

FAQ:

Does my project require installation of an emergency disconnect?

Background:

Per section 230.85 of the 2020 National Electric Code (NEC), one- and two-family dwelling units shall have an emergency disconnect installed in a readily accessible outdoor location, and means shall be provided for disconnecting all ungrounded conductors that supply or pass through the building or structure.

This requirement has been incorporated into Section E3601.8 of the International Residential Code (IRC), with an exemption for rowhouses/townhouses.

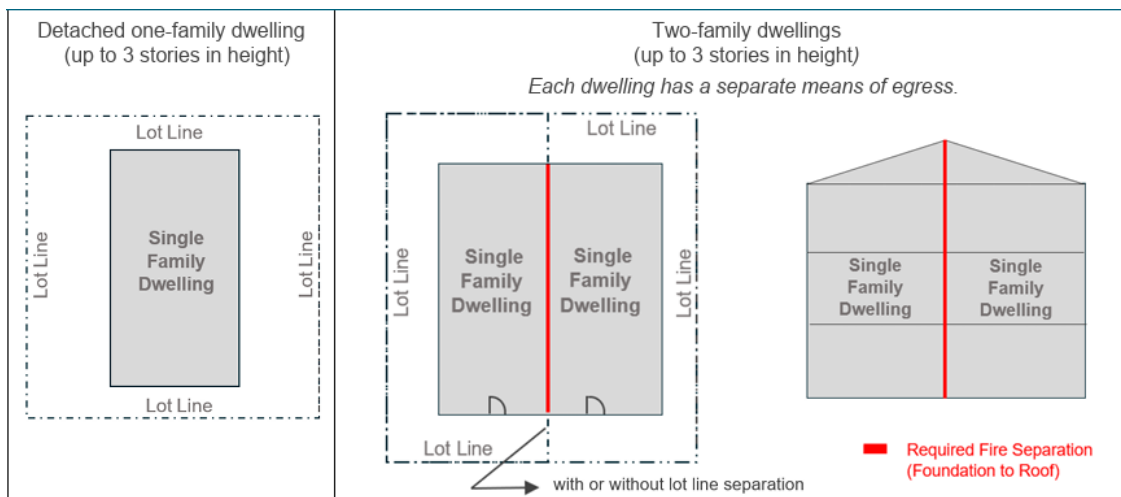
This FAQ is intended to clarify when an emergency disconnect is required for new construction and alteration projects and to provide guidance on compliant installation configurations. The document addresses the following key questions:

1. Does my project require the installation of an emergency disconnect?
2. If required, what is the typical installation scenario?
3. For projects served by underground conductors with service equipment located on the opposite side of the property, what are the emergency disconnect requirements and code-compliant configuration options?

Answers:

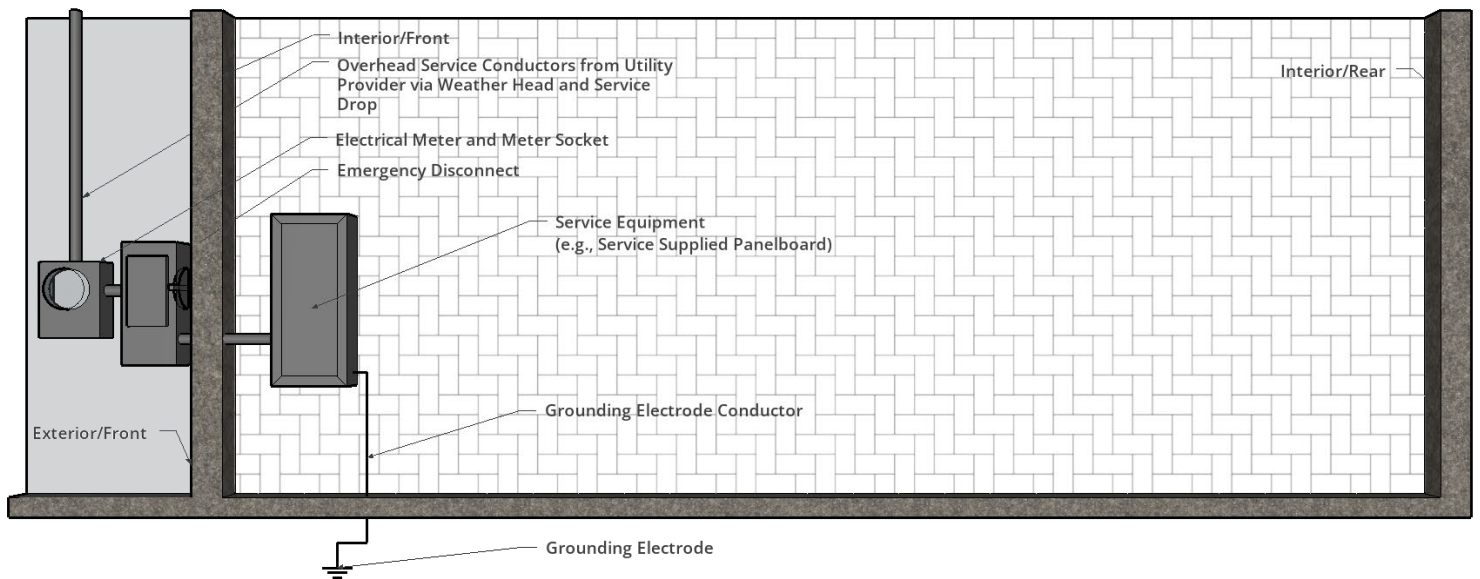
- 1.) The requirement to install an emergency disconnect is triggered by all new service installations and existing service upgrades. An existing service upgrade is for example, replacing a 100-amp service with a 200-amp service. This does not apply to rowhouses or townhomes (by definition a townhome must be three or more attached buildings) up to three stories in height. All other dwelling units require an emergency disconnect with an existing service upgrade or new service installation. One-family dwellings, not attached, and two-family dwellings that are attached, commonly referred to as twins, require an emergency disconnect.

Below are diagrams showing the layout of a one- and two-family dwelling of any height, that would require an emergency disconnect with an existing service upgrade or new service installation:

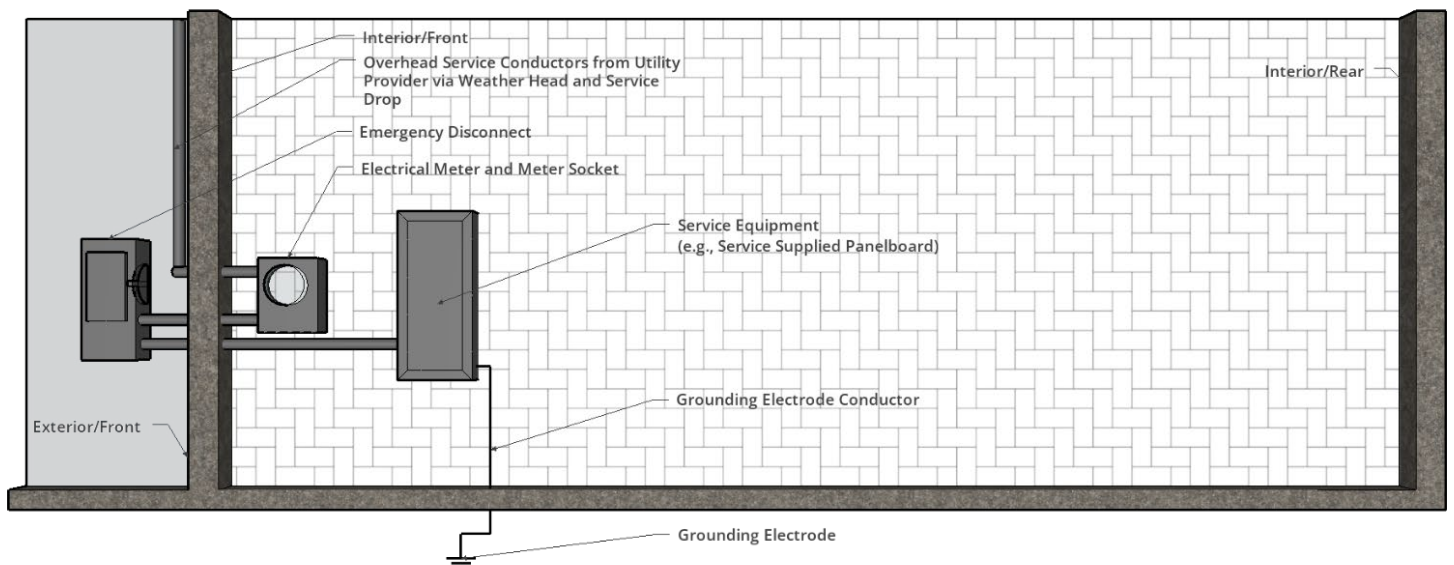


- 2.) Typical existing services are supplied by service drop conductors or underground service conductors, both owned by the electric utility, with the meter being located on the exterior of the structure and a service supplied panelboard (commonly referred to as an electrical service panel) located on the interior. In some cases, the meter may be located on the interior, therefore below are code compliant configurations for all scenarios where an emergency disconnect is required:

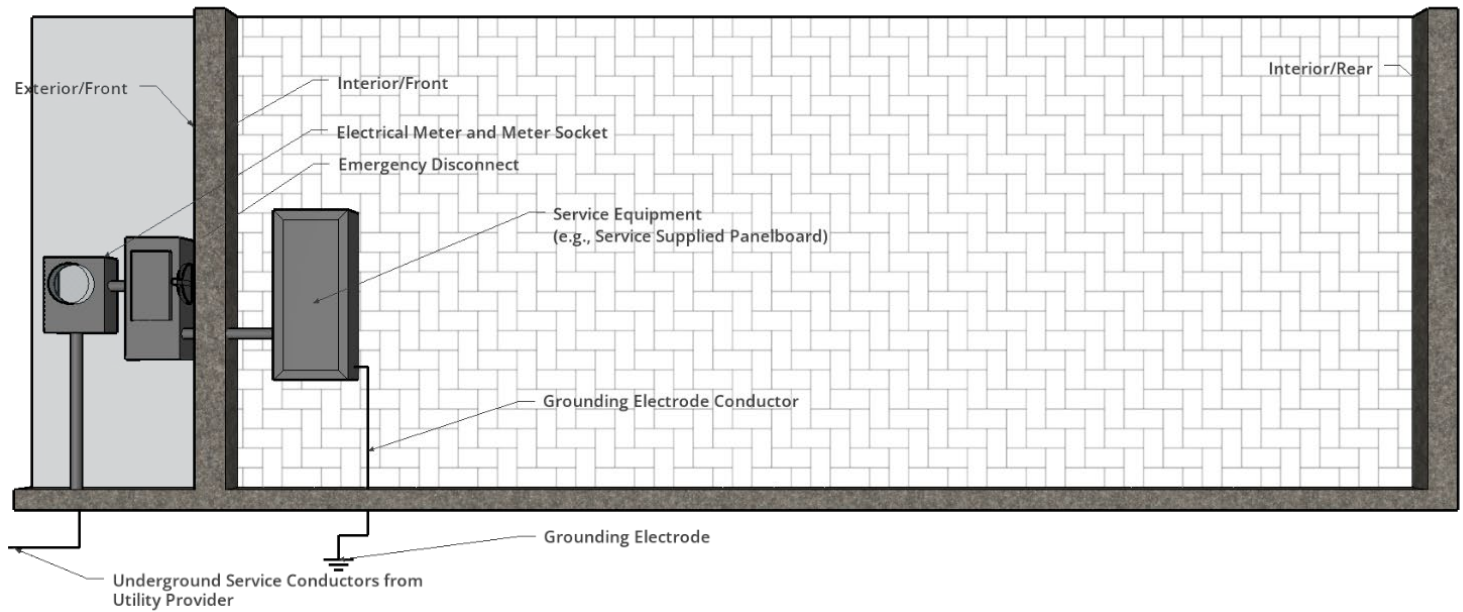
Typical Scenario #1: Meter Located on Exterior of Structure with Service Drop Conductor



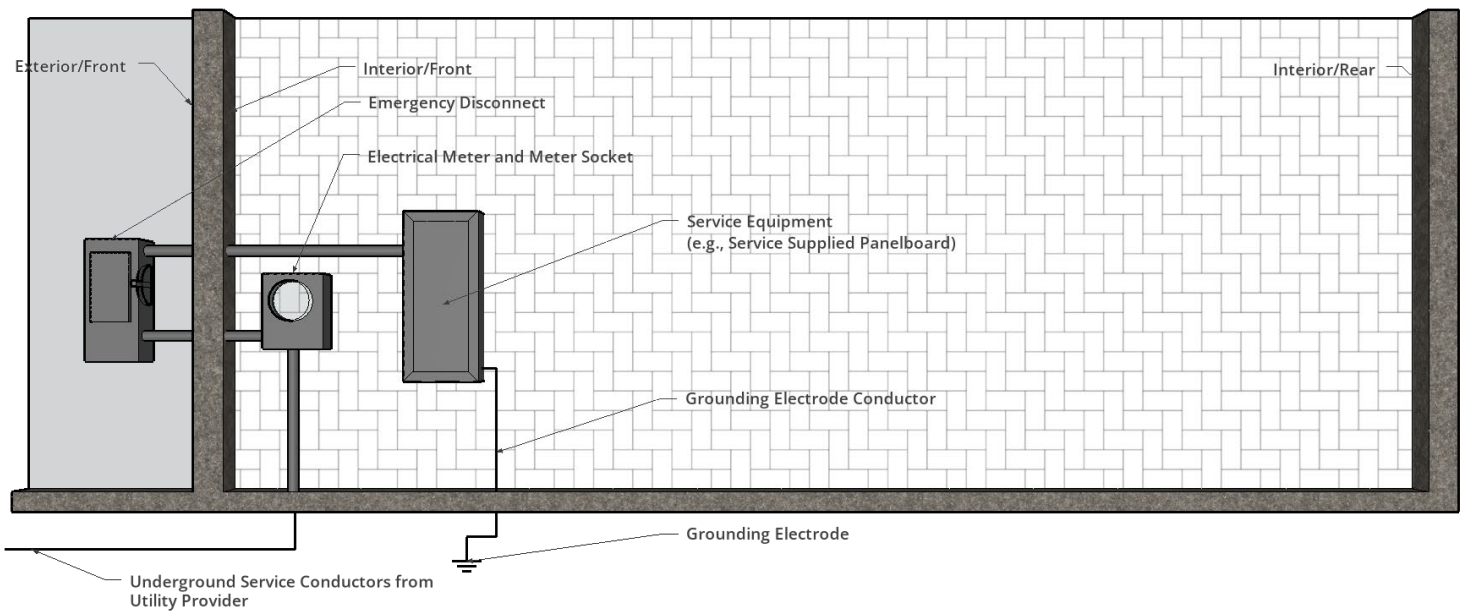
Typical Scenario #2: Meter Located on Interior of Structure with Service Drop Conductor



Typical Scenario #3: Meter Located on Exterior of Structure with Underground Service Conductor



Typical Scenario #4: Meter Located in Interior of Structure with Underground Service Conductor



3.) In several areas throughout the City, it is common for the service conductors from the utility provider to be located underground, and in some cases entering the structure through the basement floor. In these locations, meters may be present inside rather than outside the structure, which further complicates complying with the requirement. However, there are multiple code compliant configurations that make it possible to satisfy the requirements of the NEC, whether the meter is being moved to the exterior wall or remaining on the interior of the building or structure.

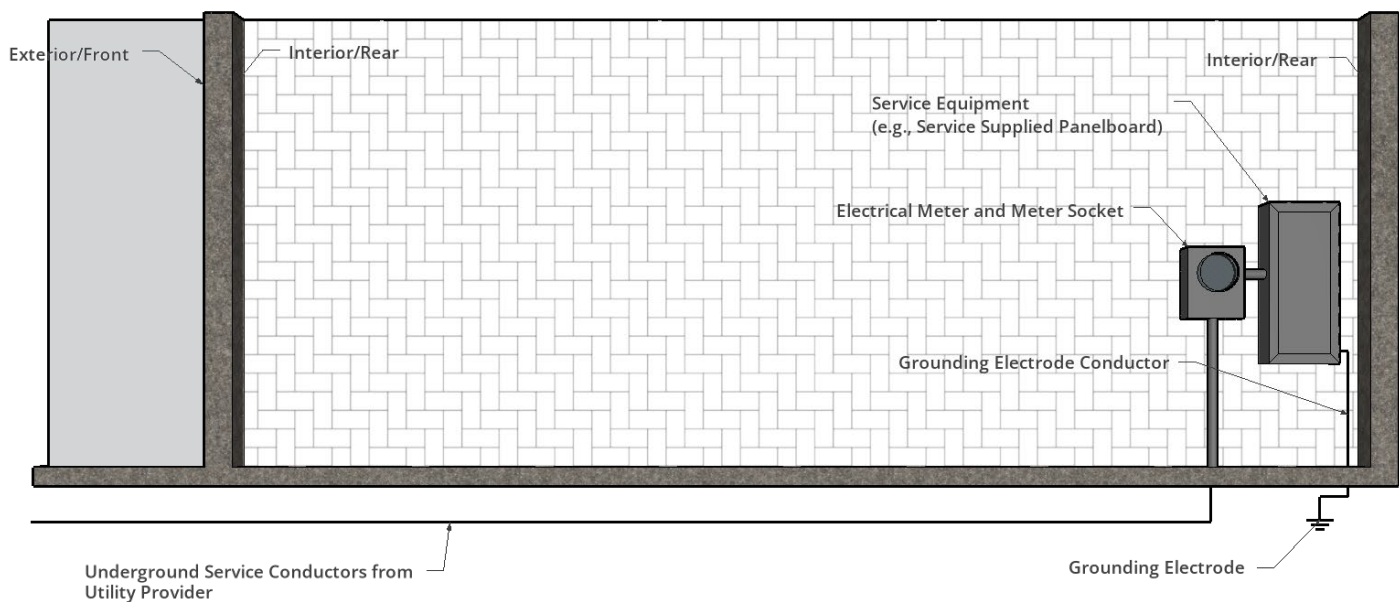
There are several important notes to consider:

- NEC Section 230.70(A)(1) states that means shall be provided to disconnect all ungrounded conductors in a building or structure from the service conductor(s), installed at a readily accessible location either outside of a building or structure or inside nearest the point of entrance of the service conductors.
- NEC Sections 230.6(1) & 230.6(2) state that conductors encased in at least two inches of concrete, either beneath a building or structure, or within a raceway inside a building or structure, are considered to be “outside” the building or structure.
- NEC Section 230.7 requires that service conductors cannot share a raceway, cable, or enclosure with feeder or branch-circuit (fused/protected) conductors.
- While these configurations are code compliant, they may in some cases be technically infeasible, which would require the submission of a variance to the Board of Building Standards.

Please see below drawing of an existing service to be upgraded followed by four different code compliant configurations.

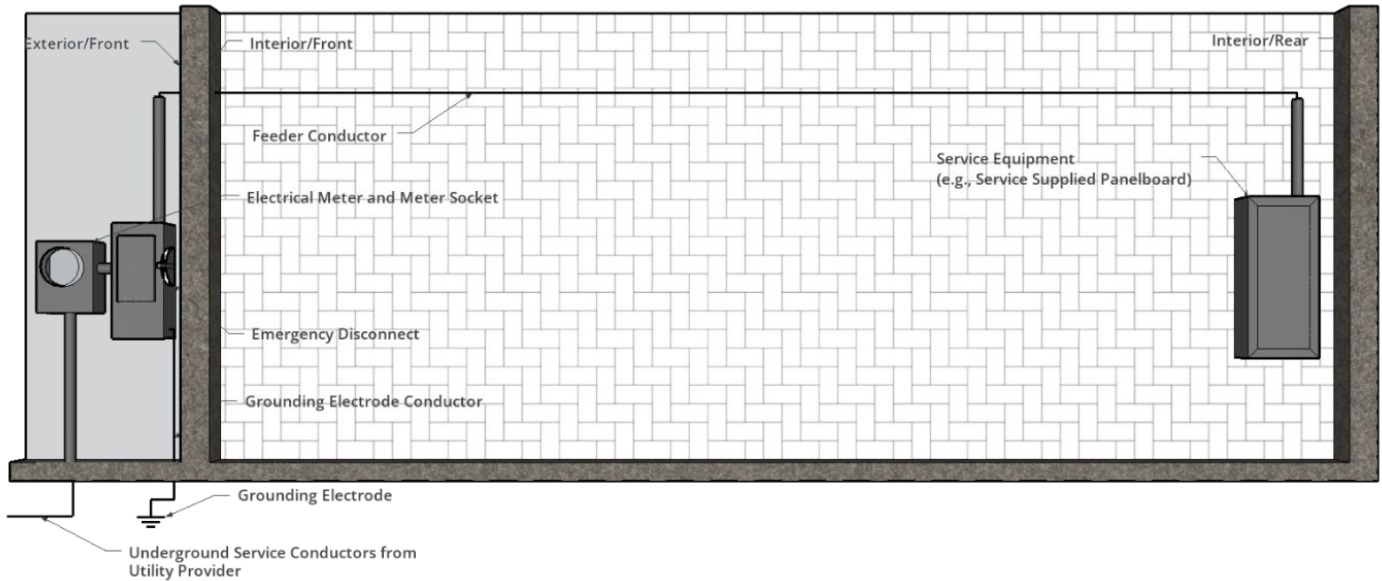
Existing Service to be Upgraded (e.g., 100-amp to 200-amp) or Replaced:

Electrical Meter and Service Supplied Panelboard Located at Interior/Rear of Building, Serviced by Underground Service Conductors



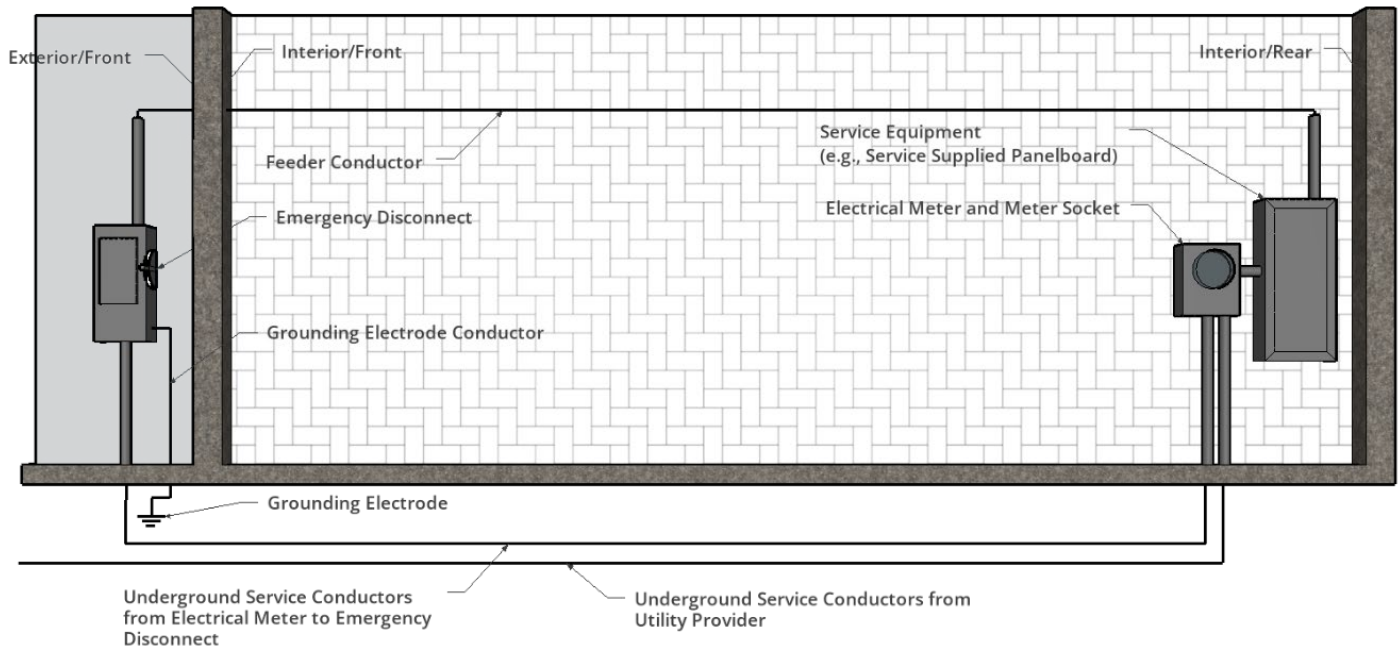
Code Compliant Configuration #1:

Emergency Disconnect (Installed in accordance with list item #1 in NEC 230.85 or E3601.8 list item #1)
and Electrical Meter Located on Exterior Wall



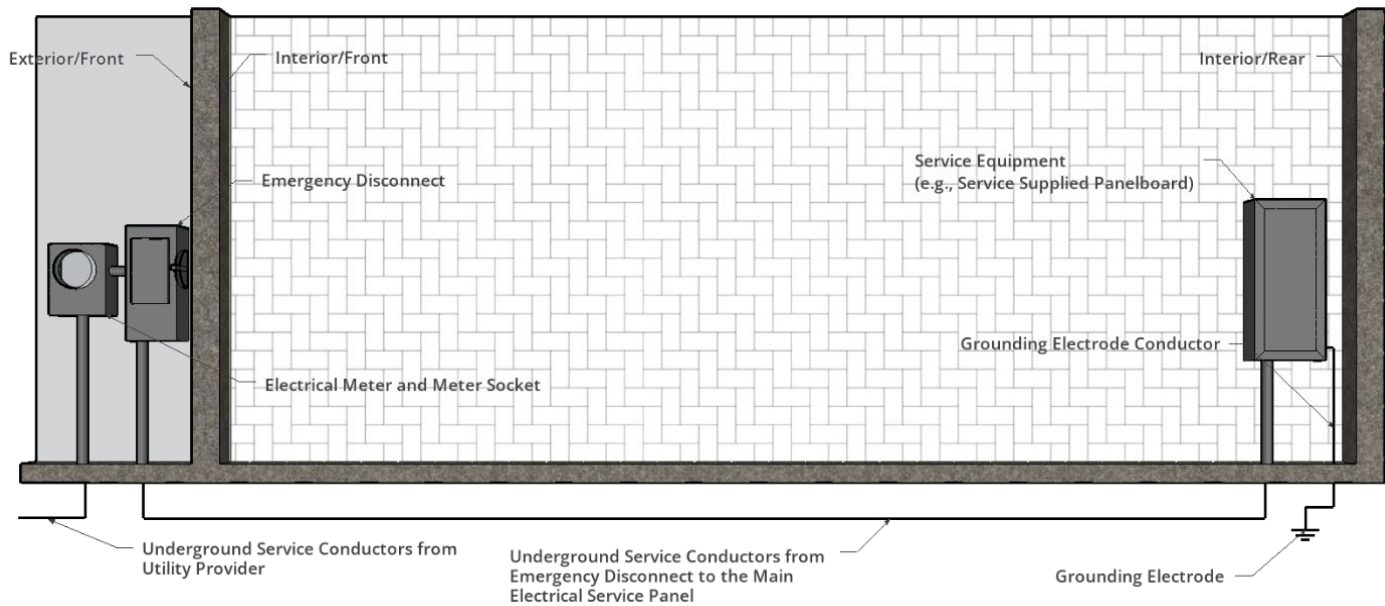
Code Compliant Configuration #2:

Emergency Disconnect (Installed in accordance with list item #1 in NEC230.85 or E3601.8 list item #1)
Located on Exterior Wall with Interior Electrical Meter



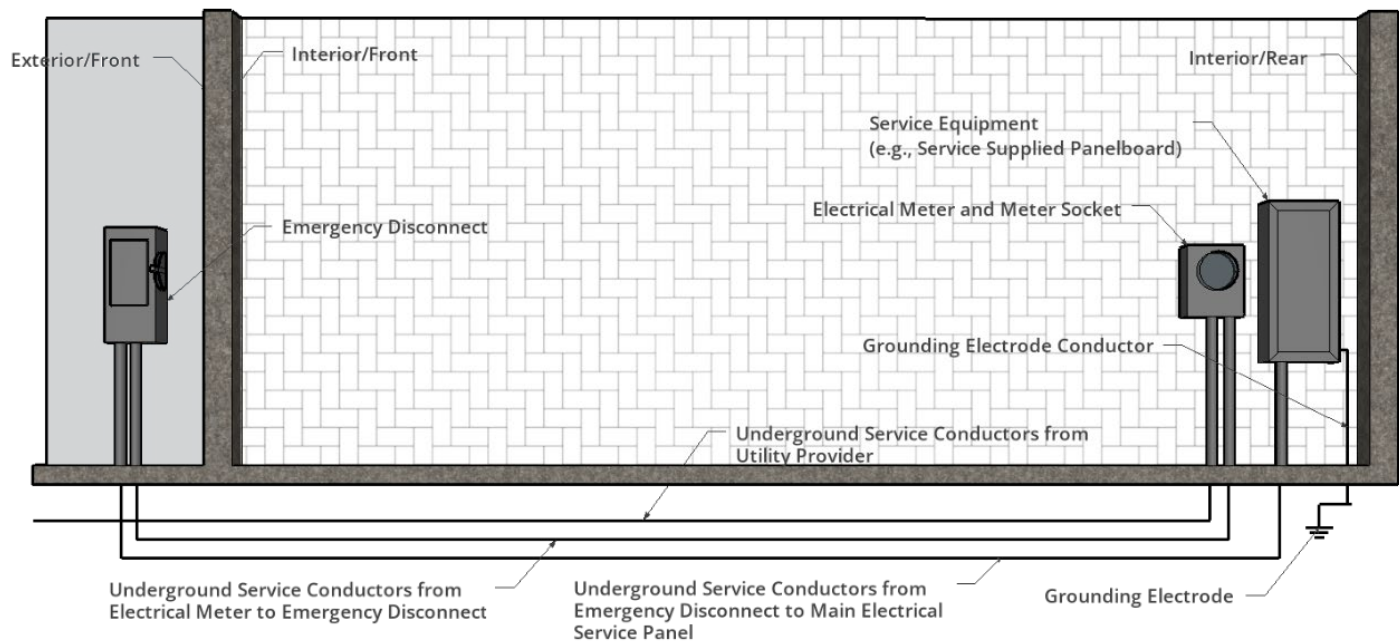
Code Compliant Configuration #3:

Emergency Disconnect (Installed in accordance with list item #3 in NEC 230.85 or E3601.8 list item #3) and Electrical Meter Located on Exterior Wall



Code Compliant Configuration #4:

Emergency Disconnect (Installed in accordance with list item #3 in NEC230.85 or E3601.8 list item #3) Located on Exterior Wall with Interior Electrical Meter



Additional Questions? Call 311 or (215) 686-8686 (if outside Philadelphia) or submit an online form via <http://www.phila.gov/li/get-help>.

Disclaimer: This interpretation, policy or code application is intended to provide guidance to staff for consistency of review and is subject to change without notice. Application of this interpretation, policy or code application to specific projects may vary. There may be other ways to comply with the Code. If so, you are not required to use this method. You may want to investigate other options or consult with a professional identifying an equally code-compliant solution.