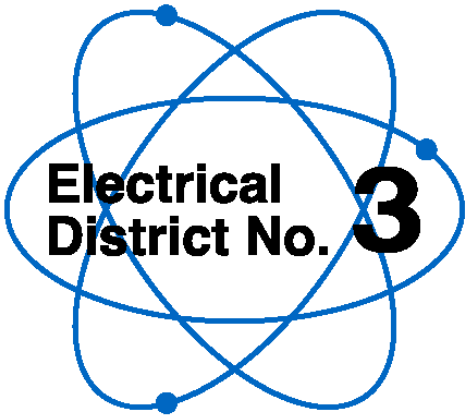

SERVICE REQUIREMENTS & SPECIFICATIONS

Updated: 08/24/2017

This document replaces the ED3 Construction Standards Document in its entirety

SERVICE REQUIREMENTS & SPECIFICATIONS

TABLE OF CONTENTS

Updated: 08/24/2017

SECTION	DESCRIPTION	
8 Continued	Drawing CL001	Overhead Secondary Service Clearance
	Drawing CL002	Secondary Service Drop Clearances
	Drawing SL001	Typical Residential Dusk to Dawn Light

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GENERAL INFORMATION

Last Update: 08/15/2017

GENERAL INFORMATION

1. PURPOSE

Electrical District No. 3 (ED3) created this manual to present information and general specifications relative to the introduction and use of electricity supplied from its lines. The manual is intended as a guide for making electrical installations or modifications, while protecting the interests of the Customer and complying with regulations, which experience has shown, are necessary for safe, adequate and satisfactory service.

2. SCOPE

The information and specifications included in this manual relate to conductors and equipment connecting ED3's electricity supply system to Customer premises, as well as other subjects associated with the supply of electricity that are of mutual interest to the Customer, architect, engineer and electrical contractor. ***It is not a complete set of rules governing the installation of electrical wiring and equipment.***

3. PHONE NUMBERS FOR ED3 OFFICES

A. NEW SERVICES
Commercial Customer Service .....(520) 424-0408
Residential Customer Service .....(520) 424-0408

B. GENERAL INFORMATION
Customer Services Department..... (520) 424-9021

C. EMERGENCIES
Power Outages..... (520) 424-9021
Downed Lines, Explosions, etc. ..... (520) 424-9021

D. BLUE STAKE (ARIZONA 811 BLUESTAKE INC.)
Location of Underground Facilities.....811

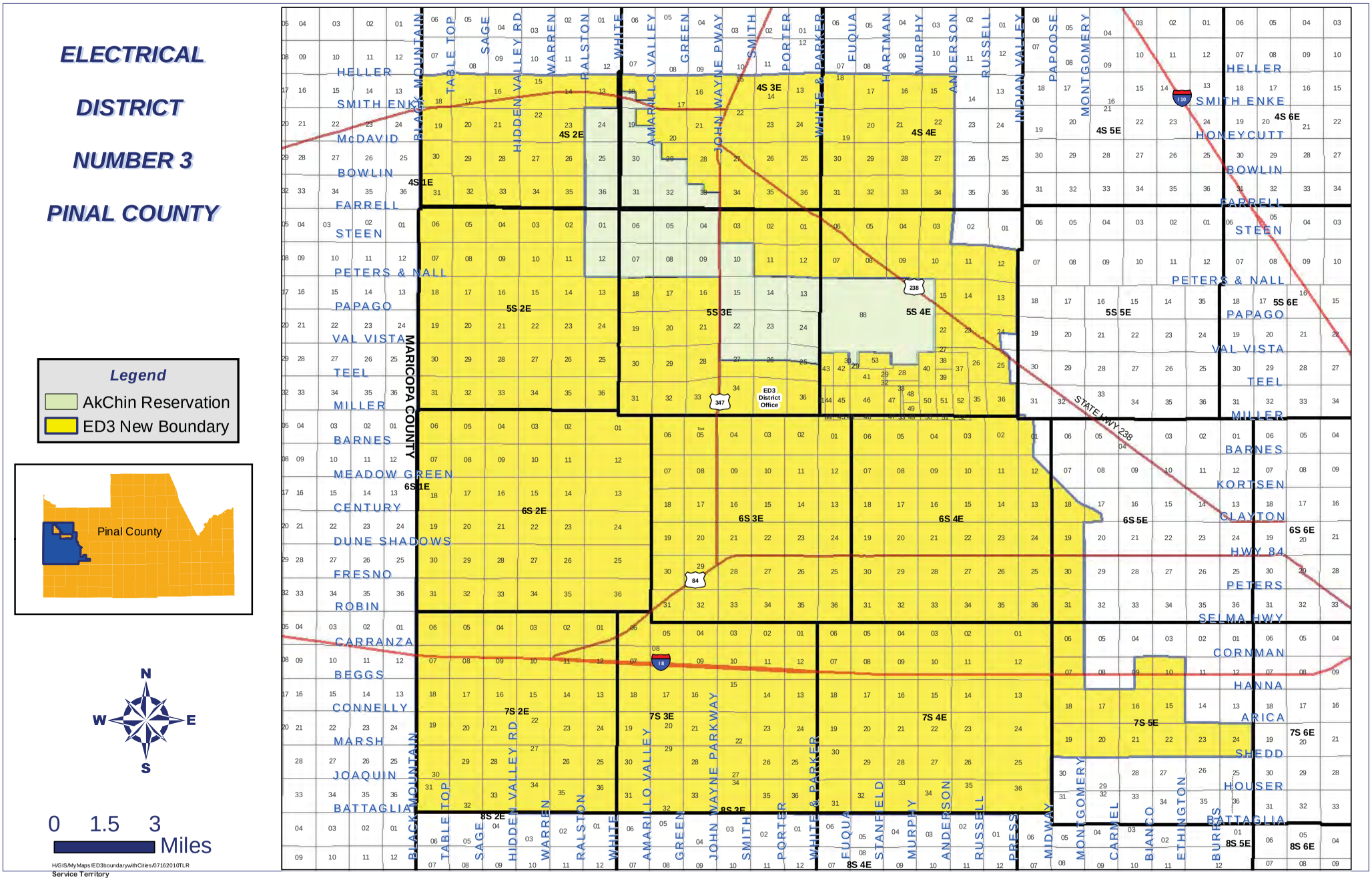
E. TEMPORARY DISCONNECT FROM ED3
Facilities Needed to Do Your Work ..... (520) 424-9021

F. INSPECTIONS
Commercial and Residential Service Entrances ..... (520) 424-0408

4. AREA BUSINESS OFFICE LOCATIONS

District Administration Office.....41630 W. Louis Johnson Drive, Maricopa
Customer Service Office..... 19756 N. John Wayne Blvd., Suite 105, Maricopa

ELECTRICAL DISTRICT NUMBER 3 PINAL COUNTY



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DEFINITIONS

Last Update: 07/27/2011

DEFINITIONS

The following terms, when used herein, shall have the meaning specified.

1. **ABOVE GROUND PEDESTAL (J-BOX)**: Houses secondary to service cable connections typically in residential subdivisions.

2. **AIC**: Amps Interrupting Current (or short circuit duty, or fault current)

3. **ALL-IN-ONE SES (Service Entrance Section)**: Equipment manufactured as one unit.

4. **AMERICAN WIRE GAUGE (AWG)**: The AWG assigns a number to a particular size of wire according to circular mill area to a maximum size of #0000.

5. **AUTHORITY HAVING JURISDICTION (AHJ)**: Governmental agencies and municipalities having responsibility for public safety.

6. **BUILDING**: A structure that stands alone or is separated from adjoining structures by fire walls (minimum 2-hour rated) with all openings therein protected by fire doors.

7. **CITY CLEARANCE**: The approval of an electrical installation by the city or county having jurisdiction as an indication of compliance with its standards.

8. **CONTRIBUTIONS IN AID OF CONSTRUCTION (CIAC)**: Financial contributions provided by the Customer for construction of electrical facilities.

9. **COST OR EXPENSE**: The cost of all materials and equipment, labor and other definite charges applicable thereto, plus a reasonable percentage for engineering, purchasing, the use of construction equipment and other costs of a general character, involved in connection with the work to be performed.

10. **CRITICAL LOAD**: Load that cannot be readily disconnected due to public health and/or safety concerns.

11. **CUSTOMER**: Any person utilizing services from ED3.

12. **DISTRIBUTION DESIGN**: The ED3 group responsible for design of intended electrical facilities.

13. **ED3**: Electrical District No. 3 of Pinal County, Arizona, a Political Subdivision of the State of Arizona.

14. **ELECTRIC SERVICE SPECIFICATIONS (ESS)**: This ED3 manual, intended as a guide for making electrical installations or modifications, while protecting the interests of the Customer and complying with regulations, which experience has shown, are necessary for safe, adequate and satisfactory service.

15. **ELECTRONIC MARKER**: A passive antenna, which is installed over underground facilities that uses an electronic transmitter to allow future location of these facilities.

16. **EMT**: Electrical Metallic Tubing

17. **EUSER OR EUSERC (Electric Utility Service Equipment Requirements Committee)**: The EUSER Committee is an organization comprised of utility representatives from the Western Section of the United States which works to promote the standardization of electric service requirements and the design and engineering of metering and service equipment. ED3 is a participating member of this Committee.

18. **FAULT CURRENT** (see AIC)

19. **GENERAL PUBLIC AREA**: An area where the general public has free access.

20. **GROUND**: A conducting connection between an electrical circuit or equipment and earth, or some conducting body which serves in place of the earth.

21. **GROUND ROD**: A ground electrode (rod) driven into earth to provide a base reference for voltage and a path to ground for fault current.

22. **INSTRUMENT TRANSFORMER**: A device that is intended to reproduce in its secondary circuit, in a definite and known proportion suitable for utilization in measurement, control, or protective devices, the current (or voltage) of its primary circuit , with its phase relations substantially preserved. Types include: Potential (voltage) Transformers (PT) and Current Transformers (CT).

23. **J-BOX (JUNCTION BOX)**: A surface or sub-surface box which houses cable connections. It may be a Customer's point of delivery. Larger J-boxes (3' x 3' x 5') are used to reduce cable pulling tensions by segmenting the cable pulling route.

24. **LIFTING HANDLES**: When lifting handles are required on panels and covers each handle shall be non-wire type fold in or hinged handles. They shall be securely attached and have strength to withstand handling stresses of a minimum of 75 pounds.

25. **LINE**: A system of poles, ducts, wires or fixtures used for the transmission and distribution of electricity.

26. **LOAD:** The ratings of the power consuming apparatus which may be connected to ED3's installation or system under consideration.

27. **MCM (THOUSAND CIRCULAR MILLS, ALSO KCMIL)**: The size of any wire larger than 4/0 is expressed directly in circular mil area. Example: 250,000 Circular Mils = 250 MCM

28. **METER PEDESTAL OR POST**: Self-supported underground service entrance section.

29. **MODIFICATION**: Distribution Design and the authority having jurisdiction must approve a change in ampacity, added load, modernization, or relocation or conversion.

30. **NEC (NATIONAL ELECTRICAL CODE)**: The National Electrical Code, published by the National Fire Protection Association (NFPA) as NFPA-70, addresses proper electrical systems and equipment installation to protect people and property from hazards arising from the use of electricity in buildings and structures. ED3 considers the NEC to be the minimum acceptable standard. City or county requirements that are more stringent shall prevail.

31. **NESC (NATIONAL ELECTRICAL SAFETY CODE)**: The purpose of the NESC is the practical safeguarding of persons during the installation, operation, or maintenance of electric supply and communication lines and associated equipment. It is a nationally accepted code governing utility wiring.

32. **NON-CRITICAL LOAD**: A load that, if interrupted, will not cause personal injury or property damage, as defined by ED3 Design.

33. **PHASE ROTATION**: A-B-C counterclockwise.

34. **POINT OF ATTACHMENT**: The point at which restraining or anchoring contact is made between ED3's facilities and those of the Customer. This is strictly a mechanical consideration and does not necessarily imply any separation of responsibilities.

35. **POINT OF DELIVERY**: The point of interconnection between ED3's electrical facilities and those of the Customer. It is the exact point at which the separation of responsibility occurs for the construction, ownership, operation and maintenance of all facilities except metering equipment.
ED3 will determine the Point of Delivery in all cases.

36. **P.U.E.**: Public Utility Easement

37. **P.U.F.E.**: Public Utility Facility Easement

38. **READILY ACCESSIBLE**: Capable of being reached directly, without obstruction at any time. A direct (without bends) unobstructed access to the Service Entrance Section shall be provided and maintained that is a minimum 12 ft. wide and 20 ft. high, suitable for line construction equipment. A bend in the access route is allowed if the width is increased to 20 ft. A Customer-provided and maintained removable screen wall, panel or door, with a minimum width of 20 ft., may be used as an architectural feature, provided the access route complies with the requirements listed above.

39. **R.O.W.**: Right of Way

40. **SECURELY ATTACHED**: Attached to withstand anticipated loads not subject to loosening.

41. **SERVICE CONNECTION**: A service connection is one Service Lateral and its associated Service Entrance.

42. **SERVICE DROP**: (refer to Service Lateral)

43. **SERVICE ENTRANCE SECTION (SES)**: That part of the installation from the Point of Attachment or termination of the Service Lateral to and including the service equipment on the Customer's premises.

44. **SERVICE ENERGIZATION**: The connection of a service to a voltage source.

45. **SERVICE EQUIPMENT**: The necessary electrical facilities, usually consisting of a circuit breaker or switch and fuses, conductors and accessories, which constitute the main control and cutoff of the electric supply, and which are installed, owned and maintained by the Customer.

46. **SERVICE LATERAL**: A system of wires, fixtures and sometimes poles, or the equivalent ducts, conduits and cables used to conduct electricity from the secondary electric line to the Point of Delivery.

47. **TEMPORARY SERVICE DEVICE (RESIDENTIAL ELECTRIC SERVICE ONLY)**: A device installed in a service entrance section that provides overcurrent-protected outlets and a provision for metering the power usage.

48. **TEMPORARY SERVICE**: Short-term, non-recurring service of a transitory character, as determined solely by ED3 which may include in its evaluation the speculative character or questionable permanency of the Customer's operations.

49. **UFER**: A concrete-encased electrode, generally located in the foundation of a building, used for grounding the building.

50. **UNDERWRITERS LABORATORY (U.L.)**: An independent laboratory facility for testing all types of electrical equipment.

51. **WEATHERHEAD**: A metal cap on a Customer's service entrance section that protects the connection of ED3's overhead service conductors to the Customer's conductors from adverse weather conditions.

52. **WILD LEG**: See "POWER LEG".

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REQUEST FOR SERVICE

Last Update: 08/21/2017

REQUEST FOR SERVICE

Customers wanting new meter installations or relocations shall contact the Electrical District No. 3 of Pinal County (ED3) New Services for an approved service and meter location prior to proceeding with any electrical installation. By adhering to the following procedure, the Customer will eliminate inconvenience, delays, and added fees associated with an incorrect meter location.

1. REQUIRED INFORMATION

Each Customer desiring new service and / or a change in existing service must make application with ED3. The Customer must provide the following information:

1.1 General

1.1.1 Customer's name – person responsible for paying the bill.

1.1.2 Customer is required to provide a recorded copy of the vesting deed (ownership) to the subject property.

1.1.3 Service address – street address or route and box.

1.1.4 Mailing address, if bills are not to be sent to service address.

1.1.5 Site plans and building plans.

- **A. Service entrance capacity.**
- **B. Load break-down.**
- **C. Desired voltage and phase.**

1.2 Specific Type of Job Requirements

1.2.1 The type and size of a service is not created by ED3. ED3 will assist customers in finding the best fit, but the customer is responsible for following the National Electric Code (NEC), city, and county codes for electrical service sections.

1.2.2 ED3 is a member of Electric Utility Service Equipment Requirements Committee (EUSERC) and has a list of approved service panels that can be used on the ED3 system. The list of approved panels can be found in Section 8 of this manual (EUSERC LIST). Questions about panel specifications can be found at EUSERC's webpage (http://the.euserc.org) or requested through ED3 New Services.

1.2.3 Residential customers must use a minimum of a 100 amp service panel and a maximum of a 400 amp service panel.

1.2.4 Commercial and industrial customers must have the service panel engineered to determine connected ampacity ratings and comply with all NEC, city, and county codes.

2. SCHEDULE OF EVENTS

2.1 Required Information

2.1.1 Customer provides sufficient notice of intent to build.

2.1.2 Customer provides required information.

2.1.3 Customer pays design deposit.

2.1.4 ED3 Designer field checks site.

2.1.5 Prepare cost estimates (if applicable).

2.1.6 Notify Customer of costs (if applicable).

2.1.7 Receive payment(s) from Customer (if required).

2.1.8 Design facilities.

2.1.9 Customer and ED3 secure necessary permits, easements, and rights-of-way.

.

2.1.10 ED3 reviews service entrance section drawings for approval.

2.1.11 ED3 specifies trench and equipment locations (if applicable).

2.1.12 Customer provides property corners and grade stakes.

2.1.13 Customer provides the trench and installs conduit per ED3 design (if applicable).

2.1.14 ED3 inspects trench and conduit installation and approves if per ED3 design (if applicable).

2.1.15 ED3 releases job to construction.

2.1.16 ED3 schedules crews for construction of its facilities.

2.1.17 ED3 inspects meter panel for compliance.

2.1.18 Customer obtains electrical clearance from governmental agencies.

2.1.19 Once an account has been established with ED3 and governmental clearance is received by ED3, the service lateral

will be energized. The meter service provider must be contacted to provide a meter.

3. SAFETY

3.1 Contacting overhead or underground lines rated at any voltage can be fatal. It is extremely important to be aware of any electrical lines that may be near the work being performed. DO NOT guess or make assumptions when deciding if an electrical line is safe or not.

3.2 Please call ED3 Customer Service (520) 424-9021 with any concerns. Prior to digging, please follow the law and call Arizona Blue Stake (811).

4.0 IDENTIFICATION OF EMPLOYEES

ED3 employees, authorized to visit the Customer's premises, are furnished with identification which they will show upon request. This is done to protect the Customer from unauthorized persons representing themselves as ED3 employees.

5.0 COOPERATION

It is the sincere desire of ED3 to provide and maintain dependable, safe, and satisfactory electric service in a courteous and efficient manner. Cooperation of Customers and their agents is appreciated. It is necessary to provide ED3 with information leading to new or increased electric service early in the development of plans to aid the proper scheduling of service. Cooperation of all interested parties and strict adherence to the specifications in the manual will expedite satisfactory electric service.

6. APPROVED METERING AND TERMINATION EQUIPMENT (CUSTOMER SUPPLIES)

ED3 will only accept equipment that has been approved by EUSERC. EUSERC is a standards committee that works with all major manufactures to assure all equipment provided to customers will be safe and comply with Institute of Electrical and Electronics Engineers (IEEE), National Electric Manufacturers Association (NEMA), and Underwriters Laboratories (UL) standards.

ED3 does not set these standards. As a member, ED3 works with EUSERC to keep an up-to-date list of acceptable equipment. All approved panel and termination equipment can be found in Section 8 on Table 8.1. Please contact the equipment manufacturer with the referenced EUSERC number for full details.

7. SERVICE PANEL CHANGE OUT (SAME AMPACITY SAME LOCATION)

A service panel change out, where the new service panel ampacity will be equal to the existing and installed in the same location, will not require any design fees. When this type of work is performed, please be aware of utility wire point

of connection. If the new service has different dimensions than the existing, the ED3-provided wire may come out too short during the reconnection process. This will result in new wire having to be installed at the customer's expense. For questions or concerns about replacing panels with the same ampacity in the same location, please contact ED3 New Services.

8. RELOCATING AN EXISTING SERVICE PANEL

If the customer needs to relocate an existing service panel, please contact ED3 New Services. ED3 will need to make provisions and determine a safe route for the service wire to enter the new service panel location. Panels that are relocated will have to follow all NEC, city, and county code. Prior to ED3 energizing the service, a written clearance provided from the city or county stating the service is up to code will be required.

9. SERVICE PANEL UPGRADE

In the case where the service panel will need to be upsized, please contact ED3 New Services. When service panels are upsized, there could possibly be other work involved. ED3 facilities have ratings that will have to be evaluated. In some cases an engineering analysis will be required to determine if the ED3 equipment will handle the customer's upsized equipment. In the case where there will need to be an ED3 equipment upsize, the customer is responsible for the associated costs.

10. TEMPORARY SERVICE

10.1 Before temporary installations are made, the Customer should contact ED3 New Services at (520) 424-0408 concerning availability and costs of the requested service.

10.2 In addition to temporary load information, the Customer may be required to provide ED3 with a complete statement regarding their requirements for permanent service. This information may enable ED3 to construct facilities that could be utilized to supply permanent service, thereby reducing the costs involved in providing temporary service.

11. CODES

These specifications are a supplement to the National Electrical Code (NEC), but they are not a substitute for that code or for municipal codes. ED3 endorses the municipal inspecting agency's right to insure that the Customer's wiring installations be made in accordance with applicable codes.

12. INSPECTIONS, APPROVALS AND PERMITS

Pinal County and City of Maricopa in ED3's service area have ordinances restricting ED3 from energizing the load side of the electrical service to the Customer until the Customer has obtained the necessary permits and until the actual electrical installation has been approved by the municipal authorities.

Therefore, the Customer should determine the requirements of the Building Safety / Building Inspector department of the county or city having jurisdiction before beginning any job subject to inspection by that department. In areas where no inspection is required, the service entrance must be in accordance with ED3 electrical service specifications and the NEC before connection can be made to ED3 lines.

13. WIRING ADEQUACY

Compliance with the NEC or local municipal codes assures only that the installation will conform to recognized minimum safe practices. The provision for adequate electrical capacity must be decided by the Customer. A qualified person should aid the Customer in determining that their electrical installation will have adequate future capacity.

14. POINT OF ATTACHMENT (REQUIREMENTS IN ADDITION TO NEC AND NATIONAL ELECTRIC SAFETY CODE (NESC)

ED3 reserves the right to determine all points of attachment. Only authorized ED3 personnel of Engineering and Operations Department will determine the location.

14.1 The point of attachment of conductors to a building or other structure shall meet the minimum clearance requirements as specified in the NESC.

14.2 Overhead service point of attachment on buildings shall be provided on or within twenty-four inches (24") of an accessible exterior wall and within six feet (6') of the edge of any roof overhang.

14.3 A solid point of attachment (to withstand a minimum of 600 pounds tension*) for supporting a service drop to a building is to be provided at a height satisfactory to meet the NESC requirements for safe service connection and clearance. Height of attachment for service shall not be more than twenty-five feet (25') above ground level. The responsibility for furnishing a sufficiently substantial support rests solely with the Customer.

******Attachment tensions greater than 600 pounds may be required in special cases.*

14.4 Where the service conduit is used as a mast for supporting the service drop it shall be rigid steel or intermediate metal conduit, not less than one and one-half inches (1.5") trade size. Where couplings are necessary, they shall be threaded steel and only allowed below the bracing that is subject to strain by the service conductor.

14.5 Service entrance shall be located so that the center of the point of attachment shall be within twelve inches (12") of the center of the weather head at the top of the service riser conduit.

14.6 A maximum of three (3) service conduits shall be supplied from one (1) overhead service drop. These conduits shall be spaced no more than twelve inches (12") apart. The point of attachment shall be on the center riser.

14.7 No foreign or other attachments shall be allowed on an electric service riser.

15. TAMPERING

15.1 The breaking of seals and tampering with meters and un-metered wiring by unauthorized persons is prohibited and subject to penalty charges.

15.2 Section 13-1602 of the Arizona Revised Statutes prohibits tampering with the property of a utility. Such tampering is a felony if it causes impairment of the function of the utility.

15.3 In addition to the above, penalties for unauthorized use of un-metered energy may include special service charges for un-metered service, an estimate of consumption based on proper data of available records and the full cost or expense incurred by ED3 to correct the infraction.

16. RESPONSIBLITY

The Customer has the responsibility to maintain their wiring and equipment in safe operating condition. ED3 cannot accept any responsibility for the Customer's wiring and equipment.

NOTE: ED3 gives no warranty, expressed or implied, as to the adequacy, safety or other characteristic of any equipment, wiring or device and assumes no responsibility with respect thereto.

17. ENFORCEMENT OF SPECIFICATIONS

ED3 will allow a forty-five (45) day grace period prior to enforcing new or revised specifications placed in this Electric Service Specifications book. The only exception will be where hazardous or safety-related requirements are involved.

18. APPEALS

ED3 has an appeal process. Contact the Engineering and Operations department at (520) 424-9021.

19. ACCESS TO CUSTOMER'S PREMISES

19.1 **Electric Meter Service Location**

19.1.1 All meters must always be accessible by ED3 qualified employees. All ED3 Electric Service Guidelines / Rules and Regulations under Section 3.0 apply.

19.1.2 ED3 personnel must have full access to inspect, read or test metering facilities, whether the facilities are located indoors or outdoors. Customers must ensure that all metering and service facilities are accessible and free of obstacles at all times when the metering equipment is energized. Customers must maintain these accesses both during and after landscaping activities, fence installations, building construction, building renovation, remodeling activities, etc.

19.2 *Not Approved* Electric Service Location

The following locations are not acceptable for electric meters and service termination equipment:

19.2.1 Locations deemed hazardous to either personnel or equipment, or locations found to be unsuitable for entry.

19.2.2 Inside any residence.

19.2.3 Directly over any stairway, ramp, or steps.

19.2.4 Any area where personnel may contact either exposed high-voltage conductors or equipment in motion.

19.2.5 Any area that is accessible only through a trapdoor.

19.2.6 Any doorway, hatchway, or drive-through pathway designed for picking up goods through a window, where opening the meter panel will block the through-area.

19.2.7 Areas where entry may be restricted or controlled because of medical, health, environmental, or other safety-related issue.

19.2.8 Areas where vibration, moisture, excessive temperature, fumes, or dust may damage the meter or interfere with its operation.

20. TREE TRIMMING

ED3 does not prune trees around power lines that run from power poles to homes (or private property), businesses, or street lights. In these cases, pruning is a property-owner responsibility. **NEVER ATTEMPT TO PRUNE TREES NEAR POWER LINES YOURSELF!** Arizona law places restrictions on tree pruning within ten feet (10') of a power line. To find professionals for this work, look in the Yellow Pages under "Tree Service".

20.1 Private contractors must be qualified per OSHA line clearance standards.

20.2 Homeowners are not to attempt to trim trees near electric lines.

NOTE: All vegetation near conductors, pole to pole (in PUE and / or ROW) must be cleared by ED3 – charges may apply.

21. RATE SCHEDULE

Upon request, ED3 Rate Schedules and Electric Service Guidelines / Rules and Regulations are available for examination at the ED3 District Office.

22. ATTACHMENT TO ED3 FACILITIES

No attachments are allowed to ED3 facilities unless provided by contract.

23. SIGNS ON UTILITY POLES

Do not post signs on utility poles. Many utility poles have plastic casings that house high-voltage lines that carry power to underground lines. Hammering nails or other sharp objects into those casings to post a sign can cause serious injury or even death. ED3 crews remove signs because the nails can injure linemen who need to climb the poles for repairs or maintenance. In addition to being dangerous, attaching signs to utility poles is illegal in some cities.

4

STAND-BY GENERATOR & MULTIPLE SERVICE TRANSFER SWITCH REQUIREMENTS

Last Update: 06/01/2007

STAND-BY GENERATOR AND MULTIPLE SERVICE TRANSFER SWITCH REQUIREMENTS

WARNING

Energizing equipment connected to the ED3 electric distribution system could act as a source of electrical back-feed, causing injury or death to electrical utility workers working on the overhead or underground power lines in your area.

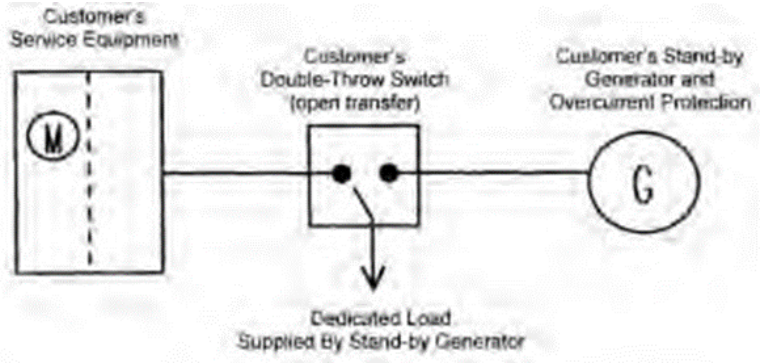
1. **For Customer load normally served by ED3, where the load may be switched to a generator or alternate service, a visible, open transition type transfer switch shall be installed (circuit breakers are not considered a visible disconnect). This switch shall electrically and mechanically prevent connection of the Customer's generator or paralleling of services to ED3's grid (see figure below).**

2. **For distributed generation services, where the Customer-owned generator will be connected to ED3's grid, generators must conform to the requirements set forth in ED3 Interconnection Guidelines for Distributed Generators and require an Interconnection Agreement. This document can be obtained by contacting ED3 Customer Services at (520) 424-9021.**

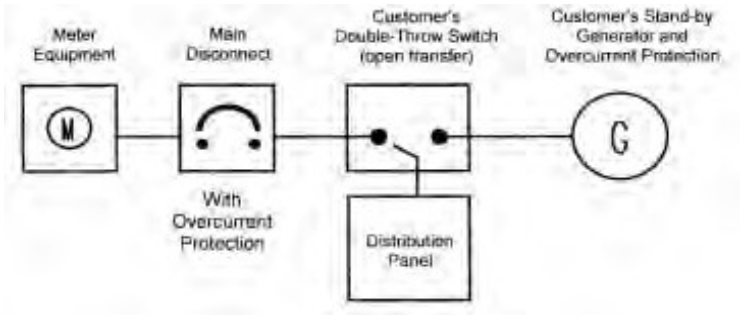
3. **It is the Customer's responsibility to secure and connect the stand-by generator.**

4. **ED3 reserves the right to approve and inspect all installations.**

CONNECTION OF STAND-BY GENERATOR SUPPLYING ONE CIRCUIT



CONNECTION OF STAND-BY GENERATOR SUPPLYING CUSTOMER'S ENTIRE LOAD



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5

CHARACTER OF SERVICE & LIMITATIONS

Last Update: 08/21/2017

CHARACTER OF SERVICE AND LIMITATIONS

Electrical District No. 3 of Pinal County (ED3) reserves the right to approve all service installations and only authorized personnel of the Engineering and Operations department will make the determination.

1. TYPES OF SERVICE

1.1 The following types of service are available based on the classification of use, location and the amount of load to be served. Three (3) phase service is available only in certain areas and usually results in cost to the Customer. It is necessary for the Customer to contact the ED3 New Services at (520) 424-0408 to verify availability of the type of service requested *prior* to purchasing equipment. Typically, ED3 will supply one (1) voltage classification to a building. Contact the ED3 New Services for Policy, Procedures, and Standards for multiple voltage applications.

1.2 The operation of large flashing signs, welders, arc furnaces, induction heaters, radio and television transmitters, x-ray equipment, reciprocating compressors and similar apparatus having intermittent flow of large currents sometimes interferes with other users of the electric service. The Customer shall consult ED3 so that the character of electric service that will be supplied, the corrective equipment needed and other special precautions that must be taken will be mutually known factors before planning to sue such apparatus. The Customer shall be responsible for corrective equipment that may be necessary.

TABLE 5.1
This table outlines the load limitations for each type of service.
These limitations are for total 1Ø and 3Ø load.

See Table Note	Classification				Minimum Load (kW)	Overhead Limitations		Underground Limitations	
	Phase	Wire	Voltage	Type		Minimum SES (amps)	Maximum SES (amps)	Minimum SES (amps)	Maximum SES (amps)
1.3	1	3	120 / 240	Res. / General	5	60	800	100	600 *
1.5	3	4	120 / 240	Res. / General	10	100	1200	100	600
	3	4	120 / 208	General (No Residential)	50	200	2500	200	4000
	3	4	277 / 480	General (No Residential)	50	100	2000	100	3600
1.7	3	3	2400	General (No Residential)	250	400	800	400	800
	3	4	7200 / 12470	General (No Residential)	250	100	156 **	100	156

* 800 amp allowed – contact ED3 New Services at (520) 424-0408 for requirements.

** Non-dedicated circuit. Dedicated circuit requires system review - contact ED3 Engineering and Operations department at (520) 424-0416 for requirements.

1.3 The minimum loads listed on the above table are required in order to avoid underutilization of facilities charges. Two (2) wire 120 volt service and three (3) wire 120 / 240 volt service are allowed when:

1.3.1 Two (2) wire - 120 volt service is allowed for installations of not more than two (2) circuits and / or motors of less than 0.5 HP, except in the case of special equipment. Underground service will be supplied only when adequate facilities are available at the location.

1.3.2 Three (3) wire - 120 / 240 volt service is allowed to structures with more than two (2) circuits and / or electric ranges, air conditioners, water heaters, space heating equipment and motors up to and including 7.5 HP.

1.3.3 800 amp service is available for multi-metered residential, condominium and apartments with load verification.

1.4 Availability of a single phase service in a three (3) phase service area. Single phase commercial service in a dedicated three (3) phase development is not available from three (3) phase transformers.

Exception: If load rating is less than 30 amps or is a temporary service.

1.5 Three (3) phase service for residential use is available when:

1.5.1 The possibility exists to serve a residence on the perimeter of an underground residential subdivision from existing overhead three (3) phase facilities.

1.5.2 Supplying overhead service to a three (3) phase load of 3 HP or a three (3) ton heat pump or air conditioner, provided three (3) phase overhead facilities are available.

1.6 All applications for service without ground fault protection will be reviewed on an individual basis.

1.7 Available as an upgrade of existing three (3) phase, three (3) wire system – within City of Maricopa / Pinal County only (see table, previous page).

2. ADDITIONAL SERVICE / METER

Regarding existing services, added load will be evaluated on a per-Customer basis. Existing wired buildings or suites adding load in excess of the existing service entrance load capacity may require an additional service and meter as follows:

2.1 When a Customer leases an existing building with the service entrance equipment already installed, as many meters as the service entrance can hold (in accordance with local authority) can be requested. The existing service equipment must meet code design capacity before additional service laterals will be provided.

2.2 When the Customer's load is greater than ED3's capability to serve through one (1) service and transformer, additional service(s) and transformer(s) may be added. Additional costs may be assessed, contact the ED3 New Services at (520) 424-0408.

2.3 Under certain circumstances when the Customer requests and pays (installed cost plus a monthly fee) for redundant, standby, or reserve facilities may be allowed. Prior approval by ED3 is required and (installed cost plus a monthly fee).Customer charges apply.

2.4 For primary voltage services, system constraints will be considered prior to approval of additional services (special engineering may be required).

2.5 Multiple services / meters shall be identified. Identification means shall be in such a manner as meter 1 of 3, 2 of 3, 3 of 3, etc.

2.5.1 ***If a Customer has two (2) or more services, for safety reasons, none of these services shall be interconnected; this prevents backfeed.***

2.5.2 On three (3) phase delta services, no 120-volt single-phase load will be connected to the power (wild) leg (208V high).

2.6 ***For primary voltage and master metered services, contact ED3 for approval.***

3. STARTING CURRENTS, THREE (3) PHASE MOTORS

3.1 In general, across the line starting of three (3) phase motors is allowed for motors up to 25 HP on 208 or 240 volt systems and 75 HP on 480 volt systems, provided the motors' locked rotor amps do not exceed code "F", NEC table 430-151.

3.2 Motors larger than those in 3.1 above require ED3 Engineering and Operations department analysis to determine the starting method. The Customer shall supply a starter, if one is required. Data required for analysis includes:

3.2.1 Location

3.2.2 Motor size

3.2.3 Code letter

3.2.4 Voltage

3.2.5 Number of starts per time

3.3 Starters must conform to latest National Electric Manufacturer's Association (NEMA) standards and the installation must be in accordance with the NEC. Magnetic contactors in full voltage motor starters must have a coil capable of sealing in the contactor at seventy-five percent (75%) rated voltage. All motors must have three (3) element overload protection, one (1) element in each conductor to the motor.

3.4 Maximum permissible current values in the above reference apply to an installation of a single motor. Starters may be omitted on the smaller motors of a group installation when their omission will not result in a starting current in excess of the allowable starting current of the largest motor of the group.

3.5 In the case of irrigation installations, ED3 requires that all motors greater than 30 HP be served at 480 volts or greater.

4. ENERGY CONSUMPTION GUIDE

All electric household items have a watt rating associated with them. Based off that watt rating, you can calculate an estimated daily, monthly, or yearly cost to operate.

Table 5.2 shows the average watt rating for common household appliances based off www.energy.gov.

Table 5.3 will show you how to take that watt rating and convert it into actual cost to operate.

TABLE 5.2 - COMMON HOUSEHOLD ITEMS

Type	Wattage	Type	Wattage
Cable Box	140	Ceiling Fan	35
Clothes Dryer	2790	Clothes Washer	255
Coffee Maker	1000	Compactor	400
Desktop Computer	75	Desktop Monitor	42
Laptop Computer	25	Deep Fryer	1000
Dishwasher	330	DVD Player	17
Electric Blanket	400	Furnace Fan	295
Garage Door Opener	400	Hair Dryer	710
Humidifier	11	Iron	1100
Microwave	1500	Pool Pump	1000
Portable Spa	4350	Refrigerator	225
Router / Modem	6	Slow Cooker	200
Space Heater	1320	LCD TV	150
Plasma TV	300	Toaster	1100
Vacuum	542	Video Game System	36
Water Heater	4500	Well Pump	725

TABLE 5.3 – WATT RATING / CONVERTER

EXAMPLES:

I. **Following the steps, find the annual cost to operate an electric clothes washer**
1. Estimate the time used: The clothes washer is used 1 time per day for 1 hour.
2. Wattage: The wattage is on the nameplate and is listed at 255w
3. Daily energy consumption: (255x1)/1000=.255KWH
4. Annual energy consumption: The clothes washer is used every day for 1 year.
   0.255KWHx 365 = 93.075 KWH
5. Annual cost: The utility rate is 11 cents per KWH.
   93.075KWH x $0.11=$10.23

II. **Following the steps, find the annual cost to operate a pool pump.**
1. Estimate the time used: The pool pump is used 1 time per day for 6 hours.
2. Wattage: The wattage is on the nameplate and is listed at 1000w
3. Daily energy consumption: (1000x6)/1000= 6KWH
4. Annual energy consumption: The clothes washer is used every day for 1 year.
   6KWH x 365 = 2190 KWH
5. Annual cost: The utility rate is 11 cents per KWH.
   2190KWH x $0.11=$240.90

5. WIRE SIZE AND AMPACITY

The wire size for customer's dwelling will be calculated by following the NEC guidelines.

Table 5.4 will show the ampacity ratings for all allowable wire sizes. All wire must meet or exceed the ampacity rating provided by the NEC.

TABLE 5.4

Size	Tempreture Rating of Conductor. [See Table 310.104(A)]						Size
	60°C (140°F)	75°C (167°F)	90°C (194°F)	60°C (140°F)	75°C (167°F)	90°C (194°F)	
AWG or kcmil	Types TW, UF	Types RHW,THHW, THW, THWN, XHHW, USE, ZW	Types TBS,SA,SIS, FEP,FEPB,MI,RHH, RHW-2, THHN, THHW, THW-2, THWN-2, USE-2, XHH, XHHW, XHHW-2, ZW-2	Types TW, UF	Types RH, RHW, THHW, THW, THWN, XHHW, USE	Types TBS, SA, SIS, THHN, THHW, THW-2, THWN-2, RHH, RHW-2,USE-2, XHH, XHHW, XHHW-2, ZW-2	AWG or kcmil
	COPPER			ALUMINUM OR COPPER CLAD ALUMINUM			
18			14				**18**
16			18				**16**
14**	15	20	25				**14****
12**	20	25	30	15	20	25	**12****
10**	30	35	40	25	30	35	**10****
8	40	50	55	35	40	45	**8**
6	55	65	75	40	50	55	**6**
4	70	85	95	55	65	75	**4**
3	85	100	115	65	75	85	**3**
2	95	115	130	75	90	100	**2**
1	110	130	145	85	100	115	**1**
1/0	125	150	170	100	120	135	**1/0**
2/0	145	175	195	115	135	150	**2/0**
3/0	165	200	225	130	155	175	**3/0**
4/0	195	230	260	150	180	205	**4/0**
250	215	255	290	170	205	230	**250**
300	240	285	320	195	230	260	**300**
350	260	310	350	210	250	280	**350**
400	280	335	380	225	270	305	**400**
500	320	380	430	260	310	350	**500**
600	350	420	475	285	340	385	**600**
700	385	460	520	315	375	425	**700**
750	400	475	535	320	385	435	**750**
800	410	490	555	330	395	445	**800**
900	435	520	585	355	425	480	**900**
1000	455	545	615	375	445	500	**1000**
1250	495	590	665	405	485	545	**1250**
1500	525	625	705	435	520	585	**1500**
1750	545	650	735	455	545	615	**1750**
2000	565	655	750	470	560	630	**2000**

*refer to 310.15(B)(2)(a) for ampacity correction factors where the ambient tempreture is other than 30°C (86°F)

**see section 240.4 (D) for conductor overcurrent protection limitations.

6

DEVELOPER'S CHECKLIST

Last Update: 12/06/2005

DEVELOPER'S CHECKLIST

Prior to Electrical District No. 3 (ED3) starting design, please provide the following:

☐ **Letter from Developer stating plats are 100% complete.**

☐ **Files of entire plat on a CD in AutoCAD format with all layers set to black.**

☐ **AutoCAD files must show PUE, road right-of-way (ROW), water meters, fire hydrants, water and sewer lines, lot lines, and numbers.**

☐ **Hard copy of final plat(s) that showing location of sewer, water, drainage, landscaping irrigation controllers, sidewalks, etc.**

☐ **Information pertaining to location of electric service panel for each lot.**

☐ **Information on AC tonnage ,and typical home square footage per lot size**

☐ **Location of three phase power requirements, pumps, schools, commercial area, open spaces lighting meter locations, irrigation controllers**

☐ **Electrical Easements for three-phase power that will serve water features and irrigation controllers.**

Meeting will be coordinated by developer to review plat layout prior to initiating ED3 design.

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7

FAULT CURRENT TABLES

Last Update: 08/24/2017

FAULT CURRENT TABLES

These tables are for use as a guide in determining fault current contribution from ED3, available at the point of delivery or transformer secondary terminals, as indicated. These values are accurate only for the conditions stated. When actual conditions vary from those stated here, the engineer or electrical contractor must request specific information from ED3.

The top of each table shows the total number of service entrance sections required per transformer.

TABLE 7.1														
Phase & Voltage →	1 Ø 120 / 240		3 Ø 120 / 240		3 Ø 120 / 240		3 Ø 120 / 208		3 Ø 120 / 208		3 Ø 277 / 480		3 Ø 277 / 480	
SES Amps	Pole / Pad		Pole		Pad		Pole		Pad		Pole		Pad	
	kVA	ISC	kVA	ISC	kVA	ISC	kVA	ISC	kVA	ISC	kVA	ISC	kVA	ISC
100	25	10,000	30	10,000	75	10,000	30	10,000	75	10,000	75	10,000	75	10,000
125	25	10,000	45	10,000	75	10,000	45	10,000	75	10,000	112-1/2	10,000	150	10,000
150	37-1/2	10,000	75	10,000	75	10,000	45	10,000	75	10,000	112-1/2	10,000	150	10,000
200	50	22,000	75	10,000	75	10,000	75	10,000	75	10,000	150	22,000	150	10,000
320	75	36,000	-	-	-	-	-	-	-	-	-	-	-	-
400	75	36,000	150	22,000	150	22,000	150	36,000	150	22,000	300	22,000	300	22,000
600	100	42,000	225	36,000	225	36,000	225	36,000	225	36,000	500	36,000	500	36,000
800	167	42,000	300	42,000	-	-	300	65,000	300	42,000	750	42,000	750	36,000
1,000	-	-	500	65,000	-	-	300	65,000	300	42,000	750	42,000	750	36,000
1,200	-	-	500	65,000	-	-	500	65,000	500	65,000	1,000	65,000	1,000	36,000
1,600	-	-	-	-	-	-	500	65,000	500	65,000	1,500	65,000	1,500	36,000
2,000	-	-	-	-	-	-	750	85,000	750	65,000	1,500	65,000	1,500	36,000
2,500	-	-	-	-	-	-	750	100,000	750	65,000	-	-	2,000	42,000
3,000	-	-	-	-	-	-	-	-	1,000	65,000	-	-	2,000	42,000
3,600	-	-	-	-	-	-	-	-	-	-	-	-	2,500	65,000
4,000	-	-	-	-	-	-	1,500	150,000	1,500	85,000	-	-	-	-

1. NOTES

1.1 The minimum interrupting rating of service equipment shall be in the table above. When Customer is served from a transformer that is or will feed more than one service entrance, the fault current may exceed these values. Consult with your ED3 Designer before ordering or designing your service entrance.

1.2 Fault current is based on 25 ft. of ED3 aluminum conductor and minimum transformer impedance. Transformer size is based on 80% of section size.

1.3 Fault increments are based on standard fuse sizes and standard breaker ratings.

1.4 Current values are symmetrical amperes of three phase faults on three phase transformers and are either phase-to-phase or phase-to-neutral, whichever is larger, for single phase transformers.

1.5 Consult ED3 for any transformer installation in a vault.

1.6 Three phase transformer kVA is the total of three equal size single phase transformers.

2. MINIMUM CONDUCTOR LENGTH REQUIRED TO LIMIT THE FAULT CURRENT TO 22,000 AMPS

TABLE 7.2					
Conductor Size	Transformer Size – 1 Ø				
	25kVA	50kVA	75kVA	100kVA	167kVA
	(length below in feet)				
1/0 Triplex (#2 N)	0	0	8	12	15
4/0 Triplex (1/0 N)	0	0	12	19	24
350 MCM Triplex (4/0 N)	0	0	21	34	42
4/0 Copper	0	0	22	34	53

2.1 Notes

2.1.1 This table applies to 1 Ø self-contained metering equipment RATED 22,000 AIC. The limits are based on line-to-ground or line-to-line faults and minimum transformer impedance. Conductor impedance: phase @ 90° C, neutral @ 65°C. Transformer 1/2 winding impedance: 0.75R+JX.

3. MINIMUM CONDUCTOR LENGTH REQUIRED TO LIMIT FAULT CURRENT TO 10,000 AMPS

TABLE 7.3					
Conductor Size	Transformer Size – 1 Ø				
	25kVA	50kVA	75kVA	100kVA	167kVA
	(length below in feet)				
1/0 Triplex (#2 N)	5	30	38	45	51
4/0 Triplex (1/0 N)	8	50	70	86	96
350 MCM Triplex (4/0 N)	13	87	112	130	146
4/0 Copper	6	64	103	123	165

3.1 Notes

3.1.1 This table applies to 1 Ø self-contained metering equipment RATED 10,000 AIC. The limits are based on line-to-ground or line-to-line faults and minimum transformer impedance. Conductor impedance: phase @ 90° C, neutral @ 65°C. Transformer ½ winding impedance: 0.75R+JX.

3.1.2 If requirements cannot be met in Table 7.3 above, then bracing at 22,000 amps is required, given the limitations shown in Table 7.2 above.

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8

SERVICE PANELS

Last Update: 08/15/2017

SERVICE PANELS

1. ED3 APPROVED SPECIFICATIONS

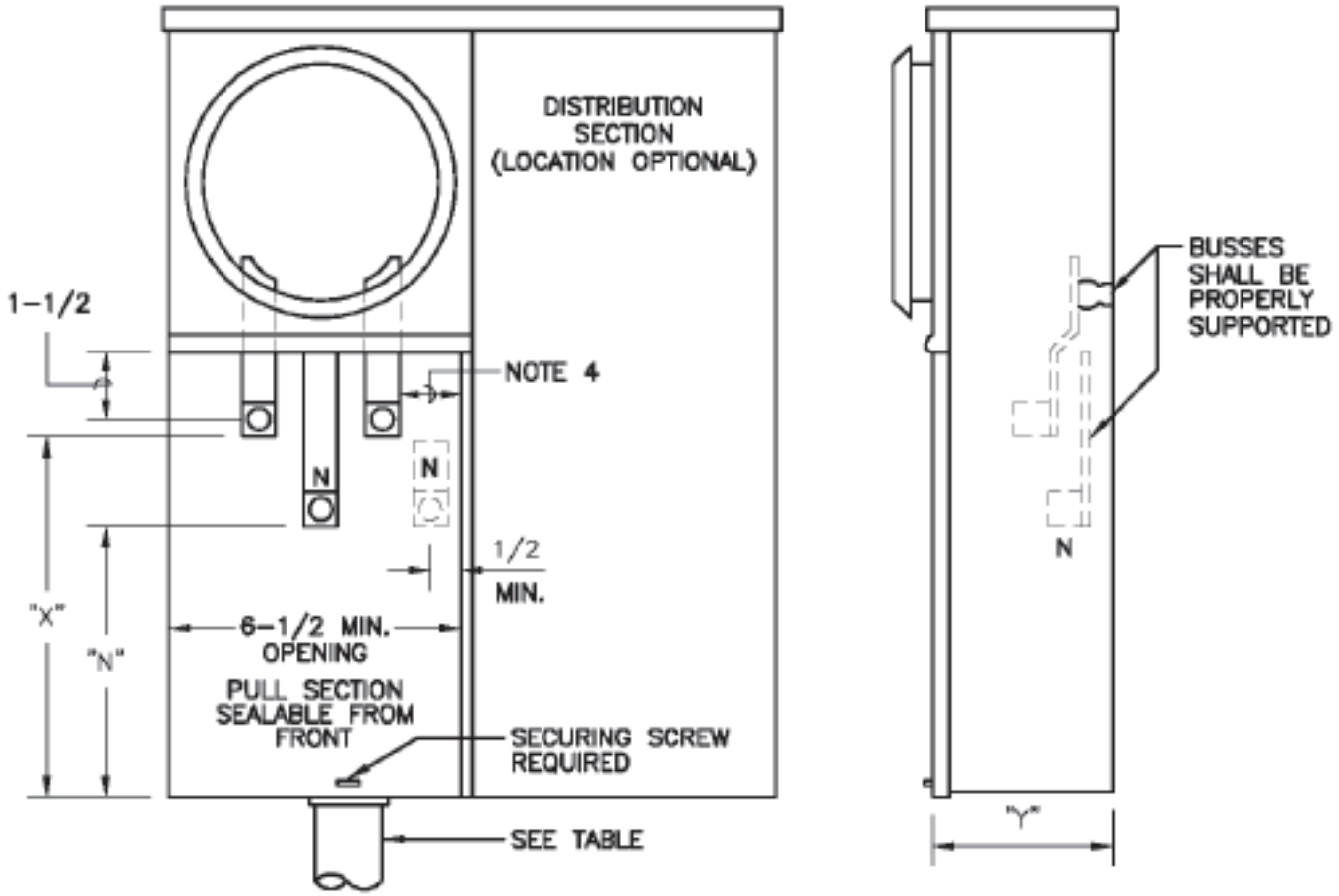
This section will provide a detailed list of all meter and termination equipment approved to be connected to ED3's system.

Prior to construction, all customers must contact ED3 New Services. ED3 will assist the customer in all stages that involve getting electrical services to the property. It is the customer's responsibility to follow ED3 standards, NEC, city, and county codes during the entire process of the service request.

TABLE 8.1
EUSERC LIST

EUSERC DWG #	DESCRIPTION	EUSERC DWG #	DESCRIPTION
301 Residential	1phase 3wire 120/240v 100/200 amp	333	*CONTACT ED3 NEW SERVICES*
301 A Residential	1phase 3wire 120/240v 100/200 amp	342	
302 A Residential	1phase 3wire 120/240v 100/200 amp	343	
304 Commercial	1phase 3wire 120/240v 100/200 amp 3phase 4wire 120-480 100/200 amp	343A	
305 Commercial	1phase 3wire 120/240v 100/200 amp 3phase 4wire 120-480 100/200 amp	345	
305 A Commercial	1phase 3wire 120/240v 100/200 amp 3phase 4wire 120-480 100/200 amp	347	
306 Commercial	1phase 3wire 120/240v 100/200 amp 3phase 4wire 120-480 100/200 amp	348	
307 Residential	1phase 3wire 120/240v 100/200 amp	353	
308 Commercial	1phase 3wire 120/240v 100/200 amp 3phase 4wire 120-480 100/200 amp	354	
309 Commercial	1phase 3wire 120/240v 100/200 amp 3phase 4wire 120-480 100/200 amp	401	
311	*CONTACT ED3 NEW SERVICES*	404	
312		407	
313 Commercial	1phase 3wire 120/240v 400 amp 3phase 3 wire 120-240v 400 amp	414	
314	*CONTACT ED3 NEW SERVICES*	416	
315		G1	
316		G2	
317		G3	
318		G4	
319		G5	
320		G6	
322		G7	
324		G8	
325		ED3 SP3	OVERHEAD SERVICE POLE
326		ED3 SP4	OVERHEAD SERVICE POLE
327		ED3 SP5	OVERHEAD SERVICE POLE
328 A		ED3 UG6	UNDERGROUND SERVICE PEDESTAL
329 A		ED3 DP1	UNDERGROUND POLE CONDUIT
330		ED3 CL001	SECONDARY CLEARANCE
331		ED3 CL002	SECONDARY CLEARANCE
332		ED3 SL001	RESIDENTIAL LIGHTING

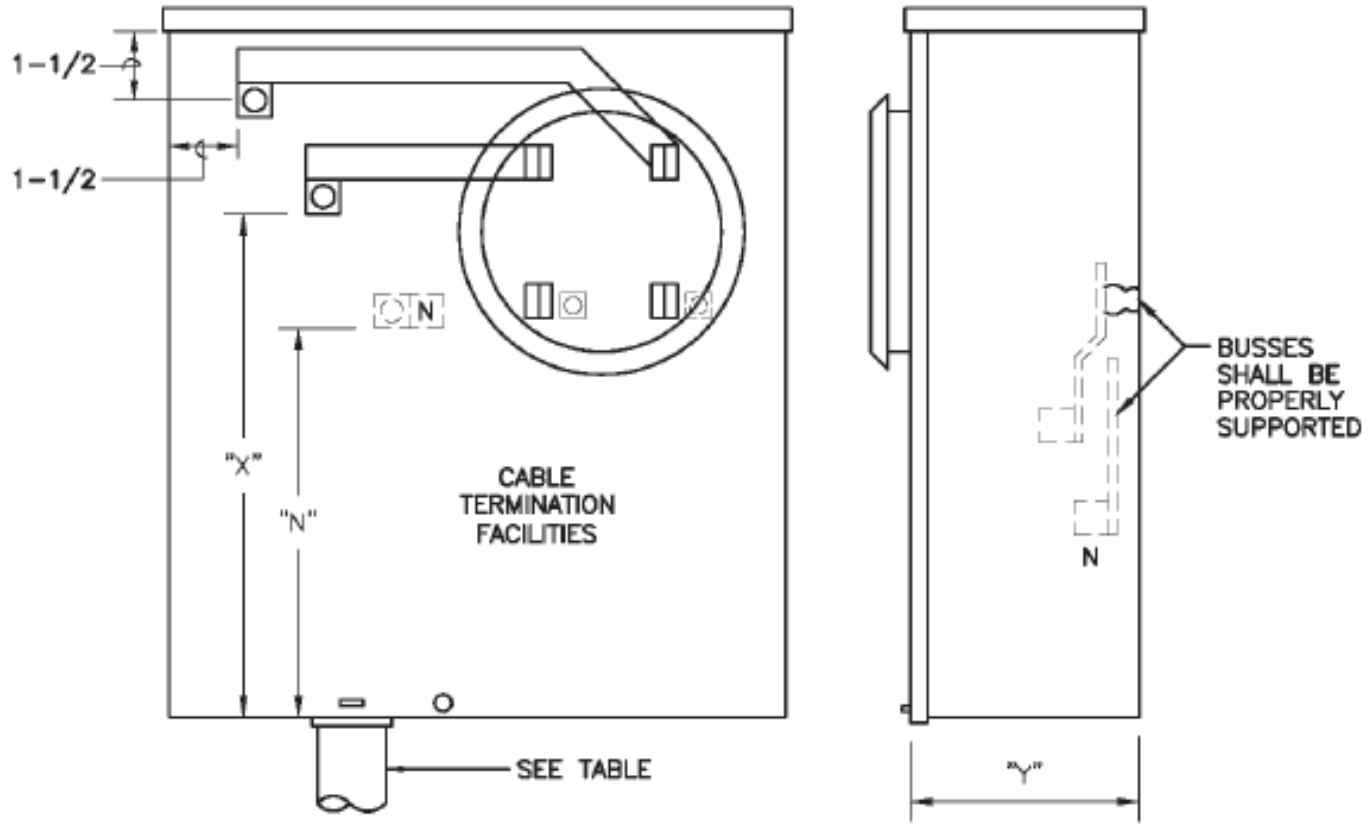
Please see Drawings on the following pages. If drawing is not included, please contact ED3 New Services as indicated in Table 8.1 above.



MAXIMUM AMPACITY	"X" MIN. DIM.	"N" MIN. DIM.	"Y" MIN. DIM.	CONDUIT RANGE
125	8"	6"	4"	1-1/4" TO 2-1/2"
225	11"	8-1/2"	5"	1-1/2" TO 3"

1 PHASE 3 WIRE 120/240V 100/200 AMP

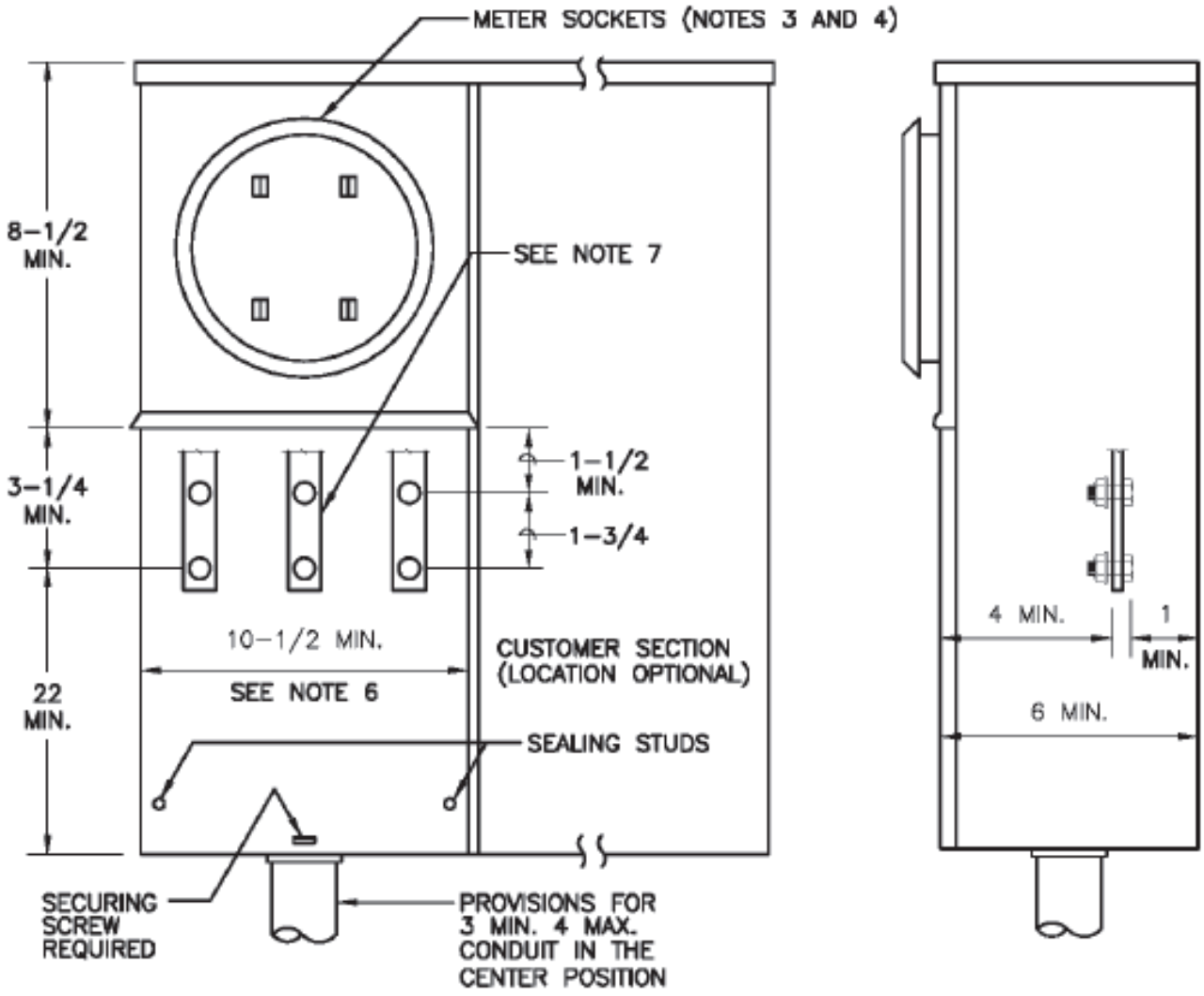
Electrical District No. 3	ELECTRICAL DISTRICT #3- Engineering	Date: 7-19-17
	SPECIFICATIONS	Dwn by: GE
	Please Refer to EUSERC DWG 301	Dwn No: 301
		1 of 1



MAXIMUM AMPACITY	"X" MIN. DIM.	"N" MIN. DIM.	"Y" MIN. DIM.	CONDUIT RANGE
125	8"	6"	4"	1-1/4" TO 2-1/2"
225	11"	8-1/2"	5"	1-1/2" TO 3"

1 PHASE 3 WIRE 120/240V 100/200 AMP

Electrical District No. 3	ELECTRICAL DISTRICT #3- Engineering	Date: 7-19-17
	SPECIFICATIONS	Dwn by: GE
	Please Refer to EUSERC DWG 301A	Dwn No: 301A
		1 of 1

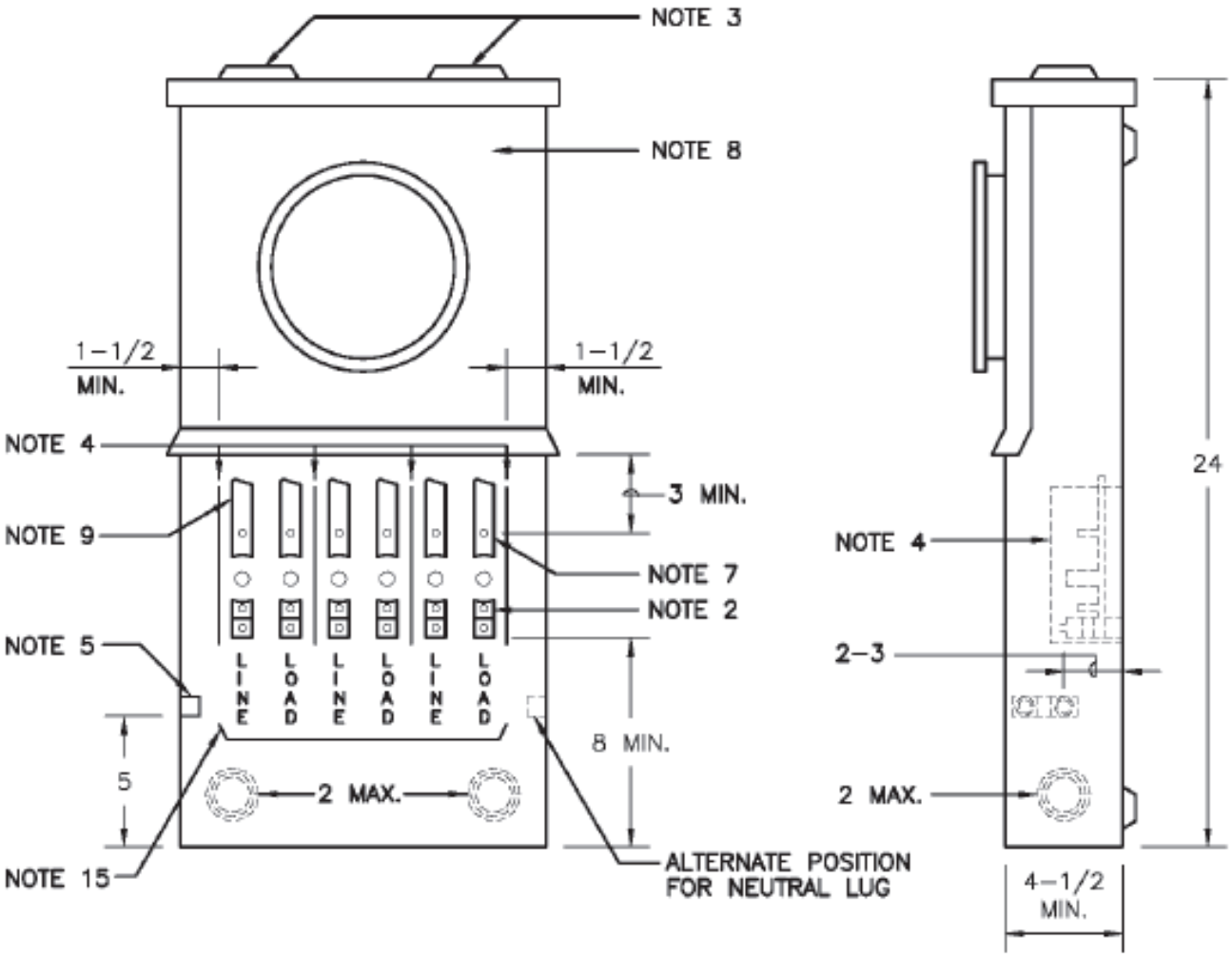


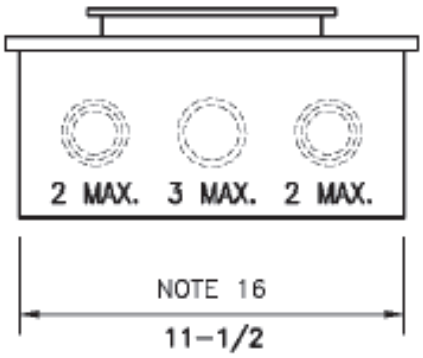
FRONT VIEW

SIDE VIEW

1 PHASE 3 WIRE 120/240V 100/200 AMP

Electrical District No. 3	ELECTRICAL DISTRICT #3- Engineering	Date: 7-19-17
	SPECIFICATIONS	Dwn by: GE
	Please Refer to EUSERC DWG 302A	Dwn No: 302A
		1 of 1





1 PHASE 3WIRE COMMERCIAL WITH BYPASS 120/240V 100/200AMP
3PHASE 4 WIRE COMMERCIAL WITH BYPASS 120-480V 100/200 AMP

Electrical District No. 3	ELECTRICAL DISTRICT #3- Engineering	Date: 7-19-17
	SPECIFICATIONS	Dwn by: GE
	Please Refer to EUSERC DWG 304-305	Dwn No: 304
		1 of 1

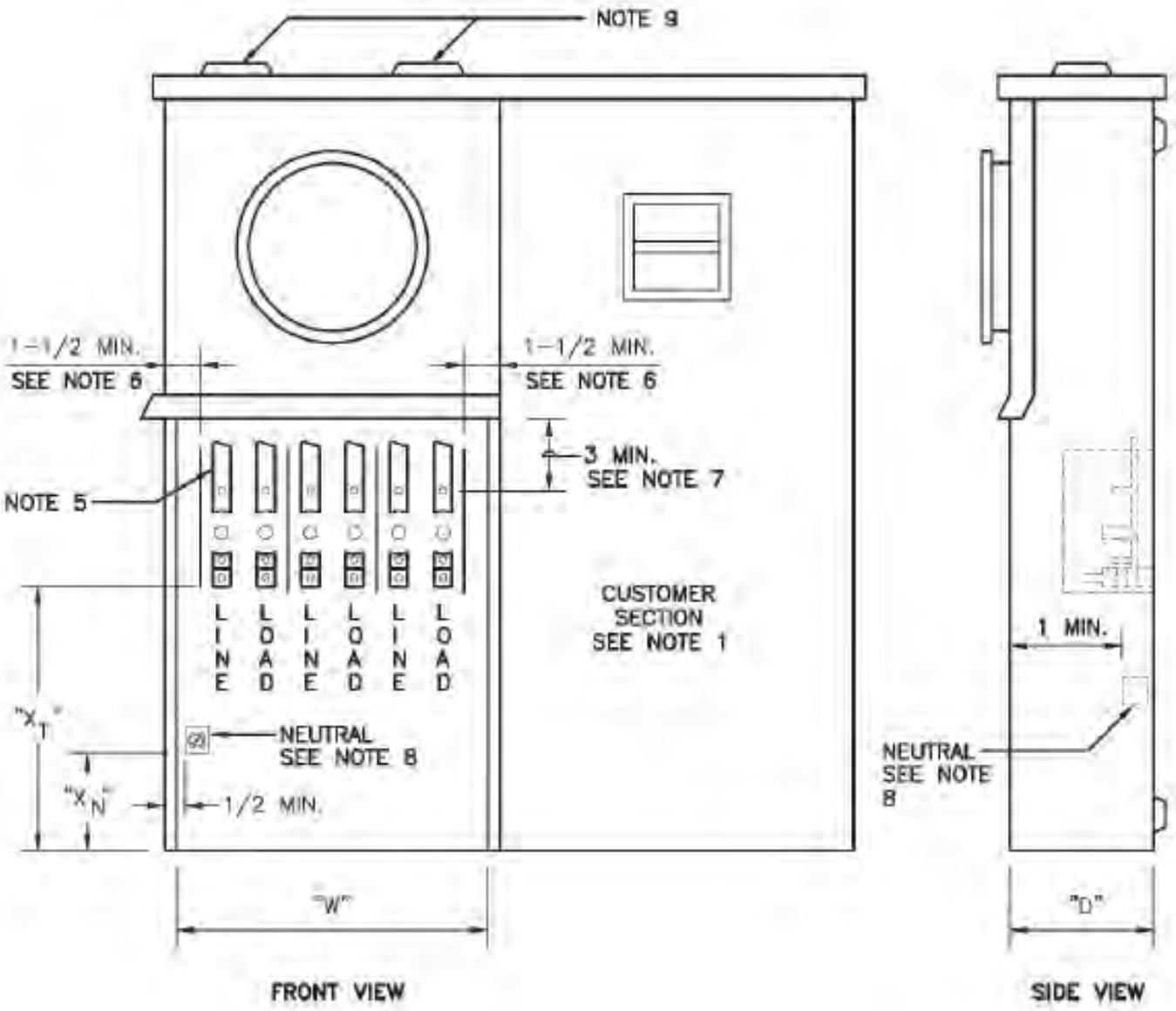


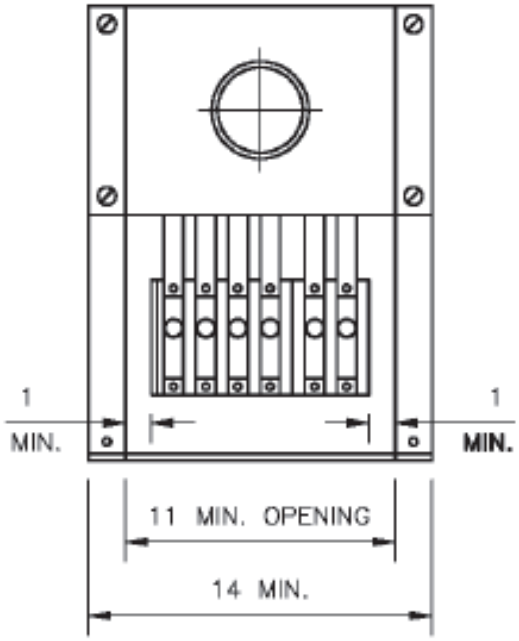
TABLE – MINIMUM DIMENSIONS

PANEL TYPE	PANEL RATING* (AMPERS)	"D"	"W" SEE NOTE 4	"XT"	"XN"
STANDARD	100	4-1/2	11-1/2	8	5
HEAVY-DUTY	200	6	13-1/2	11	8

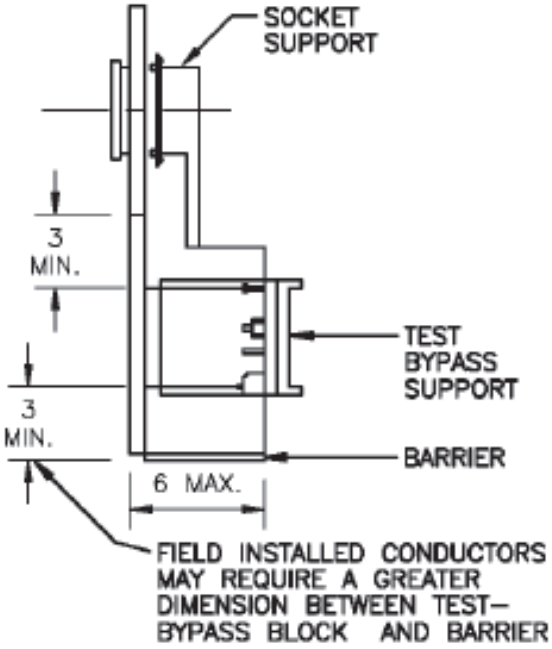
* Continuous-duty

1 PHASE 3WIRE COMMERCIAL WITH BYPASS 120/240V 100/200AMP
3PHASE 4 WIRE COMMERCIAL WITH BYPASS 120-480V 100/200 AMP

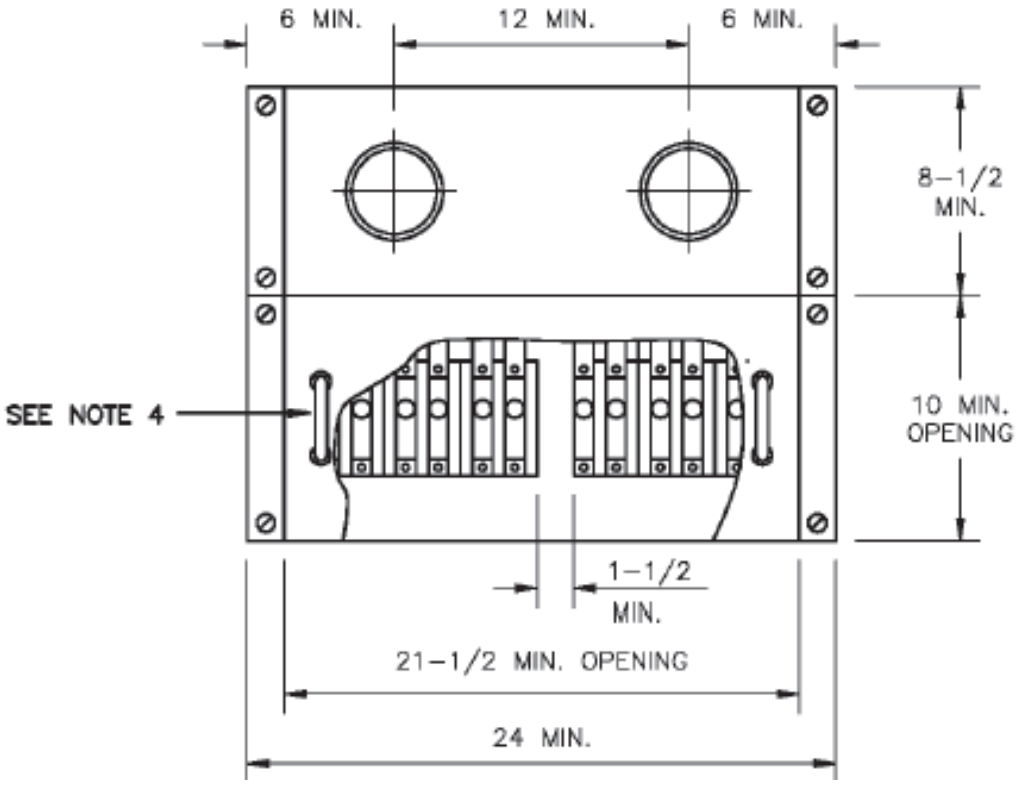
Electrical District No. 3	ELECTRICAL DISTRICT #3- Engineering	Date: 7-19-17
	SPECIFICATIONS	Dwn by: GE
	Please Refer to EUSERC 305A	Dwn No: 305A
		1 of 1



BARRIER
(SEE NOTE 6)

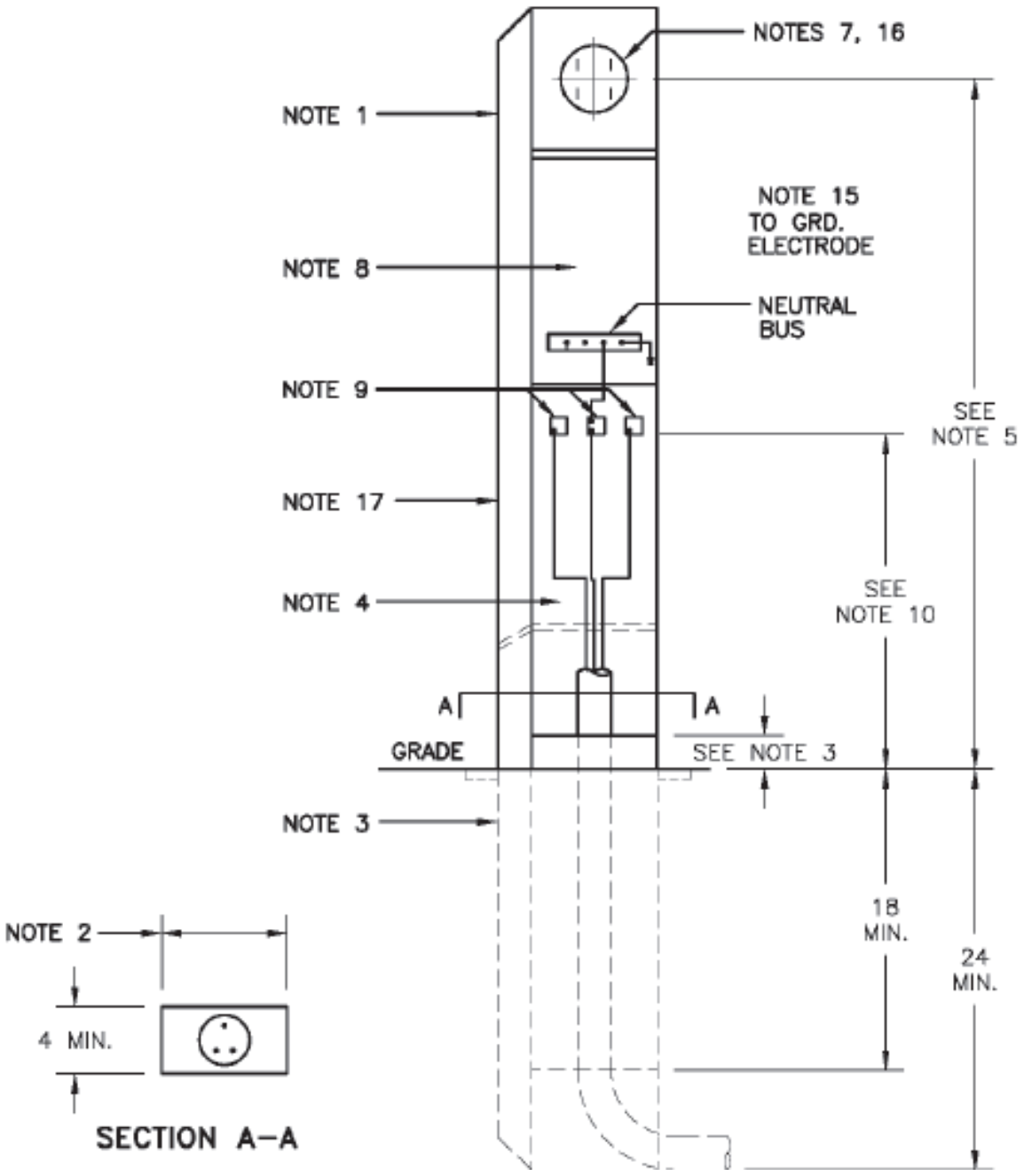


BARRIER
(SEE NOTE 6)



1 PHASE 3WIRE COMMERCIAL WITH BYPASS 120/240V 100/200AMP
3PHASE 4 WIRE COMMERCIAL WITH BYPASS 120-480V 100/200 AMP

Electrical District No. 3	ELECTRICAL DISTRICT #3- Engineering	Date: 7-19-17
	SPECIFICATIONS	Dwn by: GE
	Please Refer to EUSERC 306	Dwn No: 306
		1 of 1



1 PHASE 3 WIRE MANUFACTURED HOME 100/200AMP

Electrical District No. 3	ELECTRICAL DISTRICT #3- Engineering	Date: 7-19-17
	SPECIFICATIONS	Dwn by: GE
	Please Refer to EUSERC 307	Dwn No: 307
		1 of 1

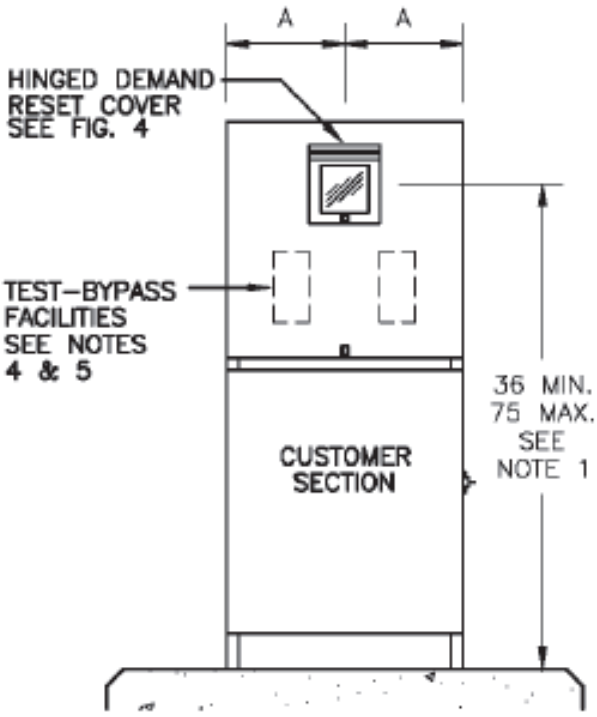


FIGURE 1
FRONT VIEW

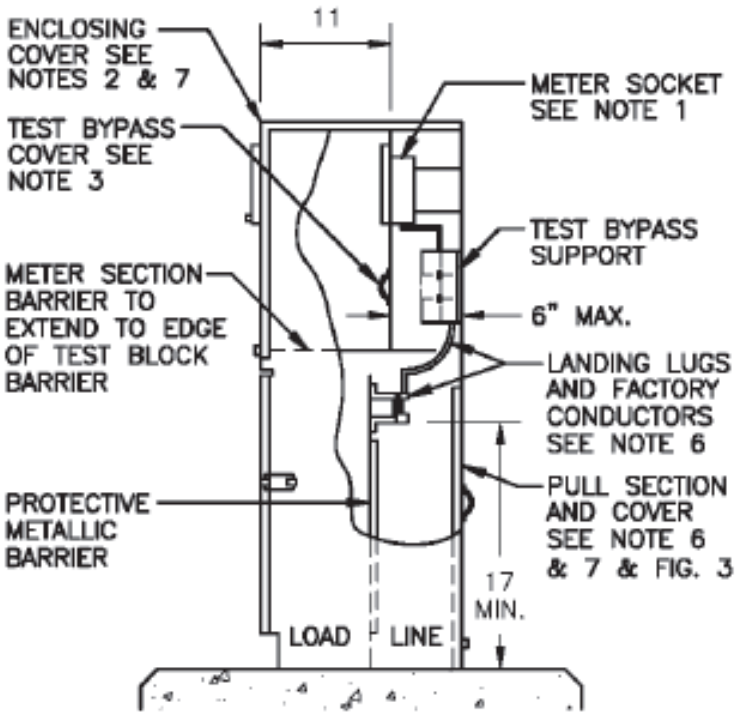


FIGURE 2
SIDE VIEW

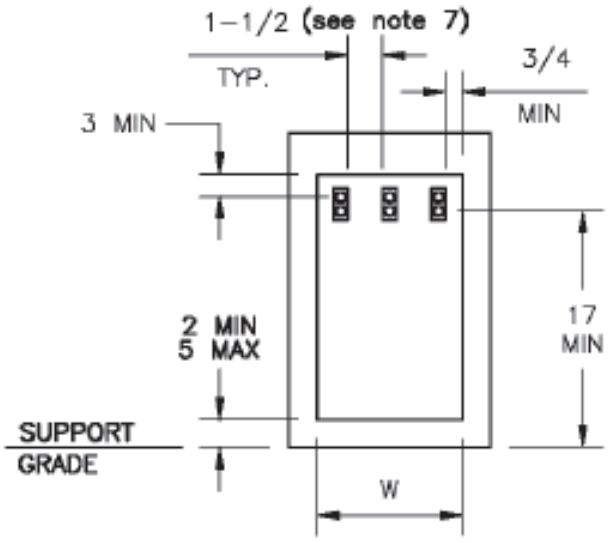


FIGURE 3
WIREWAY PULL SECTION

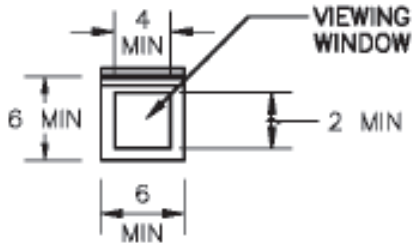


FIGURE 4
HINGED DEMAND RESET WITH POLYCARBONATE VIEWING

TABLE 1 – MINIMUM DIMENSIONS

SERVICE	W *	A **
1 PHASE	10–1/2	10
3 PHASE	12–1/2	

* SEE NOTE 6
** SEE NOTE 2

1 PHASE 3WIRE COMMERCIAL WITH BYPASS 120/240V 100/200AMP
3PHASE 4 WIRE COMMERCIAL WITH BYPASS 120-480V 100/200 AMP

Electrical District No. 3	ELECTRICAL DISTRICT #3- Engineering	Date: 7-19-17
	SPECIFICATIONS	Dwn by: GE
	Please Refer to EUSERC DWG 308	Dwn No: 308
		1 of 1

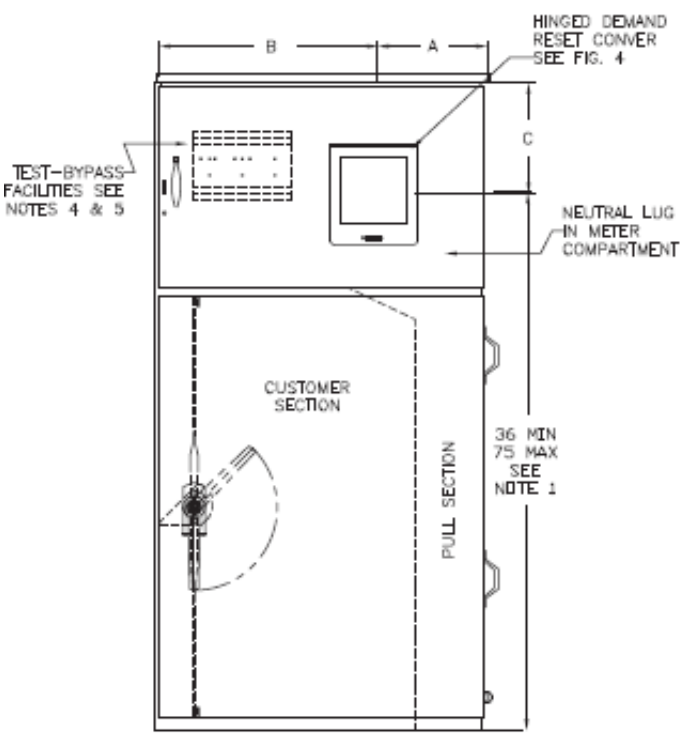


FIG. 1
FRONT VIEW

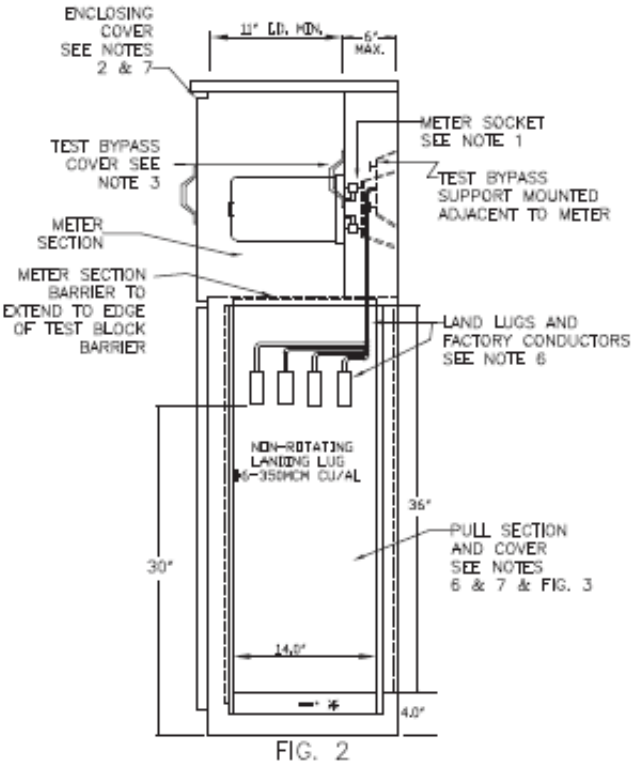


FIG. 2
SIDE VIEW

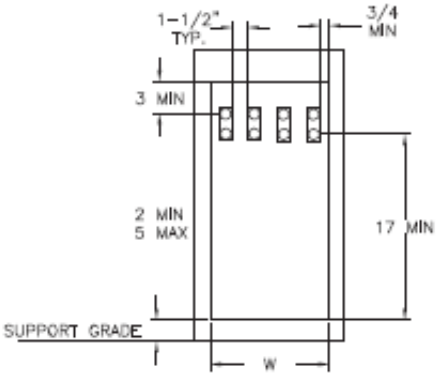


FIG. 3
WIREWAY PULL SECTION

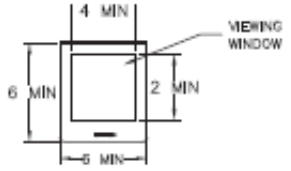


FIG. 4

HINGED DEMAND RESET
WITH POLYCARBONATE VIEWING

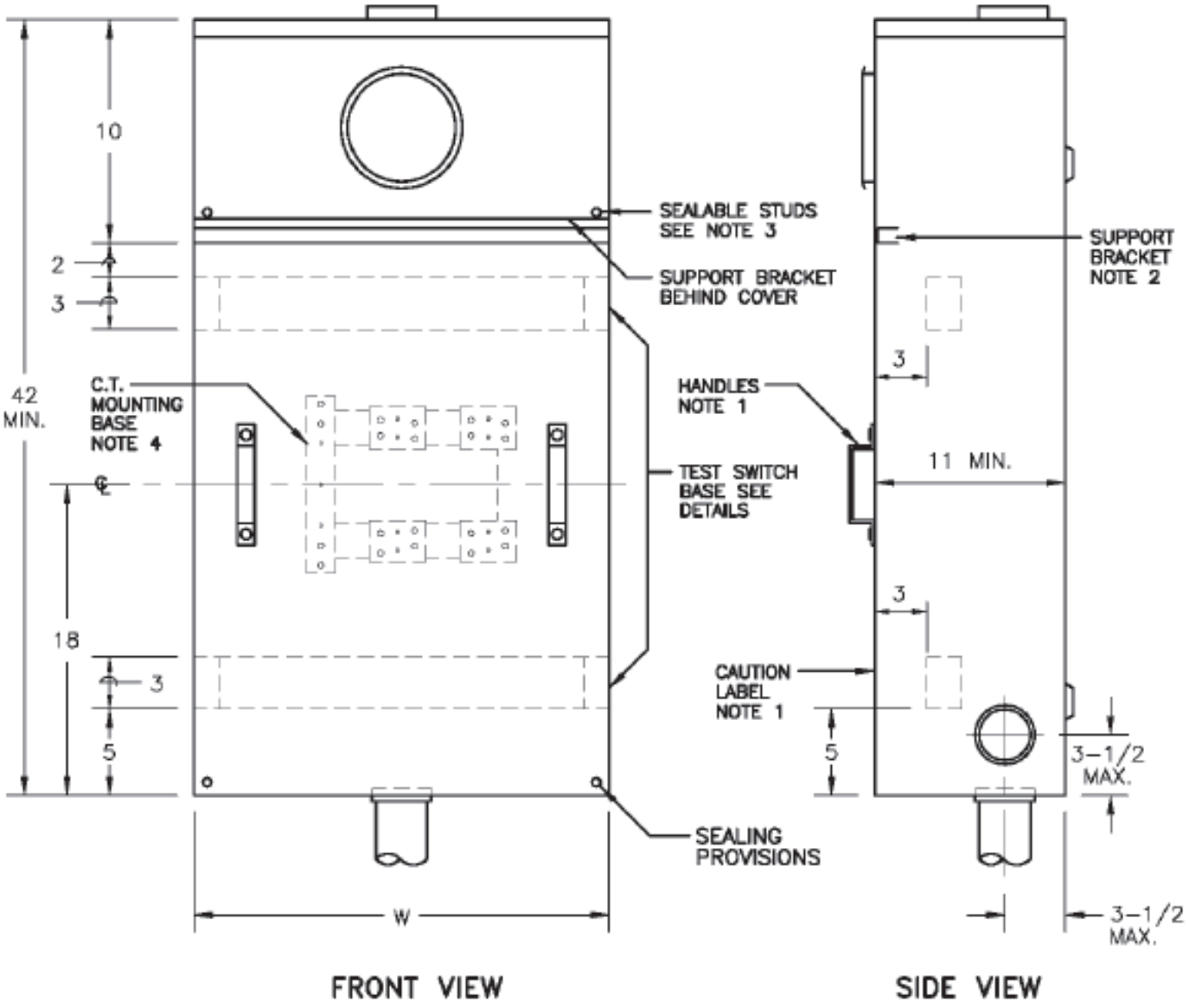
TABLE 1 – MINIMUM DIMENSIONS

SERVICE	W*	A**	B**	C**
1 PHASE	10-1/2	10	20	9
3 PHASE	12-1/2			

* SEE NOTE 6 & 7 ** SEE NOTE 2 & 7

1 PHASE 3WIRE COMMERCIAL WITH BYPASS 120/240V 100/200AMP
3PHASE 4 WIRE COMMERCIAL WITH BYPASS 120-480V 100/200 AMP

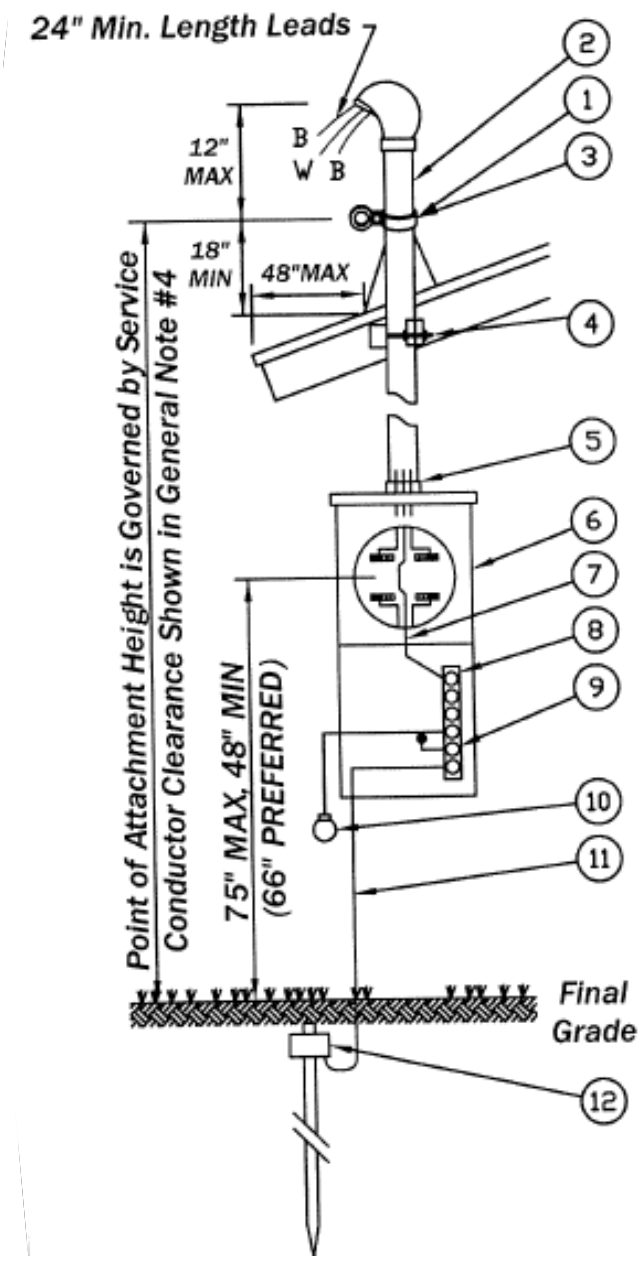
Electrical District No. 3	ELECTRICAL DISTRICT #3- Engineering	Date: 7-19-17
	SPECIFICATIONS	Dwn by: GE
	Please Refer to EUSERC 309	Dwn No: 309
		1 of 1



1 PHASE 3WIRE COMMERCIAL WITH BYPASS 120/240V 400AMP
3PHASE 3 WIRE COMMERCIAL WITH BYPASS 120-240V 400 AMP

Electrical District No. 3	ELECTRICAL DISTRICT #3- Engineering	Date: 7-19-17
	SPECIFICATIONS	Dwn by: GE
	Please Refer to EUSERC DWG 313	Dwn No: 313
		1 of 1

TYPICAL OVERHEAD RESIDENTIAL METER INSTALLATION
100-225A, 1 Ph, 3W, 120/240 VOLT



Permits and inspections are required. Please contact the governing inspection agency in your area.

This is a list of material for a normal overheadresidential meter Installation. It is not intended to be all inclusive but gives the more common requirements.

SERVICE RATING	COPPER	ALUMINUM	WEATHERHEAD & CONDUIT
100A	#4	#2	1-1/2"
125A	#2	#1/0	1-1/2"
150A	#1	#2/0	1-1/2"
200A	#2/0	#4/0	2"
225A	#3/0	#250	2" (2-1/2" if #250)

1) Point-of attachment to be insulated. (ESRM 400.1)

2) Rigid metal conduit is required if service is attached to the service drop clamp. If conduit is attached to building, Customer is to install a 1/2" bolt with a 2" backing washer.

3) Unbraced point-of-attachment maximum height above roof is 20" for 1-1/2" conduit and 30" for 2" and larger conduit.

4) Universal service drop brace. (See reverse side for examples.)

5) Approved hub, must be raintight.

6) Meter socket, breaker panel must be raintight equipment. Meter socket jaws or clips shall be free of foreign material (mud, paint, plaster, etc.). RINGLESS METER SOCKETS ARE NOT ACCEPTABLE.

7) Neutral to be a continuous, unbroken conductor from the weatherhead to the neutral landing block.

8) Neutral landing block.

9) Install a bonding jumper or screw if the neutral landing block is insulated from the enclosure.

10) Bonding of piping system - all interior metal piping shall be bonded to the electric grounding system. Gas piping shall be bonded on the house side of the insulating coupling.

11) The ground wire (#4 bare solid copper) shall be continuous from the neutral landing block to an approved grounding electrode system in compliance with NEC Article 250. The ground wire must be properly supported and attached to the building at 24" intervals.

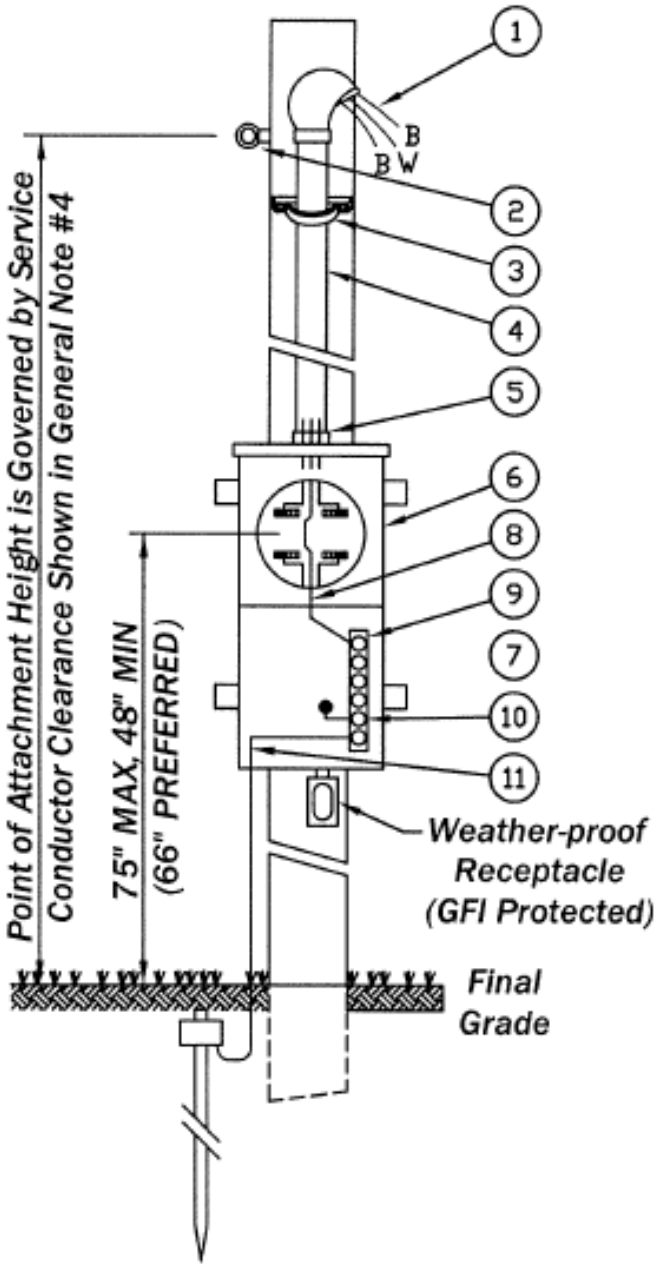
12) Appproved grounding electrode system.
a) 5/8" x 8' long ground rod and approved clamp. Entire length of rod to below grade.
b) 20' of bare #4 copper wire installed in concrete footer (UFER).

Note: Enough wire to reach main disconnect enclosure must extend outside concrete footer.

Electrical District No. 3	ELECTRICAL DISTRICT #3- Engineering	Date: 7-19-17
	SPECIFICATIONS	Dwn by: GE
	RESIDENTIAL OVERHEAD SERVICE POLE	Dwn No: SP-3
		1 of 1

TYPICAL POLE -MOUNTED METER INSTALLATION FOR RESIDENTIAL OR TEMPORARY SERVICE

100-225A, 1 Ph, 3W, 120/240 VOLT



Permits and inspections are required. Please contact the governing inspection agency in your area.

This is a list of material for a normal pole-mounted meter installation. It is not intended to be all inclusive but gives the more common requirements.

SERVICE RATING	COPPER RES	COPPER TEMP	ALUMINUM RES	ALUMINUM TEMP	WEATHERHEAD & CONDUIT
100A	#4	#2	#2	#1	1-1/2"
125A	#2	#1	#1/0	#2/0	1-1/2"
150A	#1	#1/0	#2/0	#3/0	1-1/2" (2" if #3/0)
200A	#2/0	#3/0	#4/0	#250	2" (2-1/2" if #250)
225A	#3/0	#3/0	#250	#250	2" (2-1/2" if #250)

1) Weatherhead-conductor leads to extend a minimum of 24" beyond the weatherhead.

2) 1/2" eyebolt with a 2" backing washer. Must be located within 12" of the weatherhead.

3) Conduit support. Not over 6' apart, mounted on unitrut.

4) Rigid, intermediate or thinwall metal conduit.

5) Approved hub, must be raintight.

6) Meter socket, breaker panel must be raintight equipment. Metersocket jaws or clips shall be free of foreign material (mud, paint, plaster, etc.). RINGLESS METER SOCKETS ARE NOT ACCEPTABLE.

7) Meter box to be bolted to unistrut. Unistrut to be mounted to pole using through bolts. Pole shall be notched to the depth of one unistrut

8) Neutral to be a continuous, unbroken conductor from the weatherhead to the neutral landing block.

9) Neutral landing block.

10) Install a bonding jumper or screw if the neutral landing block is insulated from the enclosure.

11) The ground wire (#4 bare solid copper) shall be continuous from the neutral landing block to an approved grounding electrode system in compliance with NEC Article 250. The grounding wire must be properly supported and attached to the pole at 24" intervals.

12) Approved grounding electrode system. 5/8" x 8' long ground rod and approved clamp. Entire length of rod to be below grade.

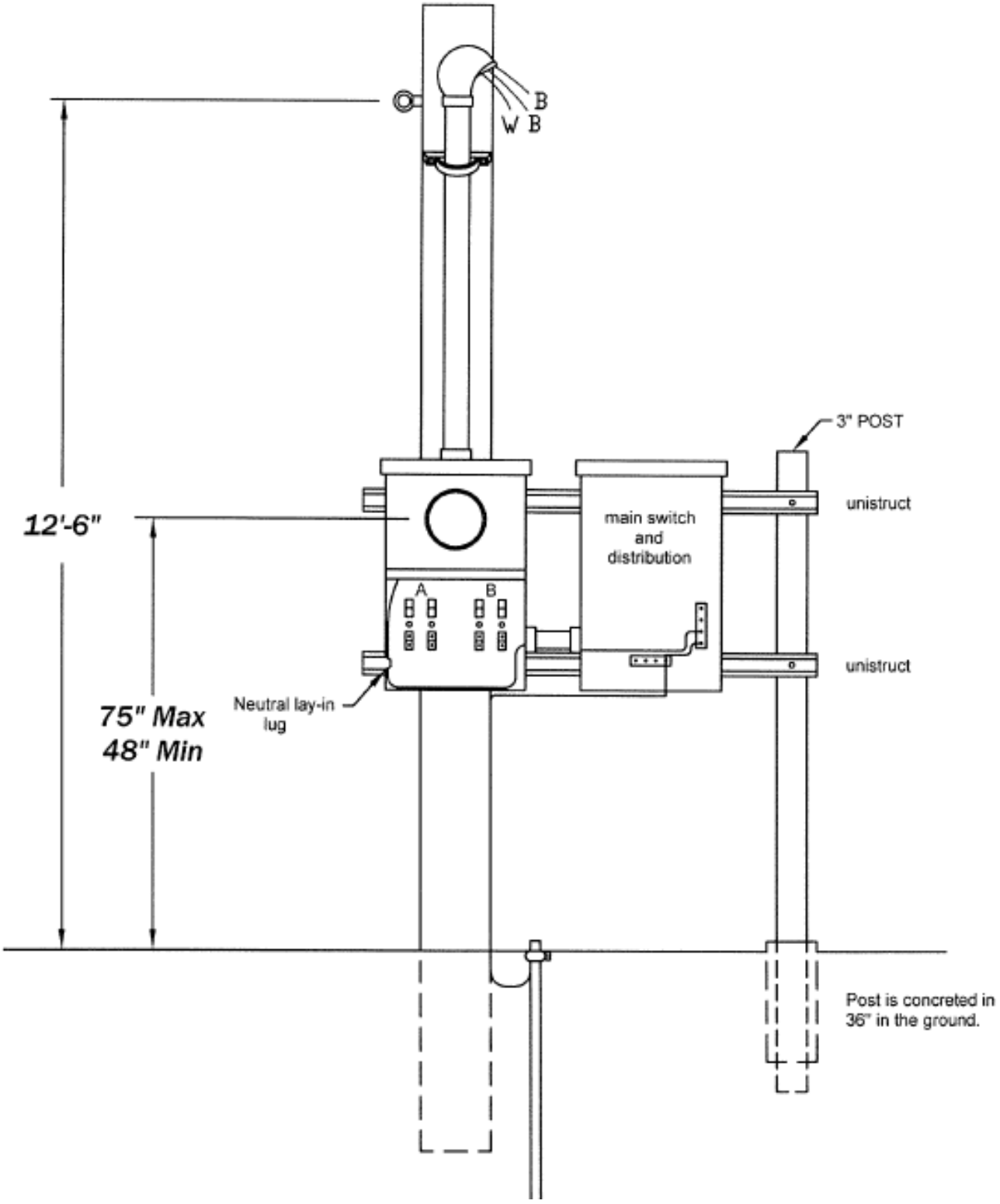
POLE REQUIREMENTS

Only approved poles will be accepted. The pole must be fully commercially pressure treated and branded in accordance with commercially pressure treated and branded.

A used or cut-off pole must be approved by a Company representative. Minmum pole length is 18' with 4' set in the ground. Additional pole length will be required if the pole used is to be used by other utility companies.

Electrical District No. 3	ELECTRICAL DISTRICT #3- Engineering	Date: 7-19-17
	SPECIFICATIONS	Dwn by: GE
	RESIDENTIAL OVERHEAD SERVICE/TEMP POLE	Dwn No: SP4 1 of 1

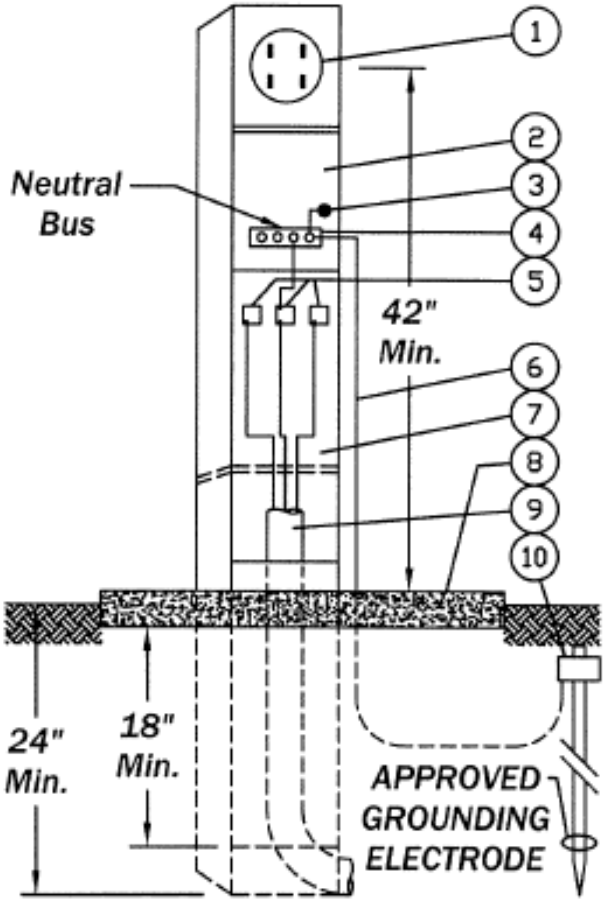
COMMERICAL SERVICE WITH POLE



Electrical District No. 3	ELECTRICAL DISTRICT #3- Engineering	Date: 7-19-17
	SPECIFICATIONS	Dwn by: GE
	COMMERCIAL OVERHEAD SERVICE POLE	Dwn No: SP5
		1 of 1

TYPICAL MOBILE HOME and TEMPORARY METER PEDESTAL

1 Ph, 3W, 120/240 VOLT



Permits and inspections are required. Please contact the governing inspection agency in your area.

This is a list of material for a normal meter pedestal installation. It is not intended to be all inclusive but gives the more common requirements.

1) Meter socket, breaker compartment and pull section must be raintight equipment. Meter socket jaws or clips shall be free of foreign material (mud, paint, plaster, etc.). RINGLESS METER SOCKETS ARE NOT ACCEPTABLE.

2) Breaker compartment.

3) Pedestal bond lug. Maybe a bond screw in some models.

4) Customer's neutral landing block.

5) Service termination lugs shall be twin #2 to #350 MCM aluminum bodied pressure type for in and out connection of the service conductors.

6) The grounding wire (#4 bare solid copper) shall be continous from the neutral landing block in the breaker compartment to a grounding electrode system in compliance with NEC Article 250. The ground wire must be properly supported and attached to the outside of the pedestal at 24" intervals. When attaching the ground wire to the pedestal, the method of attachment shall not result in sharp projections, such as metal screws into the wireway below the neutral landing block. See illustration at left for preferred method of installing the ground electrode conductor.

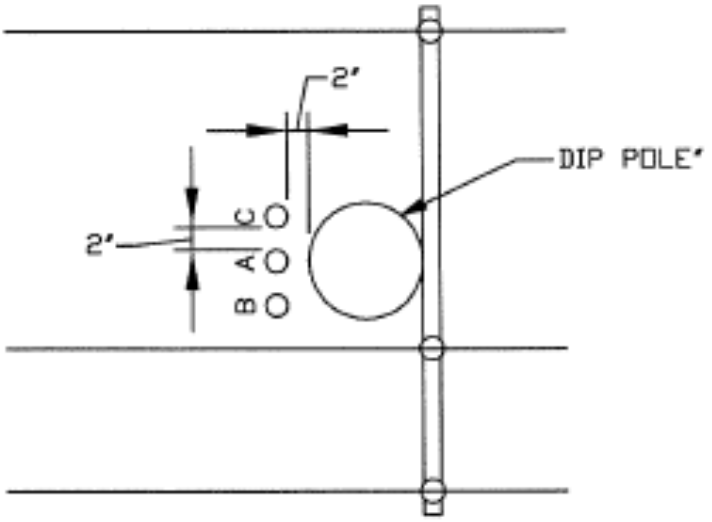
7) Access to utility pull section shall not be blocked in any manner. Pull section shall be sealable. No customer wiring or equipment is allowed in this area.

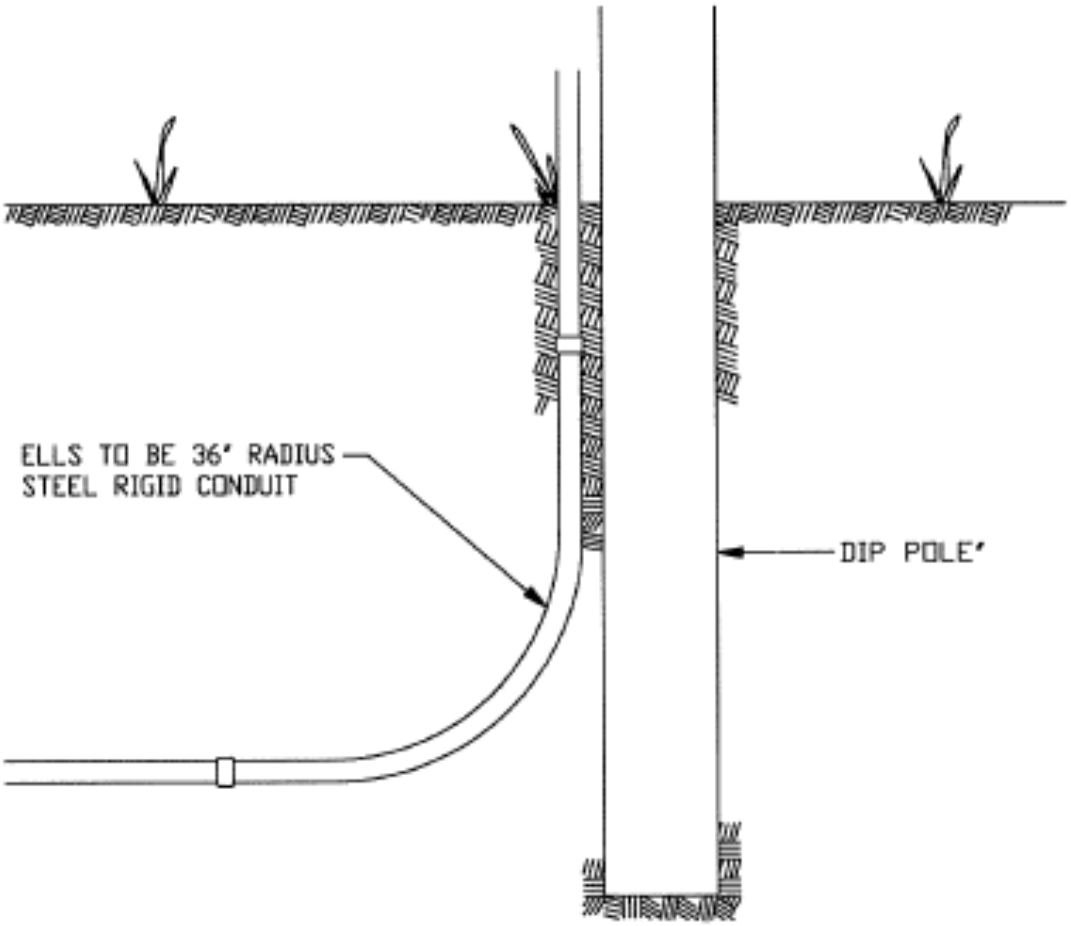
8) Poured concrete slab shall be 24" x 24" minimum size and have a 3-1/2" minimum thickness.

9) Provide and install 2-1/2" conduit(s) with 24" sweep(s). Consult Company Representative to determine if service will be racial or casacaded. Conduit to extend a minimum of 1" and a maximum of 2" above the concrete slab.

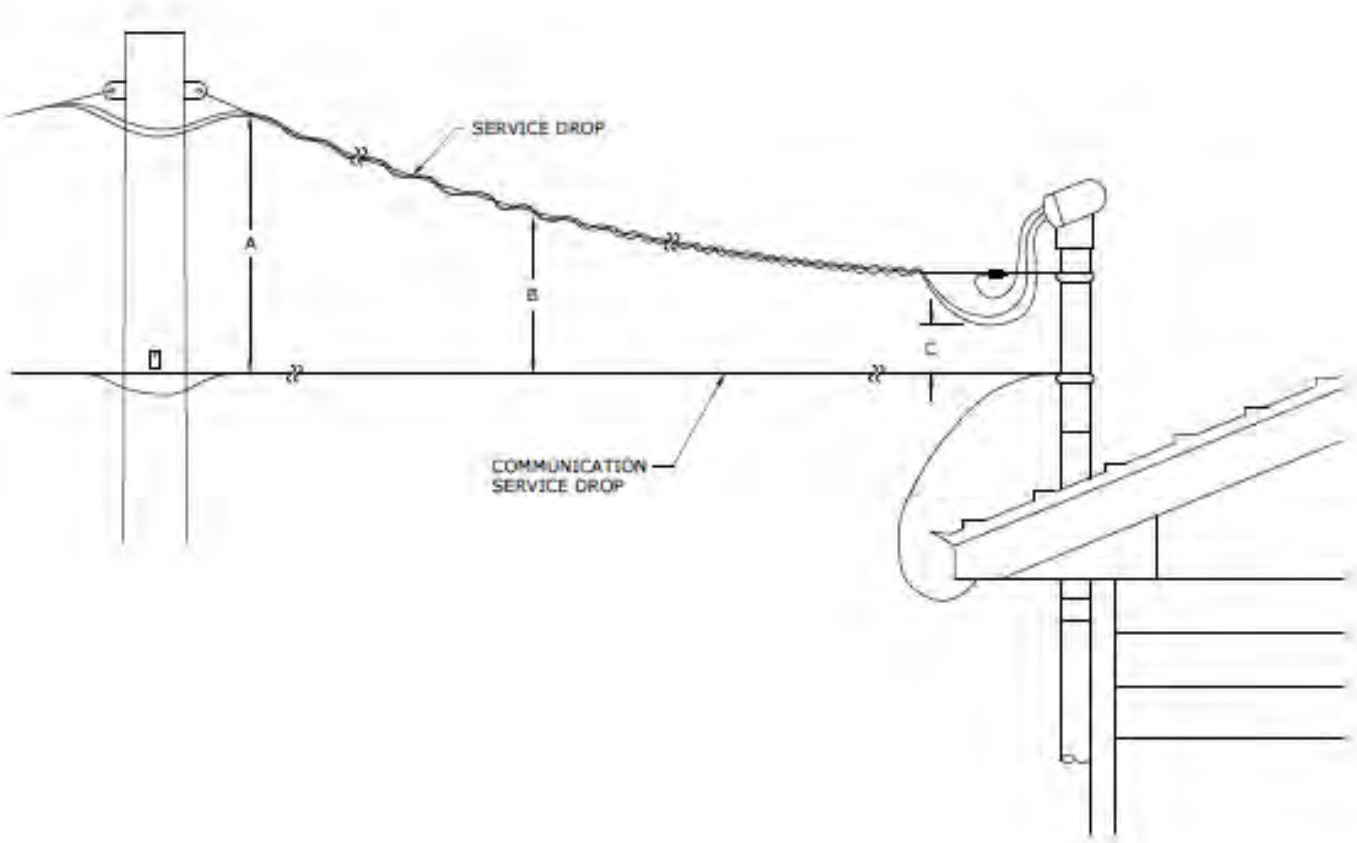
10) Approved ground electrode clamp shall be buried flush or somehow proptected from physical damage. Clamp shall be designed for underground use. Ground rod shall not be installed in or beneath the concrete slab.

Electrical District No. 3	ELECTRICAL DISTRICT #3- Engineering	Date: 7-19-17
	SPECIFICATIONS	Dwn by: GE
	RESIDENTIAL UNDERGROUND PEDESTAL	Dwn No: UG6
		1 of 1





Electrical District No. 3	ELECTRICAL DISTRICT #3- Engineering	Date: 7-19-17
	SPECIFICATIONS	Dwn by: GE
	CONDUIT PLACEMENT ON DIP POLE	Dwn No: DP1
		1 of 1

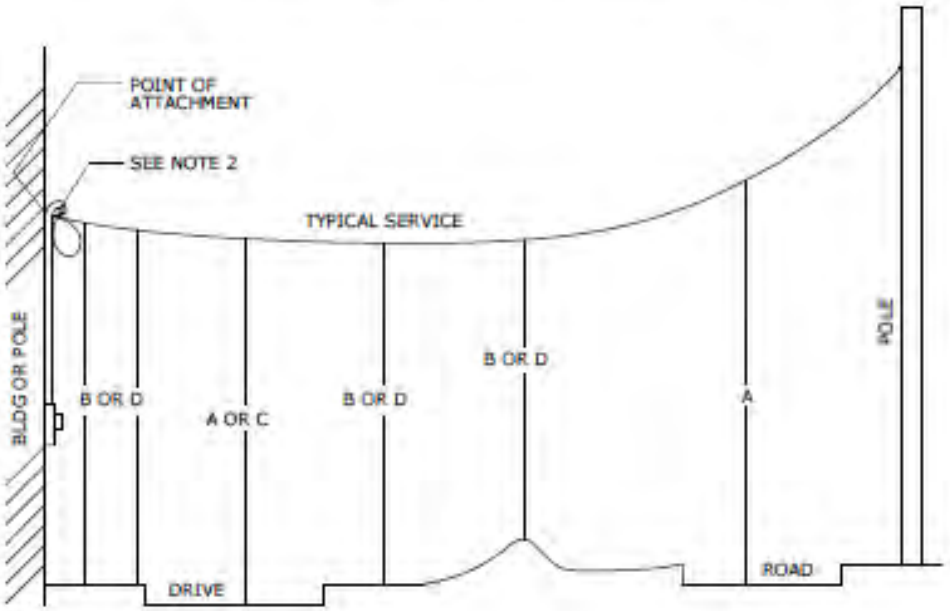


DIMENSION (LETTER)	* NESC MINIMUM REQUIREMENT		NESC APPLICABLE REFERENCE SECTION
A	40"		235-5
B	12"		235 C1 EXCEPTION 3
C	12"		235 C1 EXCEPTION 3

Clearance between secondary service drop and telecommunications

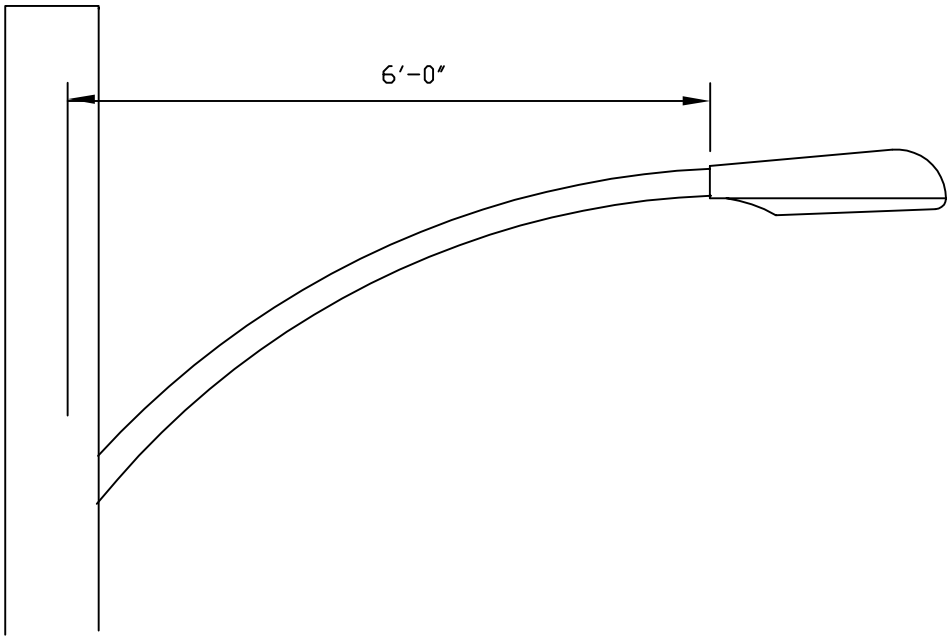
Electrical District No. 3	ELECTRICAL DISTRICT #3- Engineering	Date: 7-19-17
	SPECIFICATIONS	Dwn by: GE
	OVERHEAD SECONDARY SERVICE CLEARANCE	Dwn No: CL-001
		1 of 1

MINIMUM REQUIRED HEIGHTS FOR NEW SERVICES



CONDITION	MINIMUM REQUIRED HEIGHT
A. OVER STREETS, ROADS, NON-RESIDENTIAL DRIVES, COMMERCIAL AREAS, AND PARKING LOTS SUBJECT TO TRUCK TRAFFIC.	18.0'
B. OVER OTHER LAND TRAVERSED BY VEHICLES SUCH AS FARM, GRAZING, FOREST, ETC.	18.0'
C. OVER RESIDENTIAL DRIVEWAYS. (SEE NOTES 4 AND 6)	16.0'
D. OVER FINISHED GRADE, PLATFORMS, AND/OR OTHER SPACES IF NOT NORMALLY TRAVERSED BY VEHICLES.	12.0'

Electrical District No. 3	ELECTRICAL DISTRICT #3- Engineering	Date: 7-19-17
	SPECIFICATIONS	Dwn by: GE
	SECONDARY SERVICE DROP CLEARANCES	Dwn No: CL-002
		1 of 1



LAMP TYPE	LAMP WATTAGE	LUMENS	KWH / MONTH	CHARGES PER LAMP PER MONTH
High Pressure Sodium	100 W	9,500	40.3	$07.14
	150 W	16,000	66.6	$07.81
	200 W	22,000	84.9	$09.28
	250 W	30,000	99	$09.92
	400 W	50,000	153	$17.08
Metal Halide	100 W	8,500	44.5	$07.14
	250 W	19,500	101.8	$10.52

Tax
Plus applicable sales tax to the above.

Size and arm length to be determined during design

Electrical District No. 3	ELECTRICAL DISTRICT #3- Engineering	Date: 7-19-17
	SPECIFICATIONS	Dwn by: GE
	Typical Residential Dusk to Dawn Light	Dwn No: SL-001
		1 of 1