	SMART METER ELECTRIC NETWORK REQUIREMENTS FOR INDOOR METER ROOMS AND HIGH-RISE BUILDINGS		094683
	Asset Type: Electric Distribution Issued by: Daniel Jantz (DWJ7) <i>D. Jantz</i>	Function: Design, Estimating, and Field Personnel Date: 3/25/2022	
Rev. #00: This new document replaces bulletin TD-7001B-005, Rev. #01. For a description of the changes, see Page 8.			

Purpose and Scope

This Document provides Smart Meter (SM) infrastructure installation and construction requirements for customers designing indoor electric meter rooms for high-rise buildings. This will address below-grade and multiple above-grade meter room installations such as those that may exist in an urban, high-rise environment to ensure PG&E's Smart Meter mesh network is established for these customers. These provisions are required for commercial and/or residential, single, or multiple, indoor meter rooms to ensure Smart Meter electric network communication access and performance.

References

Location

Document

[Electric and Gas Service Requirements \(Greenbook\)](#) [TD-7001M](#)

General Information

1. To make sure customer's Smart Meters are connected to the Smart Meter mesh network, provisions must be made for access to mount equipment and pathways for radio frequency (RF) communications. It is important to make the necessary provisions for Smart Meter equipment early in the planning stage for high-rise or below-grade meter room situations to prevent additional costs from being incurred by customers and/or by PG&E. Special provisions to facilitate the installation of Smart Meter technology meters and equipment include:
 - A Access by PG&E personnel for placement of radio frequency equipment
 - B Path for radio frequency (RF) signal propagation (i.e., conduit)
 - C Placement of ancillary RF equipment (in-room relay or access point may be installed inside meter rooms or on the exterior of the building, including on the top of the building)
 - D Conduit and cable routing. Placement and mounting of antennas (MPACK or Salt-shaker antennas)
 Please review the drawings on pages 3 through 7 which illustrate these required provisions.
2. The minimum requirements in this document must be met but should not preclude applicable building, fire, or electrical code requirements.
3. Because many of the buildings and situations where these provisions will be required are custom in nature, design plans must be submitted to your local service planner for review by the local meter shop and any other appropriate PG&E department. Communicating early in the design process will allow for additional site-specific review by the Smart Meter Operations Center (SMOC) Tier 4 Analyst(s).
4. Install 3" conduits from the main electrical room ceiling, where the PG&E service cables terminate into the switchboard or switchgear, to the floor above. Continue to install conduit, vertically aligned, in each floor and ceiling, with or without a meter room on the floor. The conduit must be installed upward to the floor with the highest meter room above grade. For example, if the main electrical room is one level below grade (B1) and highest meter room is on the 22nd floor; then install 3" conduit in each ceiling/floor from level B1 to floor 22.
5. All meter rooms must be vertically aligned in the building. Offset meter rooms are not allowed.

Requirements for Figure 2, Figure 3, Figure 4 and Figure 5:

6. Conduit Size: 3-inch in diameter.

Smart Meter Electric Network Requirements for Indoor Meter Rooms and High-Rise Buildings

7. Conduit Type: Non-metallic Schedule 40 or better.
8. Conduit Caps: Non-metallic permanent caps, of the same conduit type and size, must be placed on both ends of the conduit. The cap ends should be flush with the ceiling or floor surface.
9. Firestop System: Install as required by local building, fire, or electrical code.
10. Conduit Placement: Inside the meter room. Preferably in front of the meter panel. The conduit must not be blocked by any equipment or objects. The conduit must not be covered with concrete or metal flooring.

Requirements for Figure 4, Figure 5, and Figure 6:

11. Firestop System: Not required. Do not install.
12. Conduit Size: 2-inch in diameter. The total length of all conduits must not exceed 300 feet.
13. Conduit Type: Conduits installed, in walls, ceilings, floors, or concrete must be made of rigid steel. For all other locations the conduit type can be electrical metallic tubing (EMT) or better.
14. Conduit Cap: A temporary cap, of the same type and size as the conduit, must be placed on the end of the conduit next to the meter panel.
15. Conduit Termination Inside: The conduit must be terminated in a horizontal position on top of the meter panel section and 6 to 12 inches from the front of it. The conduit must **not** enter or pass through the switchgear or enclosure.
16. Conduit Termination Outside: The conduit must terminate in a horizontal position, inside a termination enclosure, on the outside building wall. The conduit must be 8 to 10 feet above grade level and protrude 1-inch outward from the wall.
17. Termination Enclosure: A minimum 6" x 6" x 6", NEMA 3R rated, with an accessible front cover. It must be permanently installed to the outside wall with the conduit terminated inside.
18. Conduit Bends: Any bend must have a minimum 12-inch radius.
19. Junction box: A minimum size of 12" x 12" x 4" is required for pulling when the total number of degrees of conduit bends exceeds 270 between end points or junction boxes. A junction box is also required when the conduit run length exceeds 100 feet. The total length of all conduits must not exceed 300 feet.
20. Pulling Tape: Rated for a minimum of 500 pounds and placed inside the conduit for its entire length from end to end to facilitate cable pulling.
21. Transformer Rooms: Conduit must **not** be installed inside of a transformer room.
22. Conduits can be installed in the floors, ceilings, or walls of the room.
23. Working Space: The open area that must be maintained around all switchboards, metering enclosures, and the outdoor conduit
 - A Above the entire top of switchboard or enclosure a minimum of 12 inches of vertical clearance.
 - B In front of the switchboard a minimum of 48 inches of horizontal clearance and extending to a height 12" above the switchboard or enclosure.
 - C In front of the location where the outdoor conduit terminates a minimum area of 36 inches deep, as measured from the outside building wall, by 30 inches wide and extending upward to 12 inches above the conduit.

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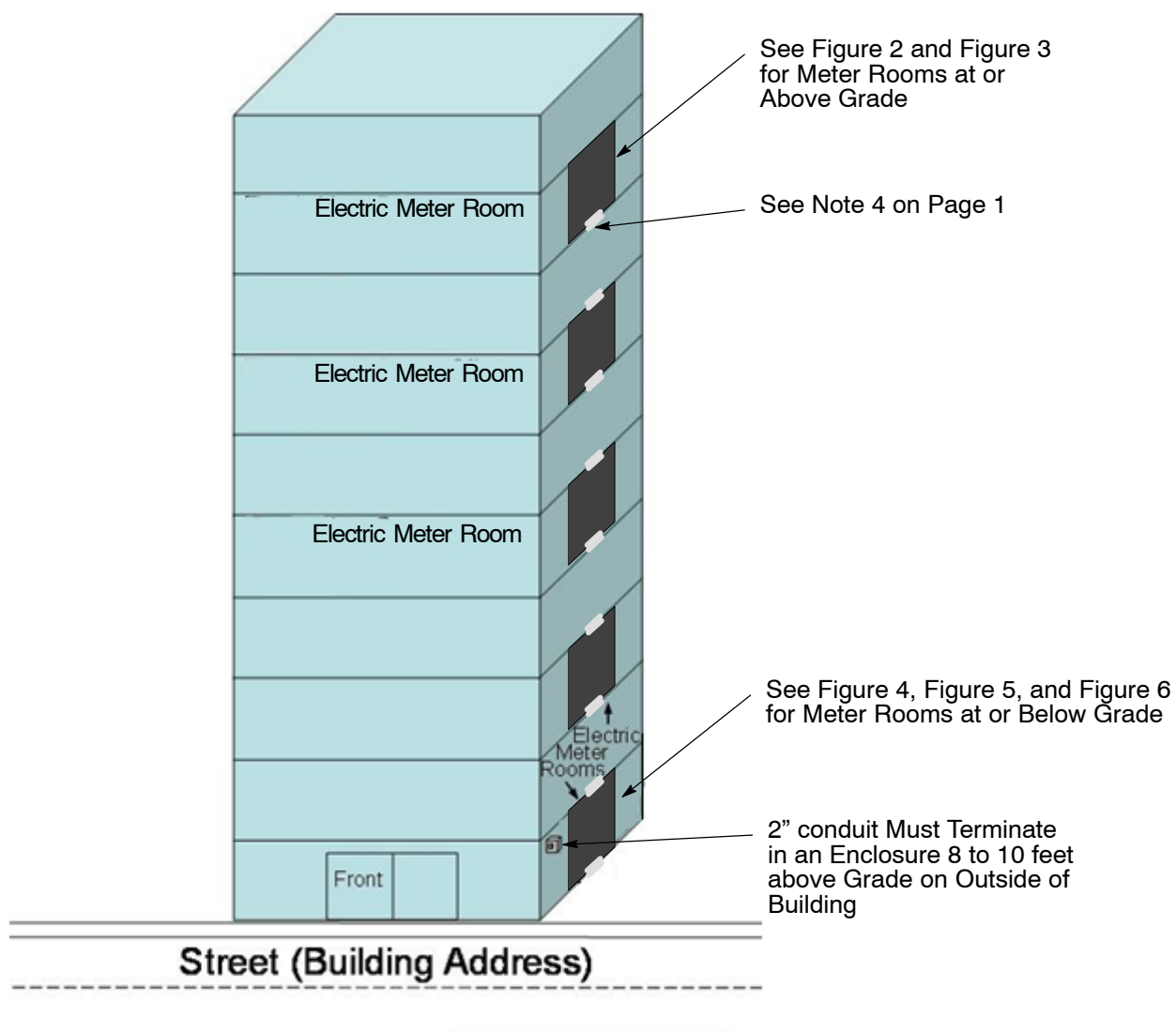


Figure 1
High Rise Building with Indoor Electric Meter Rooms

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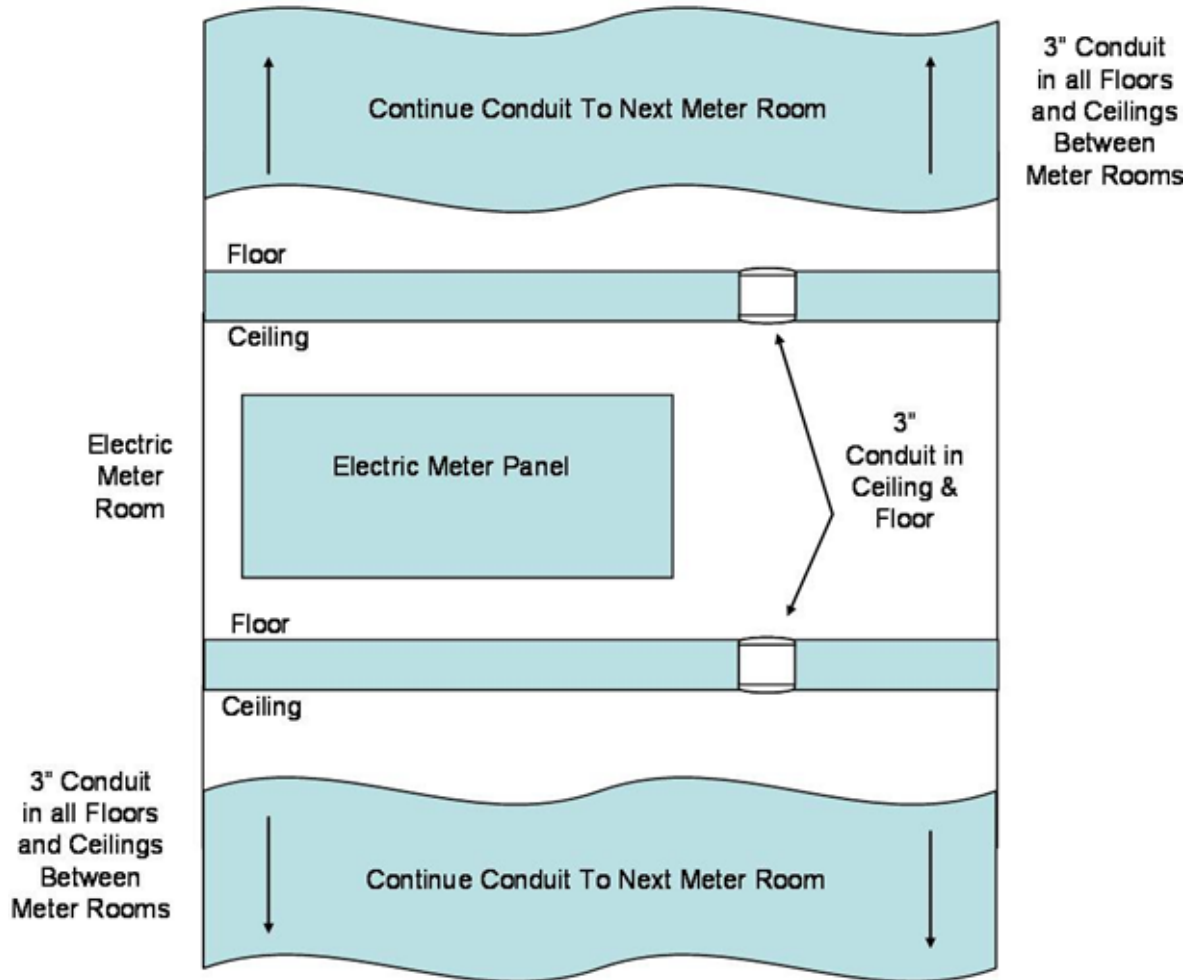


Figure 2
Above Grade Meter Rooms

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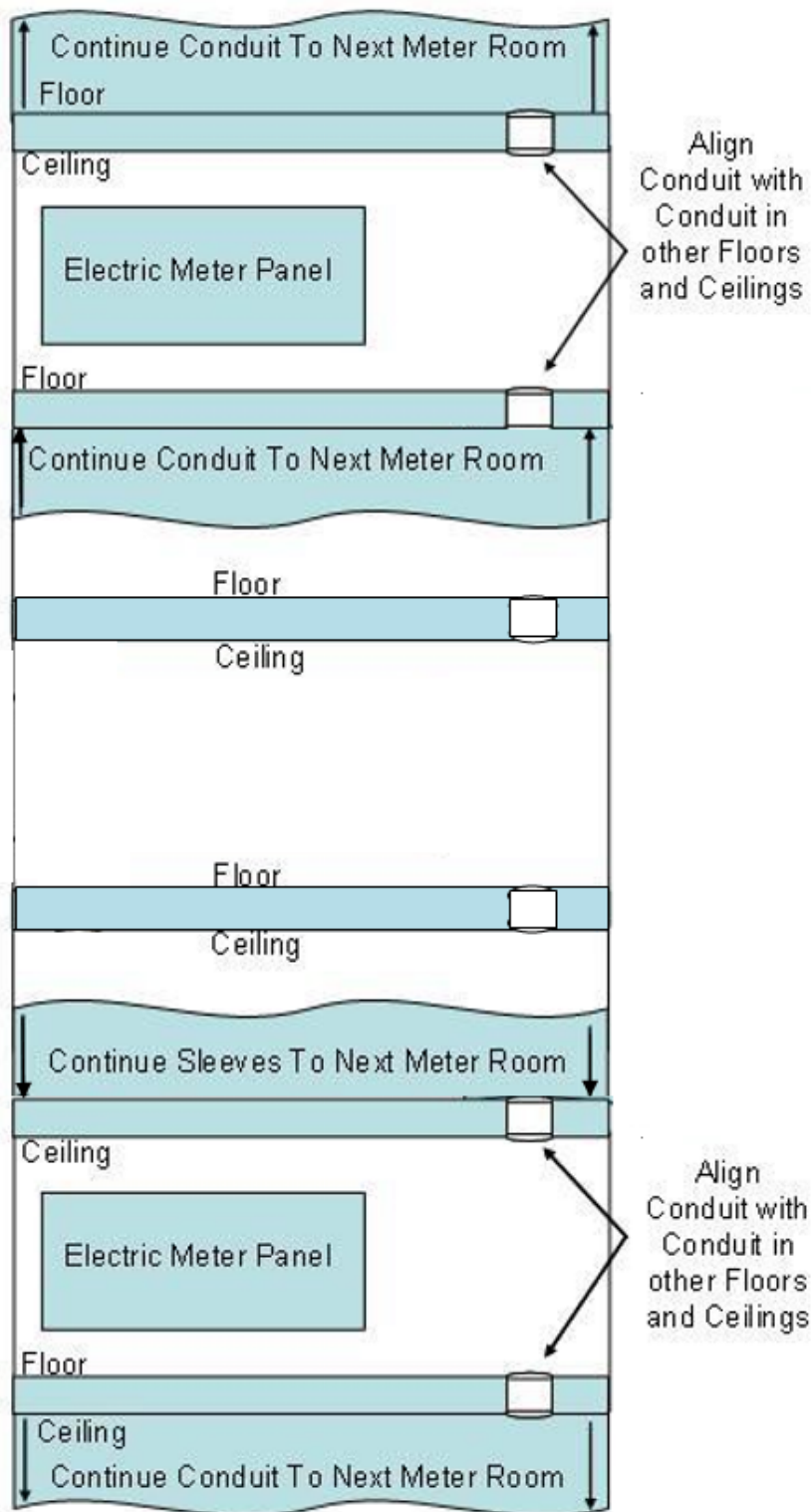


Figure 3
Vertically Align Meter Rooms

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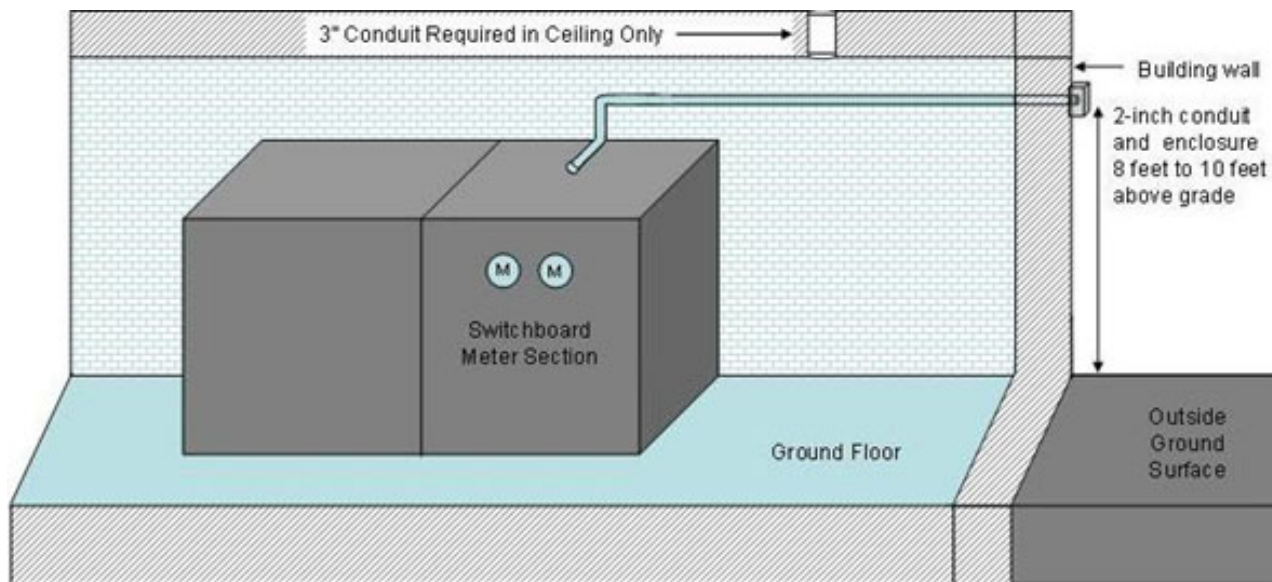


Figure 4
Detail C – Indoor Electric Meter Room at Ground Floor

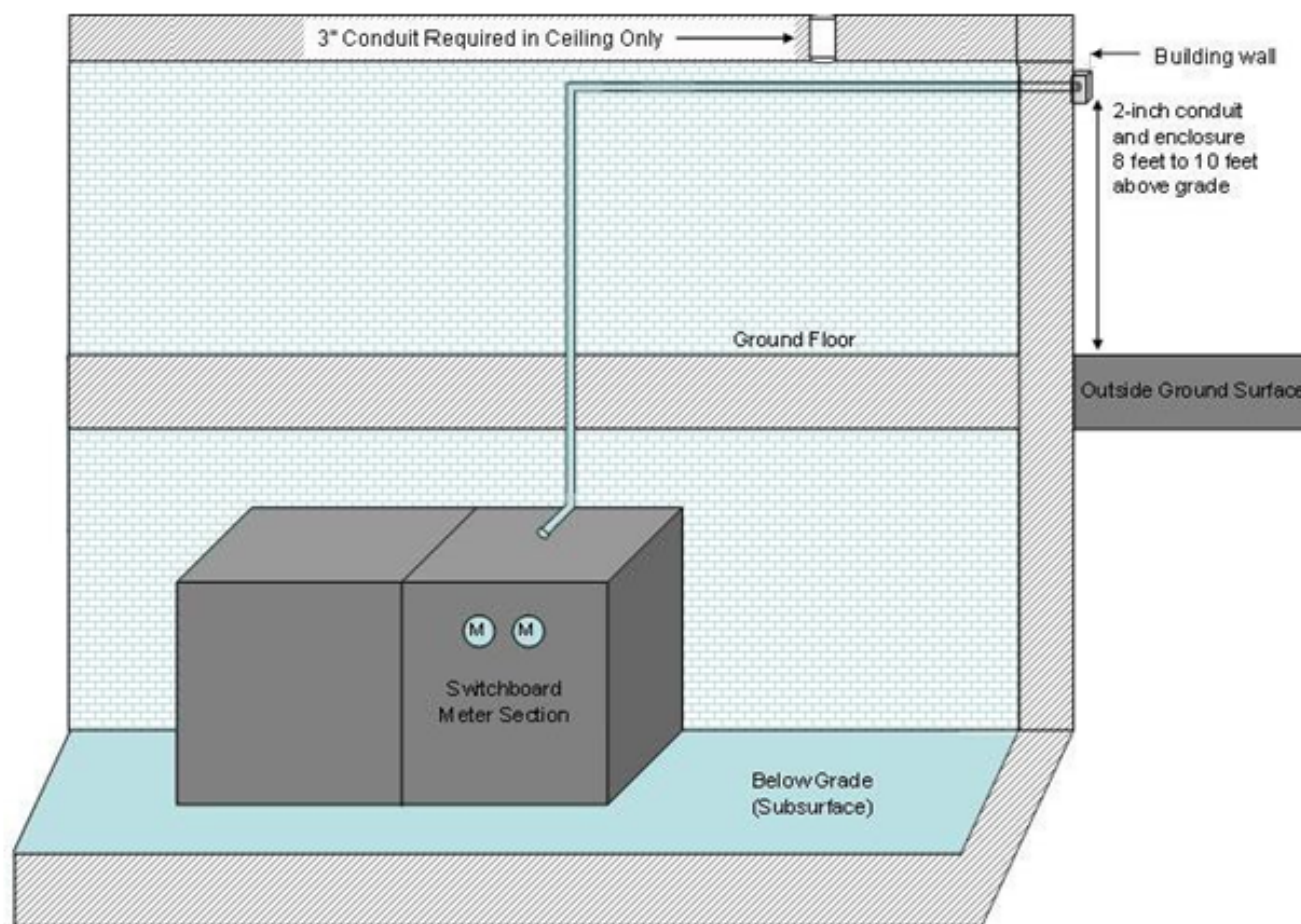


Figure 5
Indoor Electric Meter Room Below Grade (Subsurface)

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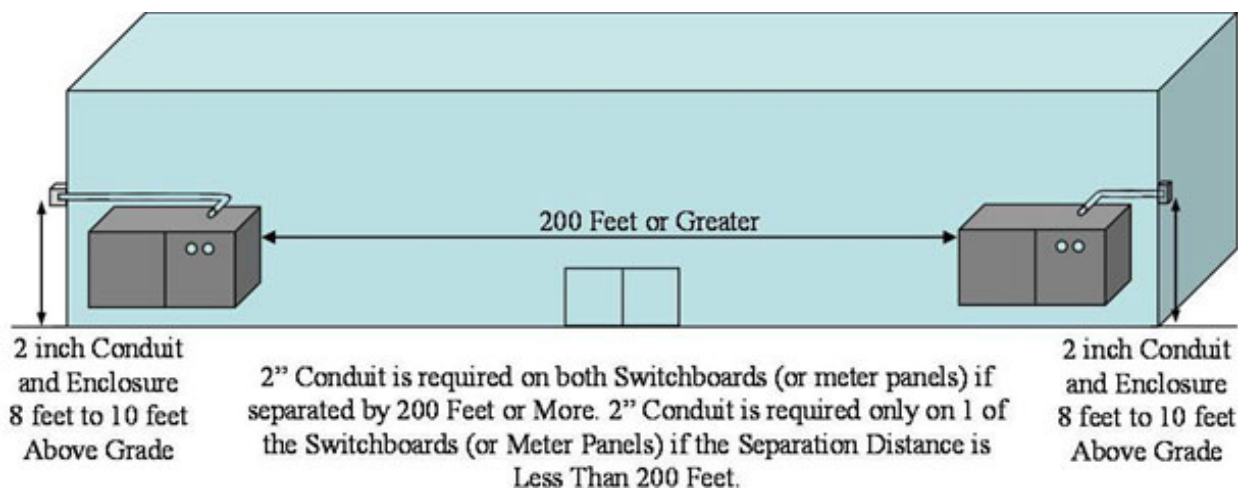


Figure 6
Multiple Electric Meter Rooms at or Below Ground Floor

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Revision Notes

Revision 00 has the following changes:

1. Converted Bulletin TD-7001B-005 to this new numbered engineering document.
2. Updated requirements and Figures throughout.