Electrical Service Installation Guide for
Frame-Built Structures
(Underground Service)
REVISED 2023

PURPOSE

The purpose of these wiring diagrams is to provide standards for both the layman and experienced electrician so that the design, materials, workmanship and applications of a member's electric system will be safe, reliable and of adequate capacity. These standards are also important elements in our ability to make connection of members' wiring promptly and efficiently, and to accommodate changes and repairs whenever necessary.

NEC AND LOCAL JURISDICTIONS

The standards set forth in this guide are intended to be at or exceed the NEC 2023 standards. Please coordinate with the local governing body for planning commission, building inspection, etc., as their standards may exceed the standards within this guide.

INTRODUCTION

In an effort to minimize confusion and misunderstanding, the Rural Electric Board of Directors has established the following standards:

The Rural Electric will be responsible for all wiring and electric facilities up to and including the point of connection to the member's wiring. The member shall be responsible for

everything from that point on, except that the Rural Electric will always supply and control the meter.

The point of connection and change of responsibility between the member's wiring and that of the Rural Electric shall be:

Rural Electric underground construction:

- at the member's side of the meter base when the meter is on a building.
- at the member's side of any meter/disconnect panel or pedestal provided by the Rural Electric.

Prior to making a connection to serve any location or structure, or to making a reconnection of a member's wiring, the Rural Electric must observe all wiring and equipment from the point of service connection up to and including the main breaker in the service entrance panel for: grounding, completeness, unsafe conditions, and violations of the National Electric Code. Any unsafe condition or violation observed may be cause for refusal to connect the wiring until satisfactory corrections have been made.

All poles, pedestals and combination meter-breaker panels used by the Rural Electric must be wholly owned and controlled by the Rural Electric. No work will be permitted on any of them by anyone other than a qualified, on-duty, Rural Electric employee.

Employees of the Rural Electric are not permitted to work on a member's wiring or equipment other than to connect wiring at the connection point to the Rural Electric's facilities, or to take emergency action to eliminate an immediate threat to life or property.

SAFETY NOTICE

No one other than a qualified Rural Electric employee may make any connection on the Rural Electric pole, except at ground level after service has been disconnected. **Meter seals and meters must not be removed for any reason.**

NOTICE

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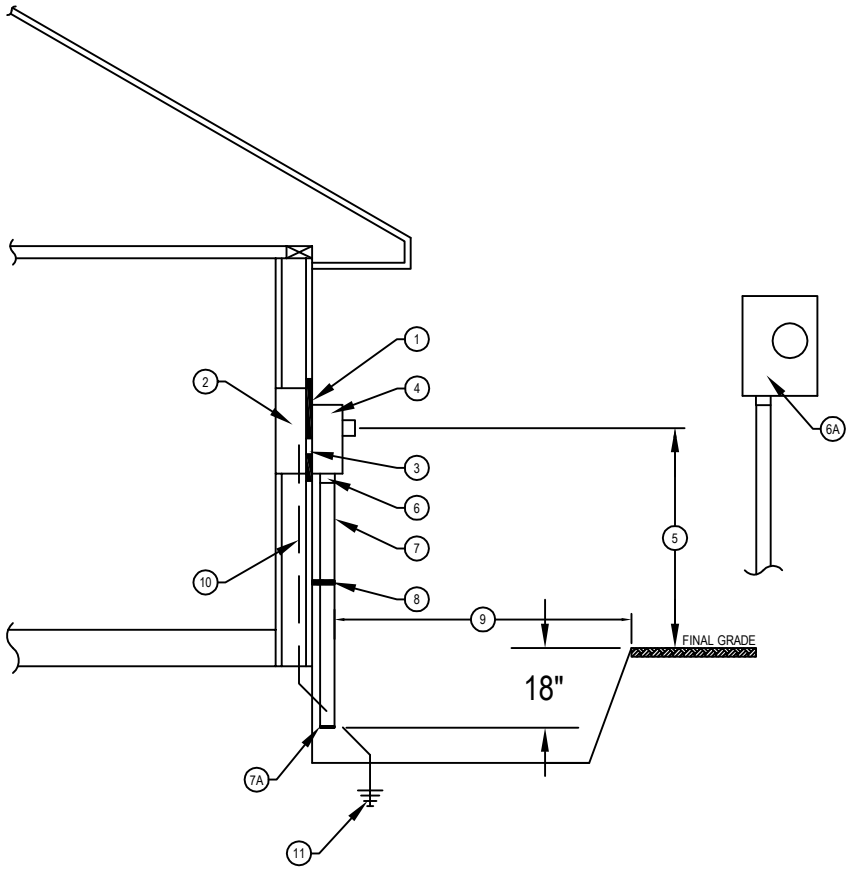
MEMBER'S WIRING FOR METER ON A BUILDING
UNDERGROUND



* CALL BEFORE YOU DIG *
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MEMBER'S WIRING FOR METER
ON A BUILDING – UNDERGROUND

MEMBER'S WIRING FOR METER ON A BUILDING-UNDERGROUND

Meter locations must be approved by a Rural Electric staking engineer.

1.) Install ½" plywood (in place of the weatherboard) on the exterior framing of the building on which to mount the meter base. The plywood should be mounted so that the meter base height will be approximately 60-66 inches above final grade to the center of the meter base.

2.) Securely fasten the electrical service panel to the interior structure of the building. Normally the panel is recessed in the wall between two 2 X 4's.

3.) The wiring that runs between the panel and the meter should be in conduit. A threaded nipple of gray electrical PVC or rigid steel can be used. Conduit should be properly adapted to both the panel and the meter base by using male adapters, steel locknuts, and plastic bushings. If steel or metallic conduit is used, then grounding bushings should be installed on the threaded portions of the conduit located in the panel and the meter base.

4.) Securely fasten the meter base to the structure of the building. The meter base will need to be fastened to the structure with at least four wood screws.

5.) The meter base should be installed approximately 60-66 inches above final grade to the center of the meter base.

6.) Install a three inch PVC male adapter to the meter base with a locknut and plastic bushing in the lefthand knock out of the meter base.

A.) Install the three inch PVC on the lefthand side of the underground meter base.

7.) Install the three inch schedule 80 gray electrical PVC from the male adapter down approximately 18" below final grade.

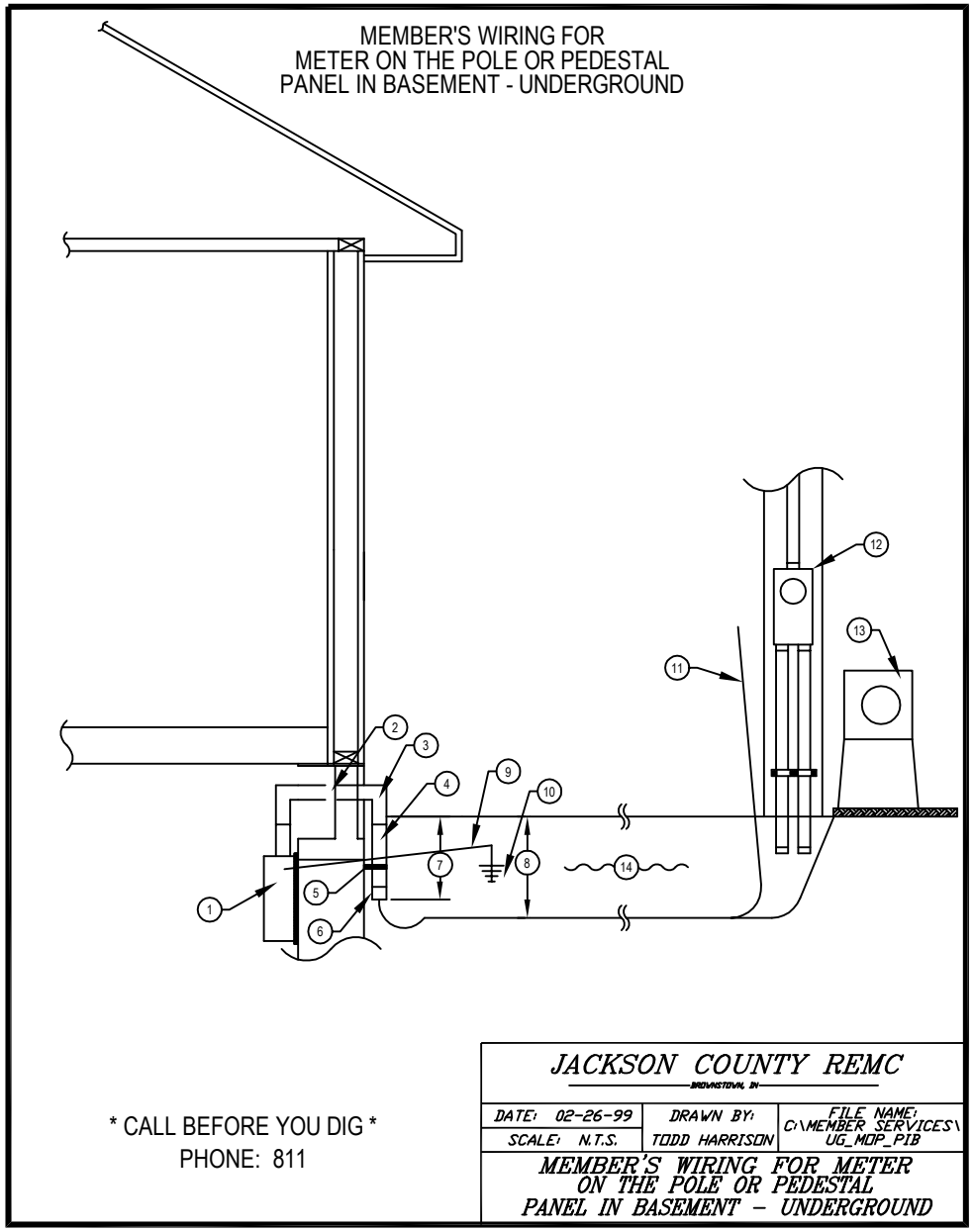
A.) Install a three inch, gray, electrical PVC coupling on the end of the conduit that is below final grade.

8.) Securely fasten the conduit to the building with standoff brackets or two hole straps.

9.) Dig a trench twenty-four inches deep and extend the trench approximately two to three feet away from the building.

10.) Install a grounding conductor from the panel to a grounding electrode. See chart 1A for grounding conductor sizing.

11.) Install a grounding electrode (ground rod) approximately eighteen inches away from the foundation of the building. The grounding electrode needs to be approximately six inches below final grade. Leave the top of the ground electrode and grounding clamp exposed until a Rural Electric employee has performed a safety check. Ground electrode and clamp sizing can be found on chart 1B.



MEMBER'S WIRING FOR METER ON THE POLE OR PEDESTAL WHEN THE PANEL IS IN THE BASEMENT - UNDERGROUND

Meter locations must be approved by a Rural Electric staking engineer.

1.) Securely fasten the electrical service panel to the structure of the building. If the panel is located on a block or concrete wall, mount a piece of plywood to the wall. Before mounting the panel to the plywood, make sure that the main breaker is located at eye level. Once the main breaker is at eye level, securely fasten the panel to the plywood with at least four wood screws. The plywood will prevent the panel from drawing moisture, which will cause it to rust.

2.) The wiring that runs between the electric service entrance panel and the "LB" should be in gray electrical PVC conduit. The conduit should be properly adapted to both the panel and the "LB" by using male adapters, steel locknuts, and plastic bushings. See chart 1E for "LB" sizing.

3.) Install an electrical 90 degree PVC "LB". See chart 1E for "LB" sizing.

4.) Install schedule 80 gray electrical PVC from the "LB" down into the ground approximately eighteen inches below final grade. See chart 1C for service entrance conduit sizing.

5.) Securely fasten the conduit to the building with conduit standoff brackets or two hole straps.

6.) Install a gray electrical PVC male adapter and plastic bushing on the end of the conduit that is in the ground.

7.) The conduit needs to extend into the trench approximately eighteen inches below final grade.

8.) The overall depth of the trench needs to be a minimum of twenty-four inches below final grade. Leave five feet of trench exposed at the building and at the REMC meter location.

9.) Install a grounding conductor from the electrical service panel out to a grounding electrode. See Chart 1A for ground conductor sizing.

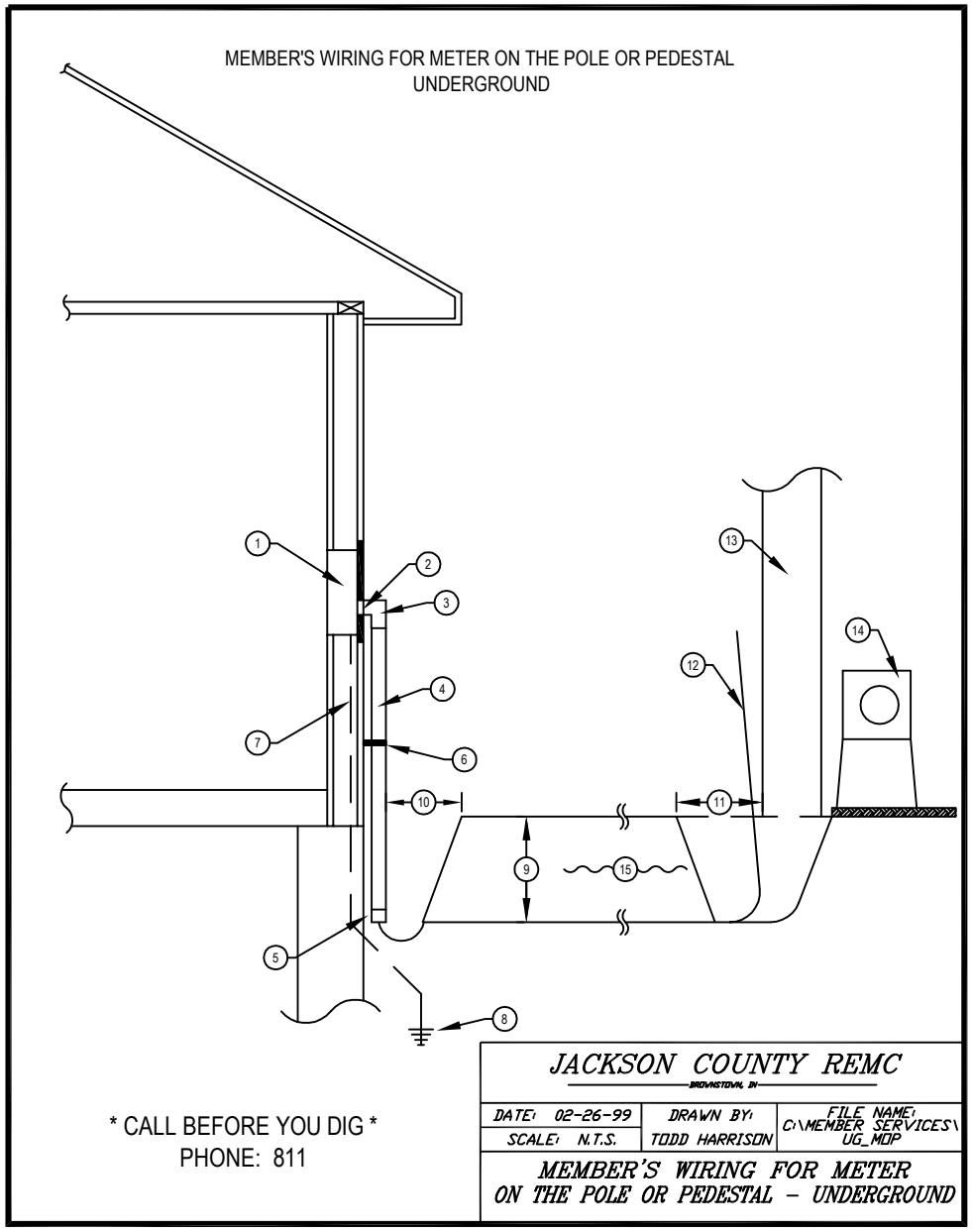
10.) Install a grounding electrode (ground rod) approximately eighteen inches away from the foundation of the building. The grounding electrode needs to be approximately six inches below final grade. Leave the grounding electrode and grounding clamp exposed until a Rural Electric employee has performed a safety check. Grounding electrode and clamp sizing can be found on chart 1B.

11.) Leave eight feet of wire at the meter pole or meter pedestal location. *Do not glue 90° PVC sweep onto conduit.* See chart 1D for service entrance conductor sizing.

12.) REMC meter location: This location will be marked with a flag or stake indentified with red and white marking tape.

13.) REMC meter pedestal location: This location will be marked with a flag or stake identified with red and white marking tape.

14.) Install a caution tape 12" above the conduit and wire in the trench. The caution tape is to prevent anyone from digging into the buried electric line.



MEMBER'S WIRING FOR METER ON THE POLE OR PEDESTAL - UNDERGROUND

A Rural Electric staking engineer must approve meter locations.

1.) Securely fasten the electrical service panel to the structure of the building. Normally the panel is recessed in the wall between two 2 X 4's, and the main breaker needs to be at eye level.

2.) The wiring that runs between the panel and the "LB" should be in gray electrical PVC conduit. The conduit should be properly adapted to both the electrical service panel and the "LB" by using male adapters, steel locknuts, and plastic bushings. See chart 1E for "LB" sizing and chart 1D for service entrance conductor sizing.

3.) Install an electrical 90 degree PVC "LB". See chart 1E for "LB" sizing.

4.) Install schedule 80 gray electrical PVC from the "LB" down into the ground approximately eighteen inches below final grade. See chart 1E for "LB" sizing and chart 1D for service entrance conductor sizing.

5.) Install a gray electrical PVC male adapter and plastic bushing on the end of the conduit that is in the ground.

6.) Securely fasten the conduit to the building with conduit standoff brackets or two hole straps

7.) Install a grounding conductor from the panel out to a ground electrode. See chart 1A for grounding conductor sizing.

8.) Install a grounding electrode (ground rod) approximately eighteen inches away from the foundation of the building. The grounding electrode needs to be approximately six inches below final grade. Leave the top of the grounding electrode and grounding clamp exposed until a Rural Electric employee has performed a safety check. Grounding electrode and clamp sizing can be found on chart 1B.

9.) Dig the trench from the building to the pole. The trench needs to be a minimum of twenty-four inches deep.

10.) Leave five feet of trench exposed at the building.

11.) Leave five feet of trench exposed at the REMC meter location.

12.) Leave eight feet of wire at the meter pole or meter pedestal location. *Do not glue 90° PVC sweep onto conduit.*

13.) REMC meter pole location: This location will be marked with a flag or stake identified with red and white marking tape.

14.) REMC meter pedestal location: This location will be marked with a flag or stake identified with red and white tape.

15.) Install a caution tape 12" above the conduit and wire in the trench. The caution tape is to prevent anyone from digging into the buried electric line.

CHART 1A

GROUNDING CONDUCTOR SIZING	
ELECTRICAL SERVICE ENTRANCE SIZE IN AMPERES	GROUNDING ELECTRODE SIZING
100 AMP	#6 SOLID COPPER
200 AMP	#4 SOLID COPPER

CHART 1B

GROUNDING ELECTRODE SIZING		
ELECTRICAL SERVICE ENTRANCE SIZE IN AMPERES	GROUNDING ELECTRODE SIZING	GROUND ROD CLAMP
100 AMP	1/2" X 8' COPPER GROUND ROD	JAB58H
200 AMP	5/8" X 8' COPPER GROUND ROD	JAB58H

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GROUNDING CONDUCTOR & GROUNDING ELECTRODE SIZES

CHART 1C

CONDUIT SIZING		
SERVICE SIZE	RIGID STEEL	SCHEDULE 80 PVC
100 AMP	1 1/2"	2"
200 AMP	2"	2 1/2"

CHART 1D

SERVICE ENTRANCE CONDUCTOR SIZING		
SERVICE SIZE	COPPER "THWN"	ALUMINUM USE / RHH / RHW
100 AMP	#2	#2
200 AMP	3/O	4/O

CHART 1E

"LB" SIZING	
SERVICE SIZE	"LB" SIZE
1OO AMP	2" LB
200 AMP	2 1/2" LB

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MATERIAL SIZING CHARTS FOR SERVICE ENTRANCES

Jackson County REMC
PO Box K, Brownstown IN 47220
812-358-4458 / 800-288-4458 Toll free / 812-358-5719 FAX
e-mail: info@jacksonremc.com website: www.jacksonremc.com
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The power of human connections

Avoid Power Line Easement Encroachment!

Keep all structures at least 20 feet away from power lines and poles! If you have questions about power line easements, please call us at once. We'll be happy to meet with you to discuss your plans.

When you're planning to dig, do your part. Call

811

two full working days before you start!

Contact the Indiana Utility Plant Protection Service (also known as Holey Moley) to have any possible underground utilities located before you begin to dig.

In Indiana, it's the law!

Danger! High Voltage!

Electric equipment may cause shock, burn, or death. If you find equipment open or unlocked or power lines on the ground, CALL IMMEDIATELY!

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