEW ELECTRIC DEVICES
- NO ELECTRICAL, NO CONDUIT, NO SOURCE OF IGNITION, NO METER/PANEL, AND NO NEWGROUNDING WIRES OR CLAMPS
- REGULATOR VENT OPENING
- CONDUIT

RECOMMENDED SERVICE ENTRANCE CONDUCTOR

Service Voltage (Volts)	Main Service (Amps)	Customer's Minimum Conduit Size	Recommended Conductor Size	
			AL	CU
120/240 1-phase	100/125	1 1/2" - 2"	1/0	2
	200	2"	4/0	2/0
120/208 1-phase 3 wire	200	2"	4/0	2/0



TITLE : **TYPICAL OVERHEAD SERVICE INSTALLATION AND CLEARANCE REQUIREMENTS WHEN REPLACING OR ALTERING SERVICE PANELS OR ADDING ELECTRIC PANELS**

DRAWN : *P. ORMA* DATE: **MAR 12, 2021** DWG. NO.: **1-L-628** REV. **2**

REVIEWED: *[Signature]*

APPROVED: *[Signature]* SCALE: NTS SHT 1 OF 1

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REV	DESCRIPTION	BY	DATE

September 05, 2016

REV	DESCRIPTION	BY	DATE
1	CHANGED METER HEIGHT REQUIREMENTS	C.B.	11/6/03
2	CHANGED SERVICE HEAD HEIGHT & NOTES	LS	7/15/10
3	ADDED NOTE 3 AND NOTE 4	MA/LS	4/10/19
4			

PERISCOPE TYPE SERVICE
 18"(45.7cm) MINIMUM OR
 30"(76.2cm) MAXIMUM HEIGHT
 ABOVE ROOF. STEEL CONDUIT.
 ELECTRICAL METALLIC TUBING
 (EMT) NOT ACCEPTABLE

18"(45.7cm) MAXIMUM BETWEEN
 PERISCOPE TYPE SERVICE AND
 FRONT OF BUILDING.

ALL THREADED CONDUIT AND
 ELBOWS NO CONDULETS, SPLICE,
 JUNCTION BOXES AND WIRING CUTTERS
 (GENERAL NOTE 3)

RIGID CONDUIT
 MIN. SIZE: 1-1/4"
 (GENERAL NOTE 2 & NOTE 4)

CORNER OF BUILDING
 NEAREST SERVING POLE

48"(121.9cm) MINIMUM
 TO
 66"(167.6cm) MAXIMUM
 [72"(182.9cm) MINIMUM & 75" MAXIMUM
 WHEN INSTALLED NEAR DRIVEWAY]

#6 AWG COPPER GROUND WIRE

EXTEND 8"(20.3cm)
 BEYOND
 EDGE OF ROOF

SERVICE DROP MUST
 HOOK/ATTACH TO
 CONDUIT

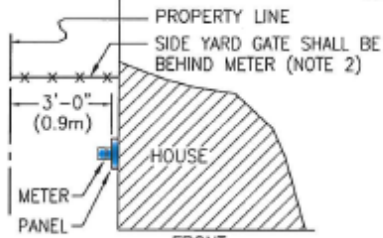
MINIMUM CONDUCTOR
 LENGTH 18"(45.7cm)
 (GENERAL NOTE 2)

12'(3.6m) MINIMUM HEIGHT
 13'(4.0m) MINIMUM HEIGHT
 IF OVER DRIVEWAY

CAST BRASS CLAMPS
 ARE REQUIRED AT
 ALL CONNECTIONS

GROUNDING ROD
 8 FT. (2.4m)
 INTO THE GROUND
 WITH ROD CLAMP.

GROUNDING HUB REQUIRED
 IF GROUNDING CONDUCTOR
 IS IN METALLIC CONDUIT.




PLAN VIEW

PLAN VIEW NOTES:

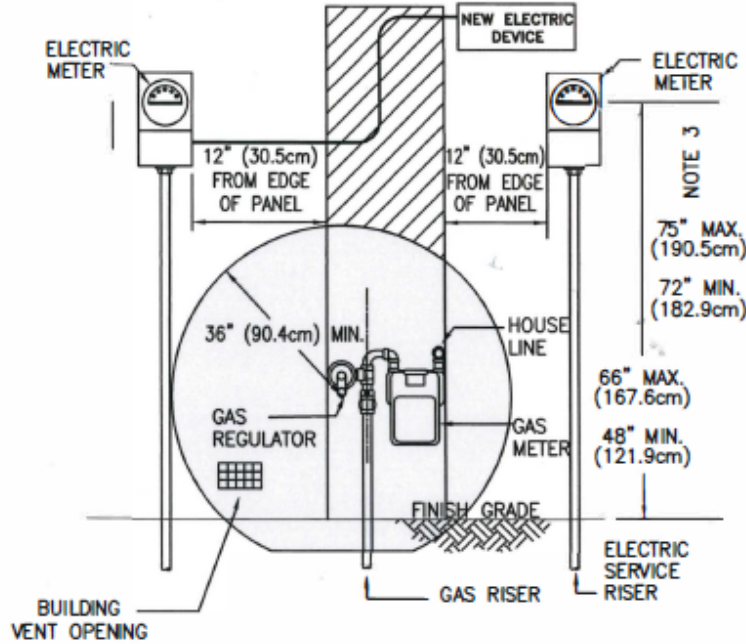
- DISTANCE BETWEEN PROPERTY LINE AND METER PANEL IS 3 FT. (0.9m) MINIMUM.
- METER SHALL BE LOCATED OUTSIDE OF ANY SIDE YARD GATE.

GENERAL NOTES:

- #6 AWG BONDING JUMPER REQUIRED BETWEEN INTERNAL GAS PIPING AND WATER PIPING.
- CONDUCTORS AND RIGID CONDUIT SIZES SHALL BE IN ACCORDANCE WITH APPLICABLE ALAMEDA MUNICIPAL CODE/CALIFORNIA ELECTRICAL CODE.
- ALL CONDUIT UPSTREAM OF THE ELECTRIC METER SHALL BE THREADED RIGID CONDUIT. NO CONDULETS, SPLICE, JUNCTION BOXES AND WIRING CUTTERS ALLOWED (e.g. C, L, LB, LR, LF, T, TB, X) IF CONDUIT ELBOW ARE USED, THEY SHALL BE THREADED RIGID GALVANIZED CONDUIT.
- ELECTRIC SERVICE METER PANEL SHALL BE SURFACE MOUNTED, EXCEPTIONS HAVE TO BE APPROVED BY AMP ENGINEERING AND INSPECTED AND APPROVED BY AMP COMPLIANCE INSPECTOR.

 <p>ALAMEDA MUNICIPAL POWER A Department of the City of Alameda 2000 GRAND STREET, P.O. BOX 11 ALAMEDA, CALIFORNIA 94501</p>		TITLE :		<p align="center">TYPICAL OVERHEAD RESIDENTIAL ELECTRIC SERVICE UP TO 200 AMPERES</p>			
		DRAWN :	LVA/RCB	DATE:	APR 10, 2019	DWG. NO. :	1-L-534
REVIEWED:	<i>[Signature]</i>	APPROVED:	<i>[Signature]</i>	SCALE :	NTS	SHT	1 OF 1
				REV. :	3		

REV	DESCRIPTION	BY	DATE
1	CHANGED CO. NAME TO N. 11/20/09	T.N.	11/20/09
2	CHANGED REF. LINE FOR TO CLEARANCE	L.S.	6/06/12
3	NEW CLEARANCES	J.U.	8/3/15
4	CORNER TWO DIAGRAM DIMENSION REMOVE	J.U.	7/21/15
5	CLEARANCES TO MATCH PG&E STANDARDS	A.A.	5/25/18
6	CLEARANCES TO MATCH PG&E STANDARDS	P.G.	04/17/24



REQUIRED MINIMUM SEPARATIONS AND CLEARANCES BETWEEN ELECTRICAL AND GAS METERS

NOTES:

1. ELECTRIC METER PANEL LOCATIONS ARE SUBJECT TO ALAMEDA MUNICIPAL POWER (AMP) APPROVAL AND MUST COMPLY WITH THE ALAMEDA ELECTRICAL CODE REQUIREMENTS.
2. GAS METER LOCATIONS ARE SUBJECT TO GAS UTILITY'S APPROVAL.
3. INDIVIDUAL ELECTRIC METER WHEN INSTALLED NEAR A DRIVEWAY.

LEGEND:

- NO EXISTING ELECTRIC METER/PANEL AND NO NEW ELECTRIC DEVICES
- NO ELECTRICAL, NO CONDUIT, NO SOURCE OF IDENTIFICATION, NO METER/PANEL, AND NO NEAR-GROUNDING WIRES OR CLAMPS
- REGULATOR VENT OPENING
- CONDUIT

<p>ALAMEDA MUNICIPAL POWER A DEPARTMENT OF THE CITY OF ALAMEDA 200 GRAND STREET, P.O. BOX 11 ALAMEDA, CALIFORNIA 94501</p>	TITLE :		REQUIRED MINIMUM SEPARATIONS AND CLEARANCES BETWEEN ELECTRICAL AND GAS METERS		
	DRAWN :	B. GRIMA	DATE: APR. 17, 2024	DWG. NO.: 1-L-535	REV. 6
REVIEWED:		APPROVED:		SCALE: NTS	SHT 1 OF 1

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REV	DESCRIPTION	BY	DATE
1	CHANGED 78" TO 75" MAX. JPMU AND 66" TO 48" MIN. AND 36" WIDE TO 36"	JPMU	5/3/02
2	REV. DIMENSIONS & NOTES	C.B.	8/20/03
3	ADD NOTE 4	C.B.	10/26/05
4	CHANGE CO. NAME	T.N.	11/20/09
5	CHANGED TO SURFACE MOUNT.	L.M.	2/4/2025

METER WORKING SPACE

Working space in front of the meter permits access to the metering installation and provides a safe working environment for personnel. A working space entirely on the property of the customer is required in front of all meters.

- The working space is to be kept clear and unobstructed at all times. Landscaping, structures or stored material shall not intrude into the working space.
- The height of the clear working space shall be 75 inches (190.5cm) minimum from the standing surface.
- The width of the clear working space shall be 30 inches (76.2cm) minimum on one-meter installation and shall extend the additional width necessary for access to the total number of metering panels. Centerline of any meter shall not be less than 10 inches (25.4cm) from adjacent side wall or other protruding obstruction.
- The depth of the clear working space shall be 36 inches (91.4cm) minimum services rated 150V or less to ground. When the service is in excess of 150V to ground, the depth shall be as require applicable electrical codes or as dictated by the physical design and arrangement of the metering cubicles.

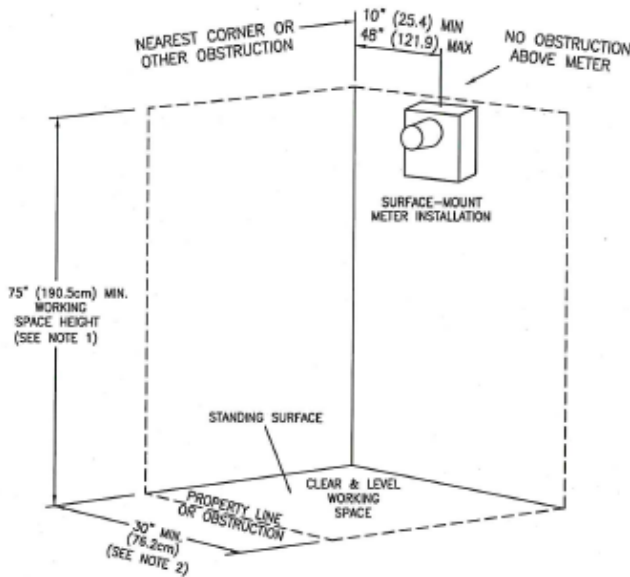


FIGURE 1
SURFACE-MOUNT METER INSTALLATION

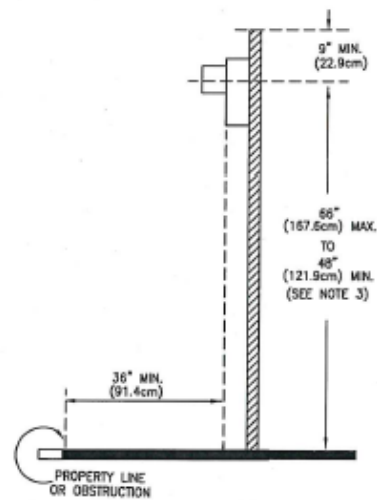
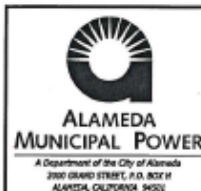


FIGURE 2
SURFACE-MOUNT METER INSTALLATION

NOTES:

- 78" (198.12cm) MINIMUM REQUIRED FOR OTHER THAN INDIVIDUAL FIELD-INSTALLED METER PANELS
- EUSERC ALLOWS 48" (121.9cm) MINIMUM AND 75" (190.5cm) MAXIMUM METER HEIGHT FOR FREE STANDING-FACTORY ASSEMBLED STRUCTURE (e.g. SWITCHBOARD OR METER PEDESTAL).
- METER HEIGHT SHALL BE 72" (182.9cm) MIN. TO 75" (190.5cm) MAX. WHEN INSTALLED NEAR DRIVEWAY.



TITLE :			
METER WORKING SPACE			
DRAWN :	AT	DATE: FEB 4, 2025	DWG. NO. :
REVIEWED:	SS		1-L-451
APPROVED:	J.P.P.		REV. 5
		SCALE : NTS	SHT 1 OF 1

I:\PwrDwg\WorkOrder\L_ConstructionStd\1-L451.dwg November 20, 2009