**Engineering Division**
Phone: (707) 257-9530

# Community Development Department
# 1600 First St., P.O. Box 660
# Napa, CA 94559-0660

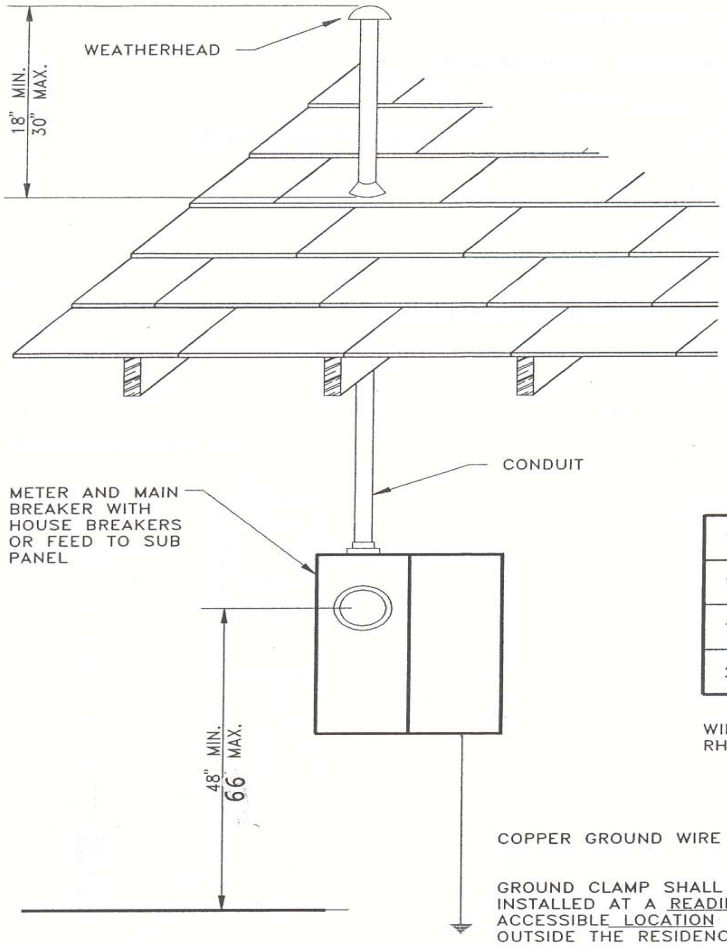
**Planning Division**
Phone: (707) 257-9530

**Building Division**
Phone: (707) 257-9540
Inspections: (707) 257-1063

Facsimile: (707) 257-9522

**Napa Fire Department**
**Fire Prevention Division**
Phone: (707) 257-9590

## SERVICE CHANGE



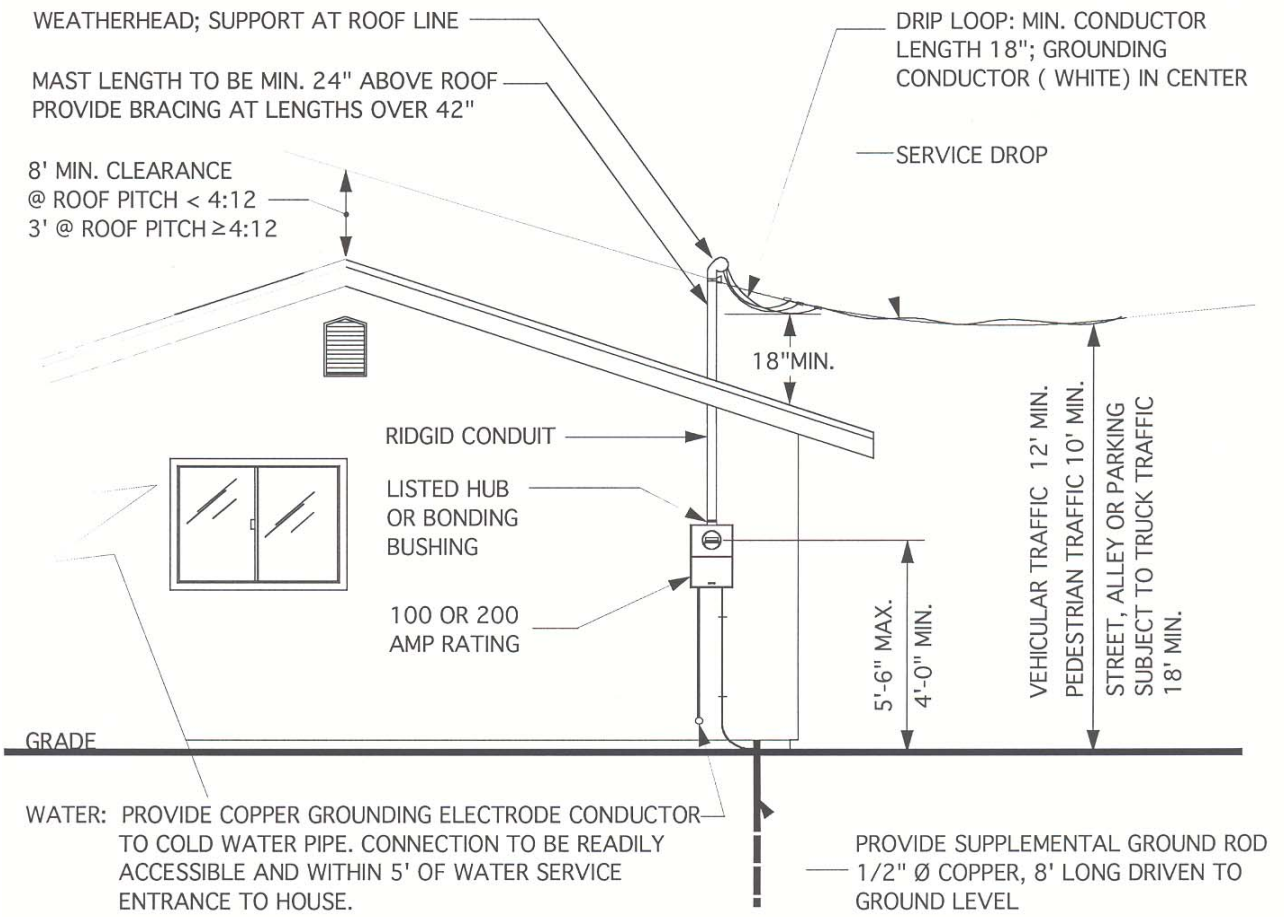

BEFORE INSTALLATION ALWAYS VERIFY METER LOCATION WITH P.G.& E.

| SERVICE SIZE | ALUMINUM WIRE SIZE | PIPE SIZE | COPPER WIRE SIZE | PIPE SIZE | GROUND WIRE SIZE |
|---|---|---|---|---|---|
| 100 A | #2 | 1 1/4" | #4 | 1 1/4" | #6 |
| 125 A | #1/0 | 1 1/2" | #2 | 1 1/4" | #6 |
| 150 A | #2/0 | 1 1/2" | #1 | 1 1/4" | #6 |
| 200 A | #4/0 | 2" | #2/0 | 1 1/2" | #4 |

WIRE INSULATION TO BE:
RH RHH, RHW, THW, OR XHHW

### SERVICE DROP CLEARANCE FROM GROUND

| | |
|---|---|
| 10 FT. | ABOVE FINISHED GRADE AND SIDEWALK |
| 12 FT. | OVER RESIDENTIAL DRIVEWAYS |
| 15 FT. | OVER COMMERCIAL AREAS SUBJECT TO TRUCK TRAFFIC |
| 18 FT. | OVER PUBLIC STREETS, ALLEYS AND DRIVEWAYS |

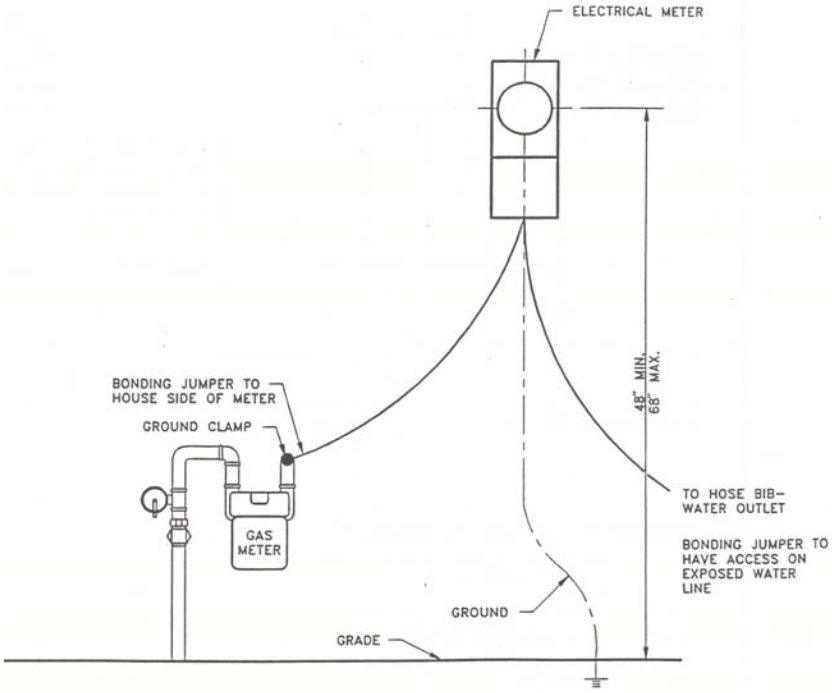


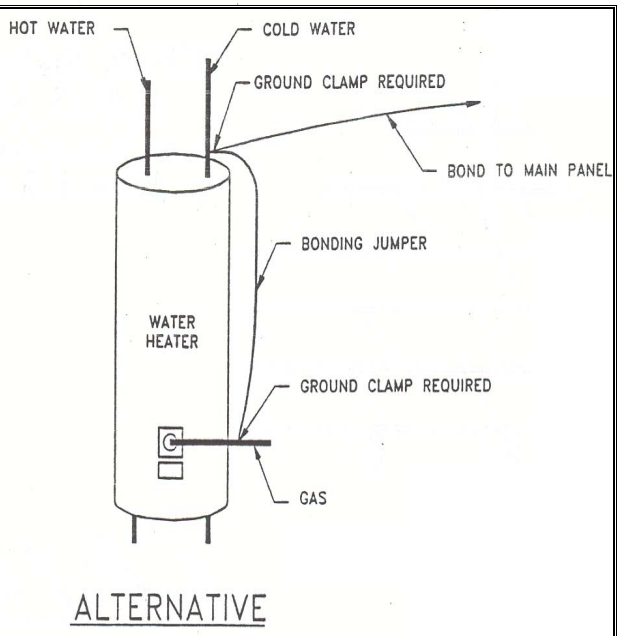

GAS: BOND — PROVIDE COPPER BOND TO HOT & COLD WATER PIPING AT WATER HEATER.

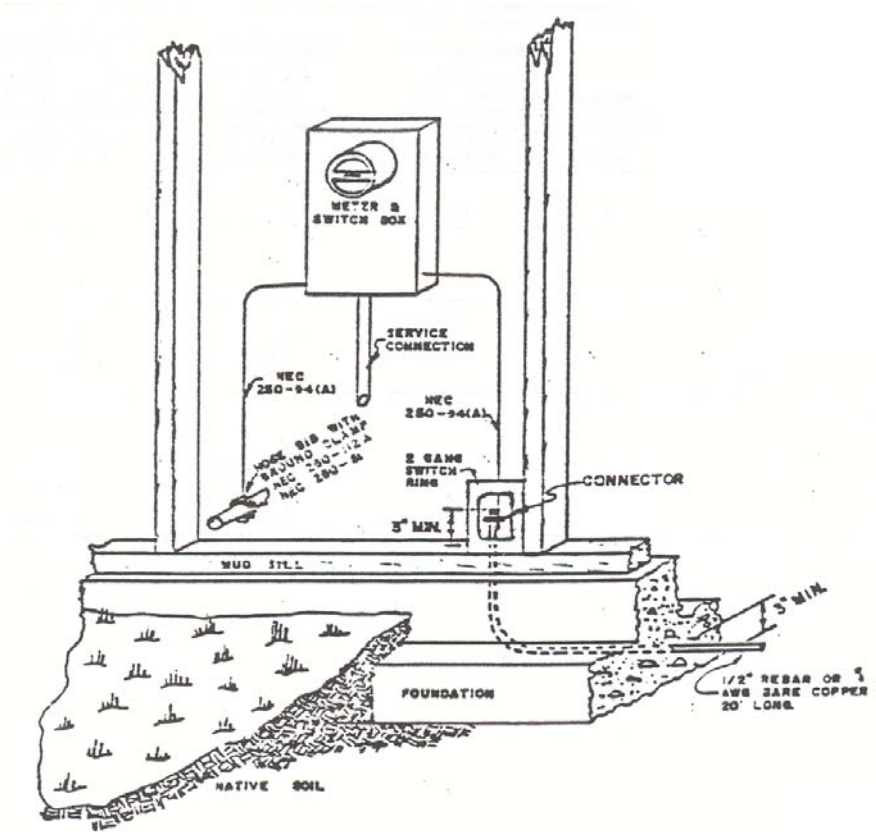
| MATERIAL SIZING: | 100 AMP SERVICE | 200 AMP SERVICE |
|---|---|---|
| CONDUIT | 1 1/4"Ø | 2" Ø |
| DRIP LOOP CONDUCTOR | 3 #4 COPPER, 3 #2 ALUMINUM | 3 2/0 COPPER, 3 4/0 ALUMINUM |
| COLD WATER GROUNDING ELECTRODE CONDUCTOR | #6 COPPER | #4 COPPER |
| GAS PIPE BOND | #8 COPPER | #8 COPPER |
| GROUNDING ELECTRODE CONDUCTOR | #6 COPPER | #4 COPPER |

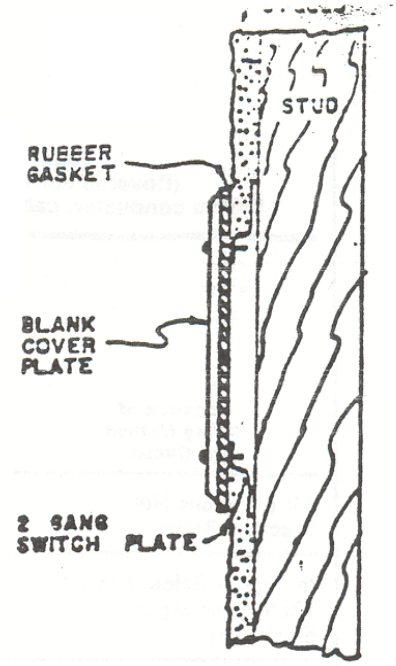
BREAKERS--- #14 WIRE----- 15 AMP MAXIMUM
#12 WIRE ---- 20 AMP MAXIMUM
#10 WIRE ------ 30 AMP MAXIMUM

NOTE: VERIFY PROPOSED LOCATION WITH P.G. & E. PRIOR TO INSTALLATION




SWITCH RING DETAIL

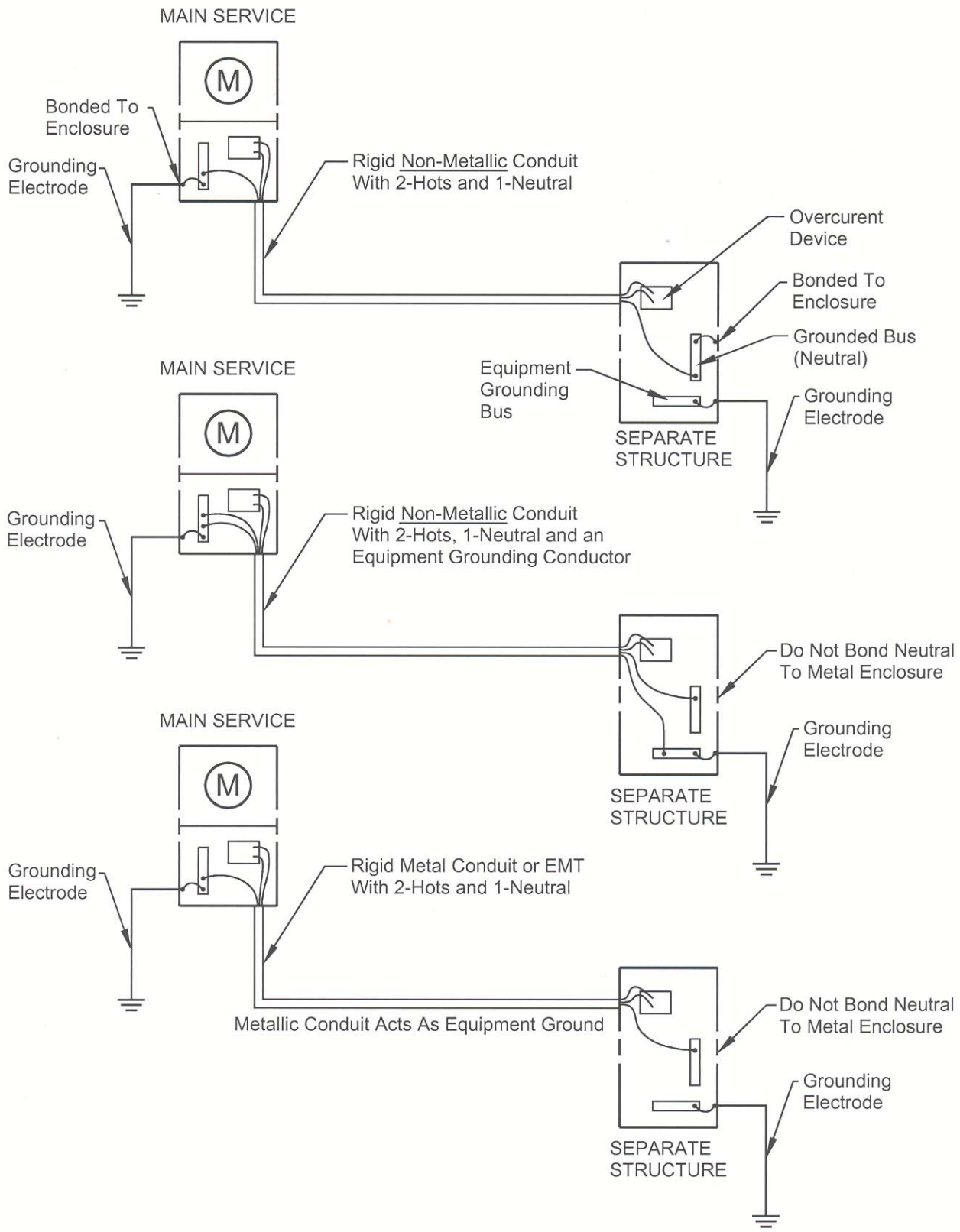
**Table 300-5. Minimum Cover Requirements, 0 to 600 Volts, Nominal, Burial in Inches (Cover is defined as the shortest distance in inches measured between a point on the top surface of any direct-buried conductor, cable, conduit, or other raceway and the top surface of finished grade, concrete, or similar cover.)**

| | Type of Wiring Method or Circuit | | | | |
|---|---|---|---|---|---|
| **Location of Wiring Method or Circuit** | **Column 1 Direct Burial Cables or Conductors** | **Column 2 Rigid Metal Conduit or Intermediate Metal Conduit** | **Column 3 Nonmetallic Raceways Listed for Direct Burial Without Concrete Encasement or Other Approved Raceways** | **Column 4 Residential Branch Circuits Rated 120 Volts or Less with GFCI Protection and Maximum Overcurrent Protection of 20 Amperes** | **Column 5 Circuits for Control of Irrigation and Landscape Lighting Limited to Not More than 30 Volts and Installed with Type UF or in Other Identified Cable or Raceway** |
| All locations not specified below | 24 | 6 | 18 | 12 | 6 |
| In trench below 2-in. thick concrete or equivalent | 18 | 6 | 12 | 6 | 6 |
| Under a building | 0 (in raceway only) | 0 | 0 | 0 (in raceway only) | 0 (in raceway only) |
| Under minimum of 4-in. thick concrete exterior slab with no vehicular traffic and the slab extending not less than 6 in. beyond the underground installation | 18 | 4 | 4 | 6 (direct burial) 4 (in raceway) | 6 (direct burial) 4 (in raceway) |
| Under streets, highways, roads, alleys, driveways, and parking lots | 24 | 24 | 24 | 24 | 24 |
| One- and two-family dwelling driveways and outdoor parking areas, and used only for dwelling-related purposes | 18 | 18 | 18 | 12 | 18 |
| In or under airport runways, including adjacent areas where trespassing prohibited | 18 | 18 | 18 | 18 | 18 |

Notes:

1. For SI units, 1 in. = 25.4 mm.
2. Raceways approved for burial only where concrete encased shall require concrete envelope not less than 2 in. thick.
3. Lesser depths shall be permitted where cables and conductors rise for terminations or splices or where access is otherwise required.
4. Where one of the wiring method types listed in Columns 1–3 is used for one of the circuit types in Columns 4 and 5, the shallower depth of burial shall be permitted.
5. Where solid rock prevents compliance with the cover depths specified in this table, the wiring shall be installed in metal or nonmetallic raceway permitted for direct burial. The raceways shall be covered by a minimum of 2 in. of concrete extending down to rock.

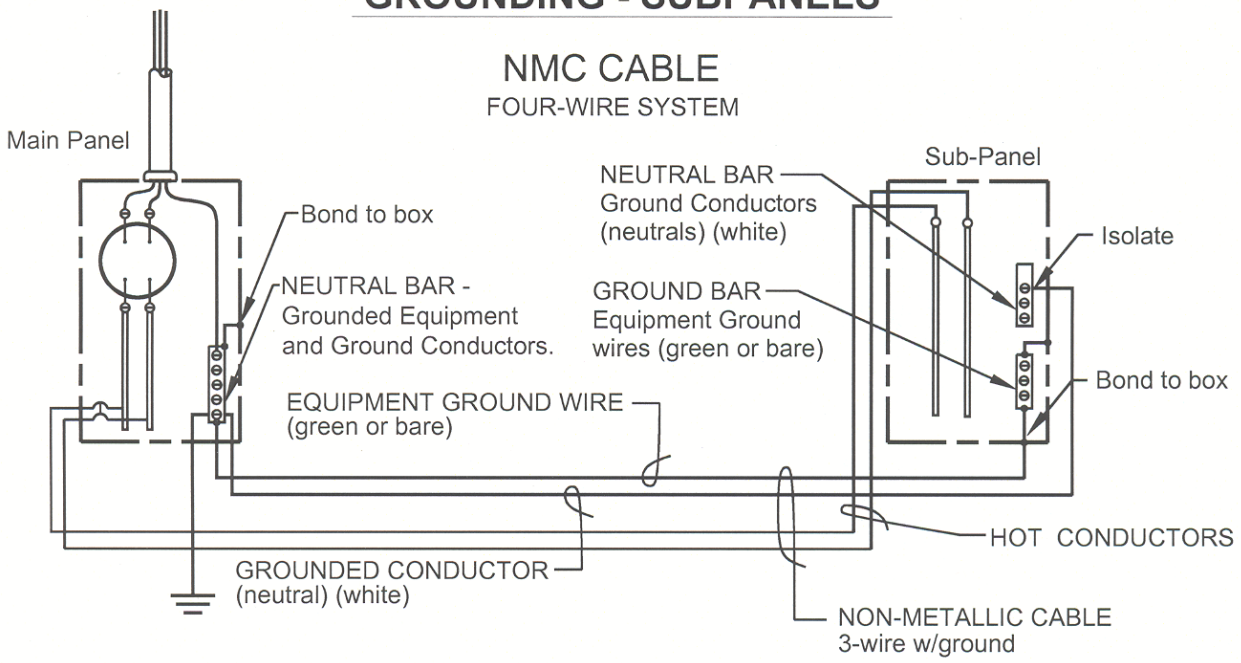
## SUBPANEL GROUNDING OPTIONS AT SEPARATE STRUCTURE


MAIN SERVICE
M
Bonded To Enclosure
Grounding Electrode
Rigid Non-Metallic Conduit With 2-Hots and 1-Neutral
Overcurent Device
Bonded To Enclosure
Grounded Bus (Neutral)
Equipment Grounding Bus
Grounding Electrode
SEPARATE STRUCTURE
MAIN SERVICE
M
Grounding Electrode
Rigid Non-Metallic Conduit With 2-Hots, 1-Neutral and an Equipment Grounding Conductor
Do Not Bond Neutral To Metal Enclosure
Grounding Electrode
SEPARATE STRUCTURE
MAIN SERVICE
M
Grounding Electrode
Rigid Metal Conduit or EMT With 2-Hots and 1-Neutral
Metallic Conduit Acts As Equipment Ground
Do Not Bond Neutral To Metal Enclosure
Grounding Electrode
SEPARATE STRUCTURE

# GROUNDING - SUBPANELS

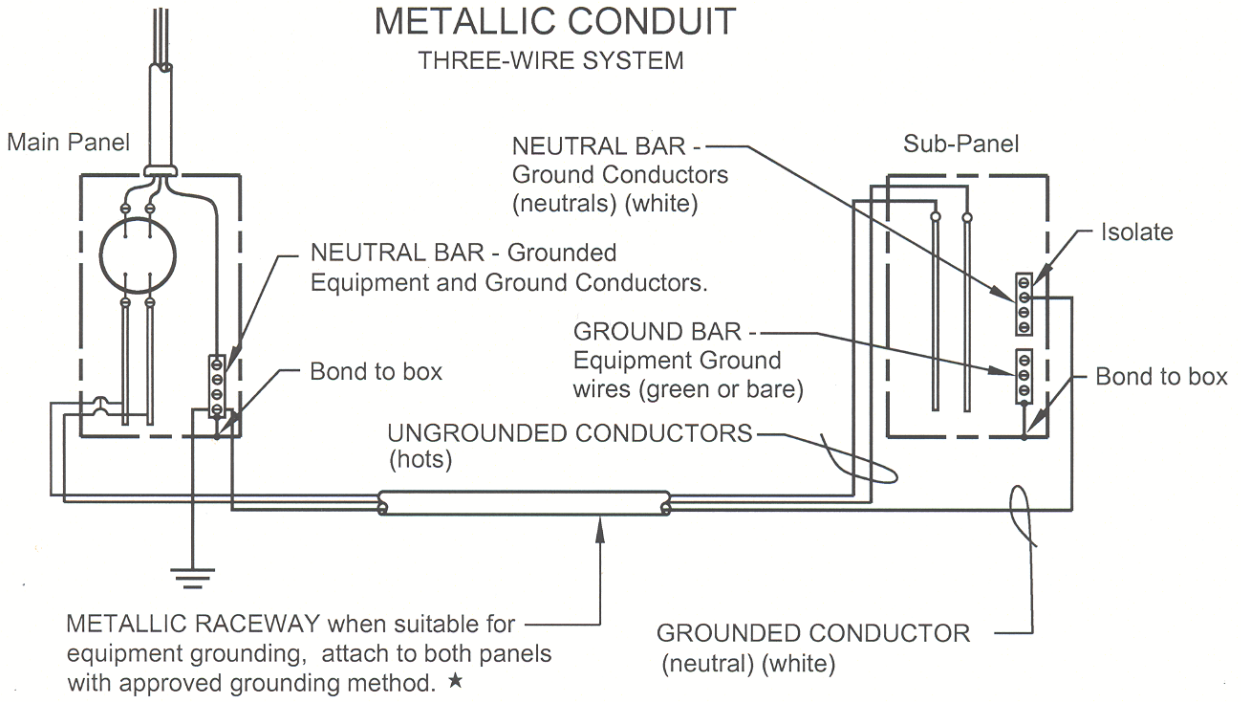
## NMC CABLE

FOUR-WIRE SYSTEM




## METALLIC CONDUIT

THREE-WIRE SYSTEM




★ *(Non-Metallic Raceway, Provide 4th Wire For Equipment Grounding.)*