

# Metering and Service Equipment: Installation Requirements

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## 1. Purpose

- 1.1 This standard specifies the requirements for the location of all NV Energy (NVE) meters and service equipment with the exception of single-family residential meters (see RPI-2 for residential meters).
- 1.2 Requirements in this standard facilitate access to service equipment by NVE personnel for performing operations and maintenance functions as well as for fire and police agencies in emergency situations.
- 1.3 Customer design submittals showing meter and service equipment location(s) must be project specific; design approvals will not be granted on a generic basis for possible, ongoing use.
- 1.4 Meter and service entrance installations must conform to the latest revisions of RPI-G and, specifically, the "Meter Access" and "Meter Locations" sections of RPI-G.
- 1.5 This standard must be read in its entirety to avoid additional costs or delays due to nonconformance.

## 2. Definitions

- 2.1 *Service Point*: The point of connection between the facilities of NVE and the premise's electrical wiring system. The meter and service equipment shall be installed near the service point.
- 2.2 *Standard Service Point*: The preferred location for installation of the meter and electric service equipment.
- 2.3 *Alternate Service Point*: An alternate location for installation of the meter and electric service equipment. NVE will ensure that this location meets NVE rules for safe and readily accessible ingress/egress.
- 2.4 *Service Entrance Structure (SES)*: Service equipment that is not attached to the building, such as a meter pedestal, separate switchboard, or wall-mounted service. This equipment should be approved by NVE and specified in Section RPM of the Electric Service Requirements. See NVE Standard RPM-A for 400 Amp and 600 Amp single phase pedestals.
- 2.5 *Acceptable SES Area*: An area where a SES must be placed if the electric meter is not located in the preferred location.
- 2.6 *Readily Accessible*: To be capable of being reached quickly for operation, renewal or inspection without the need to climb over, remove obstacles, or resort to portable ladders, chairs, etc., per NEC 2005 Article 100. The installation must be readily accessible 24 hours per day, 7 days per week.

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### 3. References

- 3.1 National Electrical Safety Code (NESC) Part I. 110 or latest edition/revision.
- 3.2 National Electrical Safety Code (NESC) Part I. 125 or latest edition/revision.
- 3.3 National Electric Code (NEC) Article 100
- 3.4 National Electric Code (NEC) Article 110
- 3.5 National Electric Code (NEC) Article 230
- 3.6 Occupational Safety and Health Administration (OSHA) 29 CFR 1910
- 3.7 NV Energy Electric Service Requirements (ESR) RPI-G
- 3.8 NV Energy Electric Service Requirements (ESR) RS-5
- 3.9 NV Energy Electric Service Requirements (ESR) RPM-A

### 4. Design Considerations


- 4.1 The location of the meter and service equipment directly impacts NVE's goal to provide its customers with the safest, most cost effective and reliable electric service possible. Therefore, customers and their representatives (licensed Architects or Engineers) should select a location as close to NVE facilities as practical.
- 4.2 For operational and maintenance purposes, the meter and service equipment require direct accessibility 24-hours a day, 7 days a week. If the customer has specific problems regarding property access, landscaping, or the meter/service equipment location, a Service Entrance Structure (SES) located close to the sidewalk offers the viable solution. NVE will work with the customer and their design representative to meet NVE standard requirements.
- 4.3 Proposed meter and service equipment locations that will not be readily accessible over the life of the project will not be approved. All meter locations are subject to approval by NVE Meter Operations and T&D Standards.

### 5. Location of Service Points

- 5.1 The standard service point will be located at the corner of the building nearest the NV Energy supply.
- 5.2 Alternate service points may, at the discretion of NV Energy, be allowed provided that they meet all requirements of Section 6 "Access to Service Equipment".
- 5.3 Meter rooms, although not preferred, may, at the discretion of NV Energy, be allowed provided that they meet the requirements of Section 6 "Access to Service Equipment" and Section 8 "Meter Rooms".
- 5.4 If the Standard Service Point and Alternative Service Point are not used for the meter location, an SES must be placed in the **Acceptable SES Area**. The default location for an SES must be 5' behind curb, 5' from existing driveway, and 5' from lot lines.
- 5.5 Meters shall only be mounted on walls solely owned and controlled by the property owner. Walls located on property lines are not approved.


### 6. Access to Service Equipment

- 6.1 Electric meter and service equipment installations must be readily accessible to authorized representatives of NVE for reading, testing, and inspection at all times. Customer contact will not be required for meter reading.

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- 6.2 Permanent vehicle access to the service equipment is required for the installation and maintenance of service cables and metering equipment. The service equipment must be accessible without requiring passage through restricted areas or requiring customer contact.
- A. For services 600v and less, the vehicle access will be a minimum 12' wide, 20' high direct path to the metering equipment.
  - B. For services greater than 600v (primary service) or where the services include the installation of three-phase transformers, switch or fuse cabinets, capacitor banks, or other large equipment, the vehicle access will be a minimum 23' wide, with no overhead obstruction.
  - C. Where applicable, vehicle access will require roll curbs (RTC drawings 217.S1 or 217.S2) or driveways (RTC 224).
  - D. Where applicable, all services and related equipment must maintain clearances per NV Energy Electric Service Requirements standard RS-5.
  - E. For drives without a vehicular outlet, the maximum distance to the alternate meter room entrance shall be 50 feet.
- 6.3 Power-operated gates do not meet the requirements for a readily accessible service installation.
- 6.4 The permanent vehicle access area and path to the service equipment shall be free of vegetation and rocks larger than 3/8".
- 6.5 The service lateral and access pathway, unless paved, will not have a maximum average slope that exceeds  $\pm 5\%$  except for short distances. In no instance will the slope exceed 10% grade. Frequent grade changes will not be allowed.
- 6.6 Additional requirements for electrical meter rooms located above an underground parking garage. Customer to provide the **following**:
- A. Block wall to be built enclosing the conduit area under the electrical room
  - B. Room to be well vented
  - C. Double doored – Per NEC Code – Panic Hardware to be installed on doors
  - D. Secured 24/7 for NVE Access Only, Signage/Labeling
  - E. Conductors to be installed on cable trays (ladder), RGS conduits or both under electrical room up to the pull section of the gear and able to get pulling equipment into room below electrical meter room
  - F. Conduits and/or cable trays to be fully supported to handle cable pulling and use of cable pulling tools/equipment. Structural engineering analysis to be provided by customers or developers licensed structural professional.
  - G. Conduit seals are required
  - H. Expansion joints are required between the PVC and RGS conduits
  - I. Conduits may not enter into the building over 20' max including 90s under the meter room
  - J. Only NVE circuits/conduits/cable trays allowed in room.

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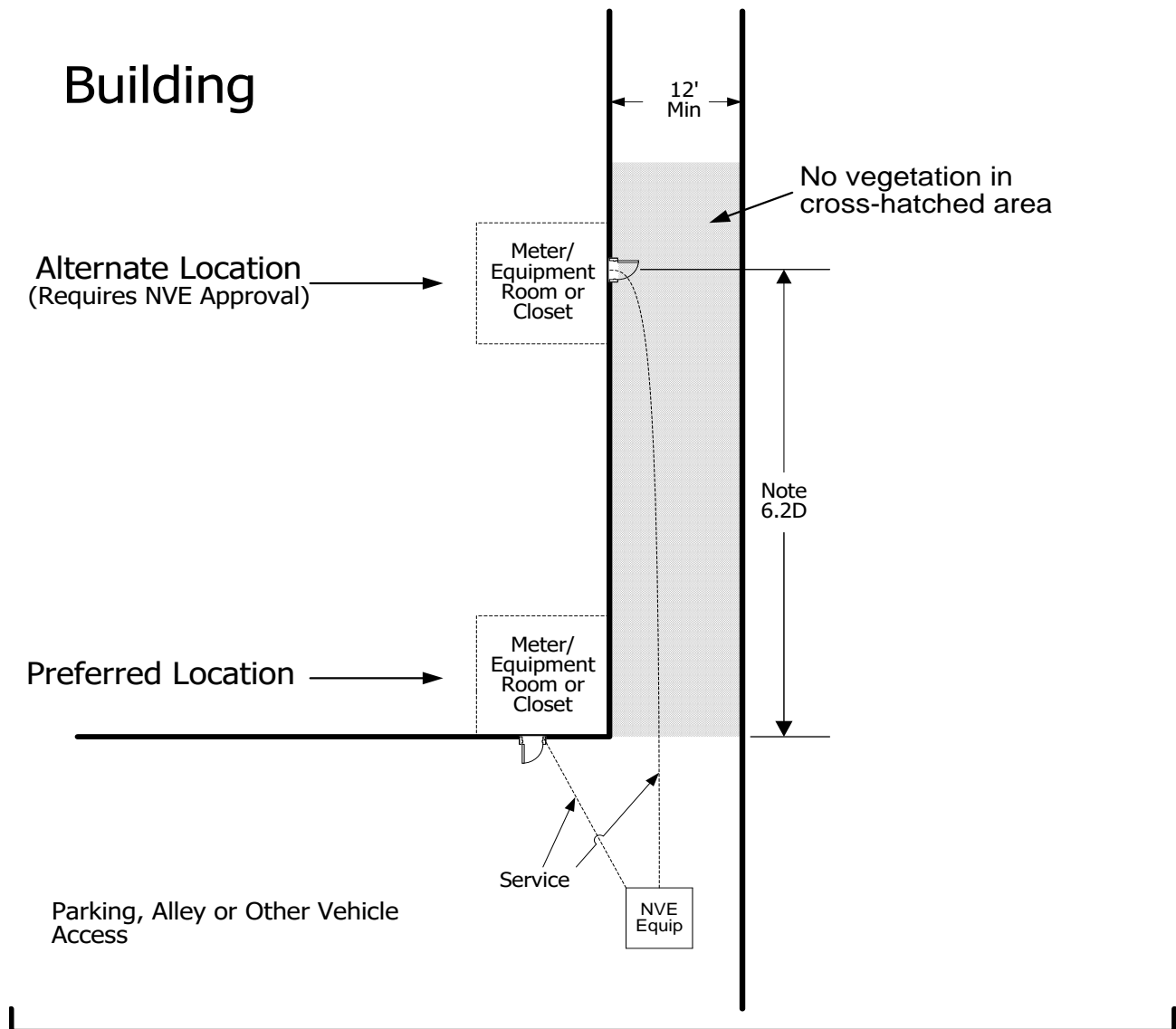



Figure 5a. Service Equipment Locations – 600v or Less – Typical (see Section 6.2.a)

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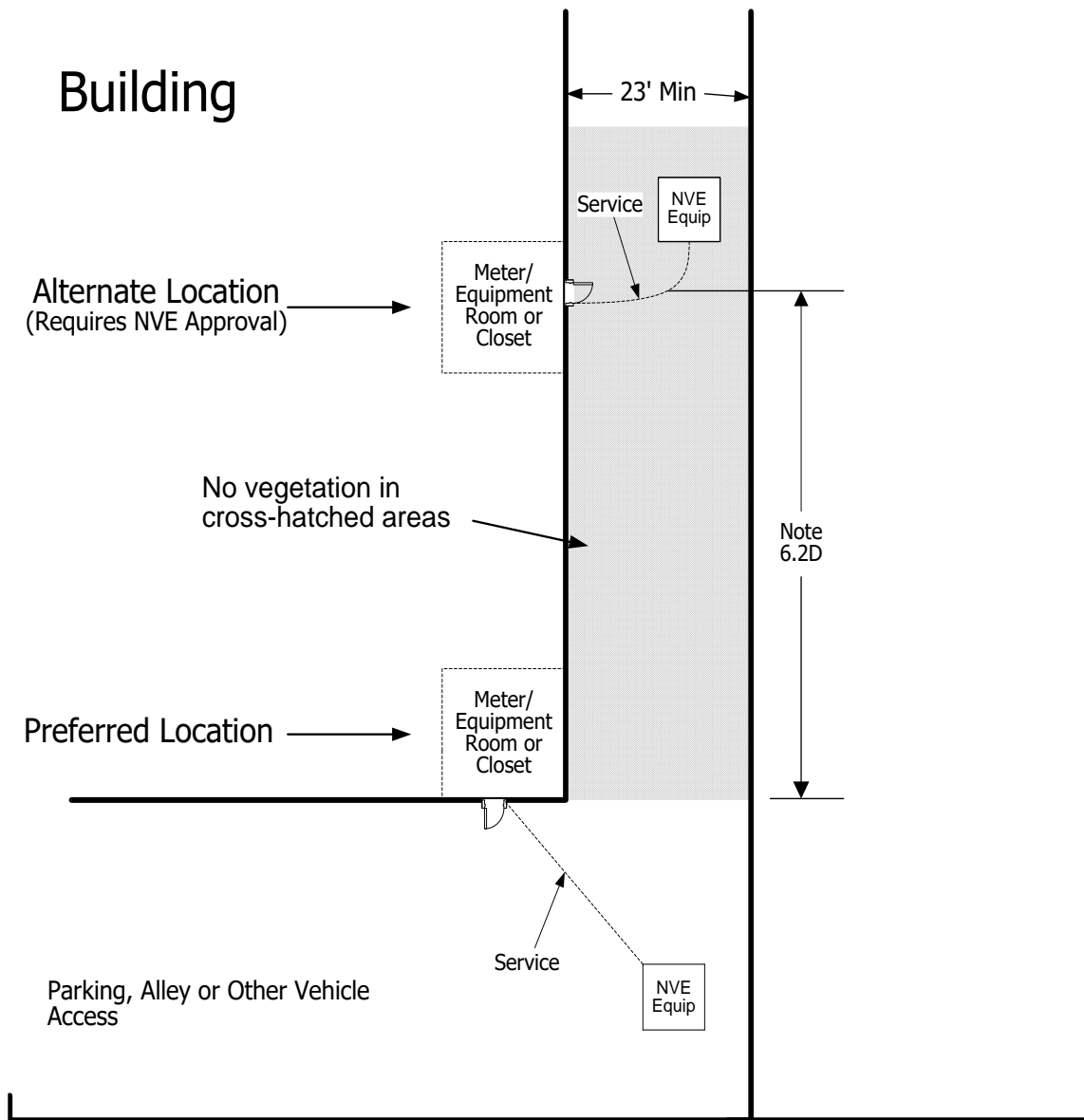

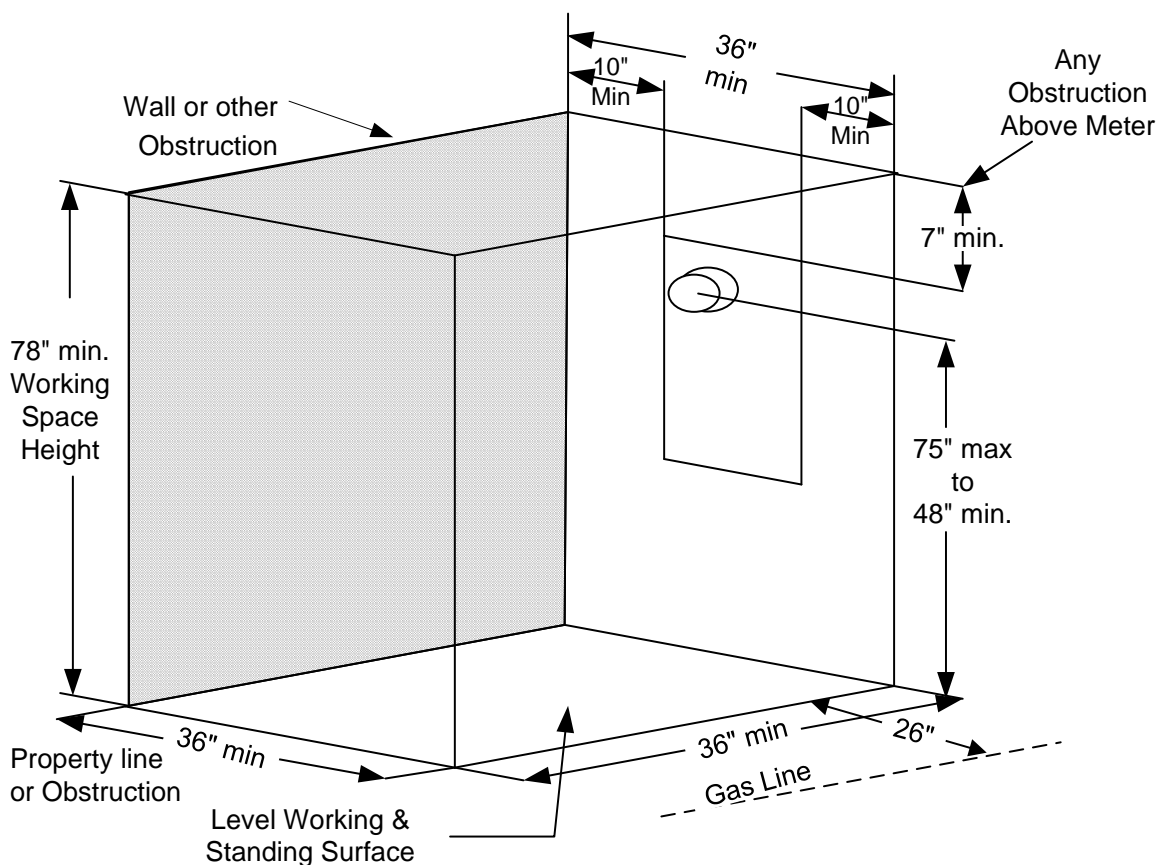


Figure 5b. Service Equipment Locations – Over 600v or with NVE Equipment – Typical (see Section 6.2.b)

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## 7. Safe Work Space

- 7.1 In addition to the requirements of NEC Article 110.26, a 3' x 3' area directly in front of each meter must be provided as the minimum amount of work space necessary for safe operation and maintenance of the meter and service equipment. See Figure 5, Safe Work Space and Clearances around the Meter.
- 7.2 The standing surface of the work space must not contain rocks larger than 3/8" and will be level within 1/4 inch per foot in all directions.
- 7.3 The safe work space must not be part of a driveway or subject to vehicular traffic, including parking.
- 7.4 Bollards or other barricades may be required to maintain the 3' clearance if the meter/service equipment is adjacent to vehicle access or parking.



**Figure 7. Safe Work Space and Clearances around the Meter**

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### 8. Meter/Equipment Rooms (refer to RPI-G, Section 9)

- 8.1 An Access to Equipment Agreement is required for meter room installations.
- 8.2 A meter room is a dedicated room on the ground floor directly accessible from the outside. Securing means will be by NV Energy lock or a customer lock with a key housed in a lock box accessible to NV Energy representatives.
- 8.3 Meter rooms shall be provided and maintained by the customer and are to be used for the customer's electric service equipment.
- 8.4 Meter rooms may contain Communications and/or CATV.
- 8.5 Meter rooms may not contain water or gas services or equipment.
- 8.6 Meter rooms will not be used for storage.
- 8.7 The meter room will be illuminated and ventilated directly to the outside.
- 8.8 To facilitate installation and replacement of service equipment and conductors, each service entrance pull section will open directly towards the exterior meter room entrance to provide equipment access for cable installation equipment.
- 8.9 Personnel doors will open outward and be equipped with panic bars, pressure plates or similar devices that operate under simple pressure.

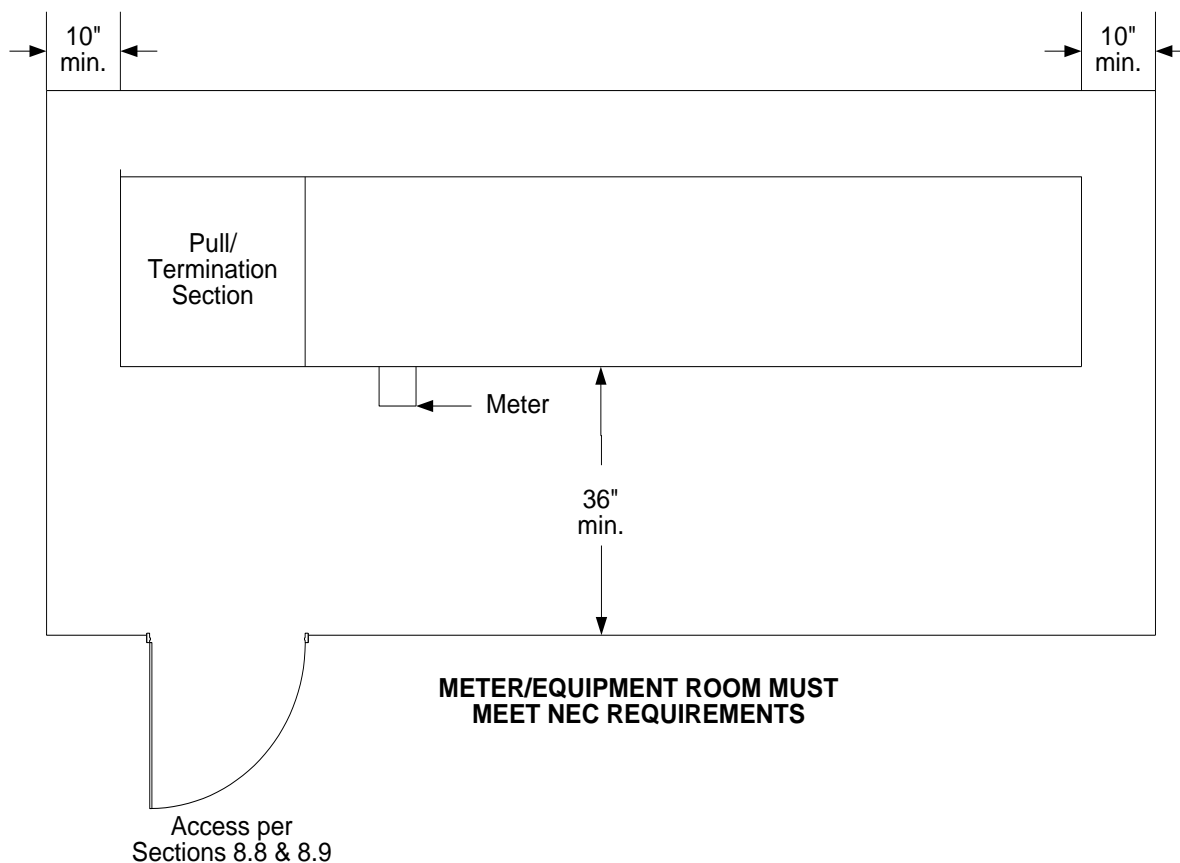



Figure 8. Meter/Equipment Room Detail - Typical


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### 9. Additional Conditions

- 9.1 For projects involving modification of existing service, a SES may be used to bring non-conforming installations into compliance.
- 9.2 Shunt trips with remote sockets are no longer acceptable due to changes in county ordinances.
- 9.3 For reasons of public safety, NVE employee safety, maintenance of service, and reliability of metering, it is not permissible to install meters and metering equipment as follows:
- A. In any location that is not readily accessible.
  - B. In any location which is hazardous to personnel.
  - C. In garages, carports or breezeways.
  - D. In trash, refuse or garbage enclosures.
  - E. In areas that contain animal waste.
  - F. On any surface subject to excessive vibration.
  - G. In any elevated or depressed area that does not have access provided by means of a ramp or clear stairway of normal tread and use which conforms to building code requirements.
  - H. In any substation area or transformer vault.
  - I. On any NVE pole. It is not permissible to attach panels, switches, junction boxes, or any other customer service equipment.
  - J. Within a 4' radius of NVE poles (see RS-4). Meters, metering equipment and associated service equipment may be installed on customer – owned poles, pedestal, structures, etc. provided such equipment is at least 4' from NVE poles.

### 10. Meter Closet

- 10.1 An Access to Equipment Agreement is required for an installation of a meter closet.
- 10.2 Main disconnect signage is required and must be approved by an NVE inspector.
- 10.3 10" minimum clearance must be maintained between the sides of the gear to wall or obstructions to allow meter panels to open fully per RPM-G.
- 10.4 11" minimum clearance must be maintained between the meter mounting surfaces and the doors when the doors are in the closed position to prevent damage to the meter(s).
- 10.5 Minimum door opening to be 20" greater than the width of the equipment centered in the closet space but in no case will the width be less than 36" (standard trade size 3' 0" door).
- 10.6 The door(s) to the meter closet shall be louvered or screened to allow a minimum 50% open space on the top half of the door(s) to facilitate radio communication.
- 10.7 If the customer desires that the meter closet be locked, securing means will be by NV Energy lock or a customer lock with a key housed in a lock box accessible to NV Energy representatives

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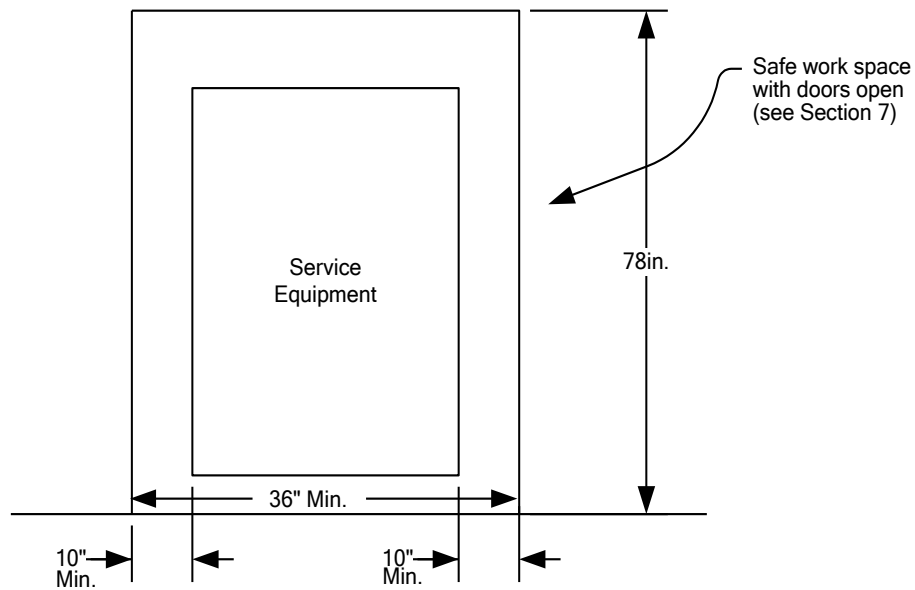


Figure 10a. Meter Closet Elevation

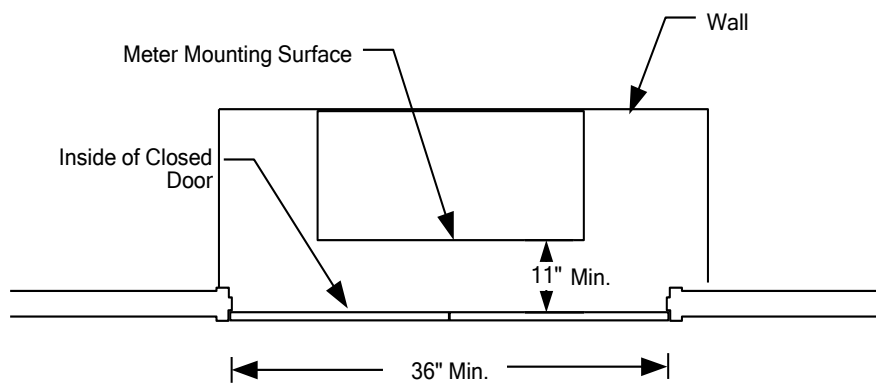


Figure 10b. Meter Closet with the Door Closed

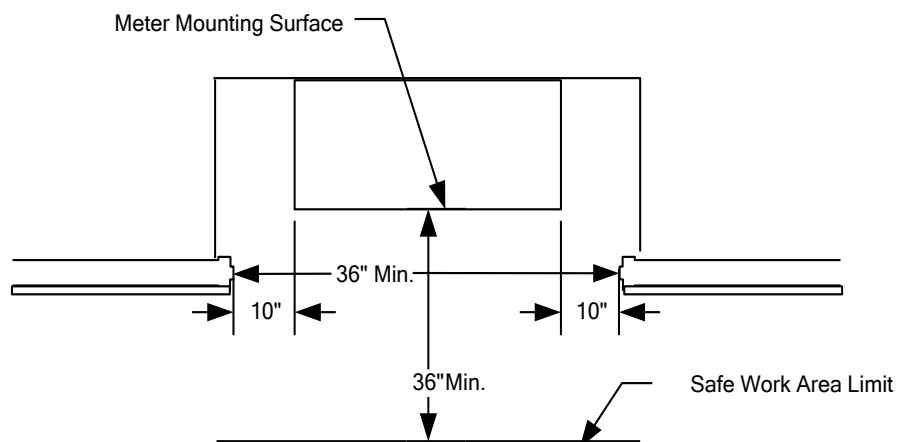



Figure 10c. Meter Closet with the Door Open

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