2024

Commercial/Apartment Complex Service

11/1/2024

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Commercial Specifications

Do Commercial Specs Apply to Our Project?

Commercial specs (i.e., commercial-grade wiring, transformers, or breakers) are generally required when the projected load requirements exceed normal residential limits, such as large homes with pools, home-based businesses (e.g., a commercial kitchen or workshop), or commercial businesses (e.g., grocery stores or warehouses).

Residential buildings typically use standard residential electrical specifications, but certain conditions may require commercial-grade electrical specifications for new residential construction. These conditions can include:

1. **Large Load Demand**: If the building will have high electrical load demands, such as for large HVAC systems, multiple electric vehicle (EV) charging stations, or other high-power-consuming equipment, commercial-grade equipment may be required to handle the increased capacity.

2. **Mixed-Use Development**: If the building is part of a mixed-use development where there are both residential and commercial spaces (e.g., a residential unit above a retail store), commercial electrical standards might be applied to the entire structure or parts of it.

3. **Multifamily Residences**: Larger multifamily buildings, like apartment complexes, may require commercial electrical specifications due to the size and complexity of the electrical system needed to serve multiple units.

4. **Backup Generators or Solar Systems**: If the residence will have a backup generator, solar panel systems, or energy storage systems that integrate into the grid, commercial-grade specifications might be needed to ensure safety and compatibility with grid infrastructure.

5. **Zoning and Local Codes**: Local zoning laws or building codes may dictate the use of commercial-grade electrical components in certain residential developments, especially in high-density or urban areas.

6. **Building Size and Complexity**: For very large custom homes or luxury residences that are significantly larger or more complex than typical homes, commercial electrical standards might be applied to meet the increased needs for safety, power distribution, and capacity.

Meter and Meter Loop Information

What is a “Meter Loop”?

A **meter loop** is the complete electrical assembly that connects the power company's service line to a building's electrical system. It typically includes the meter socket where the meter is placed, a weatherproof enclosure, conduit, and wiring necessary to safely route electricity from the utility’s underground power source to the service panel.

The meter loop is installed by the property owner’s electrical contractor and is inspected by TNMP before connecting to the grid. The meter loop ensures that the utility can measure electricity usage and protect the electrical system with proper grounding. In underground service setups, the conduit is typically buried, and the meter loop connects to a junction box or transformer near the property.

The **National Electrical Safety Code** (NESC) is a set of safety standards for the installation, operation, and maintenance of electrical power and communication systems in the United States. The NESC covers power lines, substations, electrical equipment, and communication lines, ensuring that electrical infrastructure is installed and maintained safely to protect workers and the public from hazards.

Underground Service Policy for Commercial Buildings and Apartment Complexes

Meter Location

Meter locations must have prior approval of TNMP. Meters shall be located so they are readily accessible by TNMP personnel and not exposed to physical or environmental dangers. Where meter socket or enclosure and disconnecting means are mounted adjacent, they should be separated by at least four (4) inches. Socket or enclosure shall be mounted level with the vertical plane of the building and securely mounted to the building. Meter loop must be either on the front of the building or on the side within five (5) feet from the front corner. Location of meter socket must be approved by a TNMP representative, and TNMP must have permanent access to the meter socket.

1. Meter locations shall be approved by a TNMP representative. Meter bases should be located so that they are readily accessible, relatively free from possible mechanical injury, and available to the closest preferred serviced source as designated by a TNMP representative.

2. Mounting height of meter base of not less than 4 and not more than 6 ft. from the center of the can to final grade.

Meter Socket or Enclosure Requirements

Meter sockets for service requirements less than 400 amps will be purchased and installed by the customer. They must be UL-listed and rated for a minimum of 200 amps. Underground service requires underground enclosures, not universal or modified overhead enclosures, with a dedicated raceway on the left side. Three-phase underground service requires enclosures rated 320 amps or greater. For service requirements in excess of 400 amps please contact your local TNMP representative.

Grounding

1. All grounding shall comply with the National Electric Code.
2. The ground electrode conductors may originate in the meter base or the customer's service equipment panel (not required in both locations).
3. The grounding electrode conductor shall be sized according to the following table:

Size of Largest Service-Entrance Conductor or Equivalent Area for Parallel Conductors		Size of Grounding Electrode Conductor	
Copper	Aluminum or Copper-Clad Aluminum	Copper	Aluminum or Copper-Clad Aluminum
2 or smaller	1/0 or smaller	8	6
1 or 1/0	2/0 or 2/0	6	4
2/0 or 3/0	4/0 or 250 kcmil	4	2
Over 3/0 thru 350 kcmil	Over 250 kcmil thru 500 kcmil	2	1/0
Over 350 kcmil thru 600 kcmil	Over 500 kcmil thru 900 kcmil	1/0	3/0
Over 600 kcmil thru 1100 kcmil	Over 900 kcmil thru 1750 kcmil	2/0	4/0
Over 1100 kcmil	Over 1750 kcmil	3/0	250 kcmil

4. The grounding electrode shall be a rod or pipe no less than 8 ft. in length made of 3/4" or larger galvanized iron pipe, 1/2" or larger Copperweld rod, or 5/8" or larger iron or steel rod.

Service Entrance Conductors

The service entrance conductors should be a minimum of 4/0 aluminum or 2/0 copper. Entrance conductors shall be installed in approved rigid metallic or non-metallic conduit or approved raceway. Approved service entrance cable may be used in lieu of conduit or raceway (subject to local code approval). The connection to the meter socket base shall be watertight and the service entrance shall be installed on the exterior of the building. In no instance shall service entrance conductors be run through attics, partitions or other enclosed places. No unsealable type fittings shall be installed in conduit or raceway ahead of the meter socket or metering enclosure.

Service Requirements in Excess of 200 Amps

In accordance with local authority, services should have a service disconnect device, accessible by TNMP personnel, located on the exterior wall of the building adjacent to the meter socket. TNMP recommends a disconnect device for all customers. A remote-control device used to actuate the service disconnecting means may be located on the exterior of the building in lieu of the actual service disconnect. The remote-control device must be accessible by TNMP personnel. TNMP personnel shall have the right to operate the disconnect device to remove load from TNMP equipment for any legitimate purpose including but not limited to public safety concerns, compliance with TNMP personal safety procedures, and routine maintenance of TNMP equipment.

Conduit Specifications

1. Service conduit is furnished and installed by the customer at the customer's expense. Ownership of the conduit is accepted by TNMP, and any repairs needed after the initial installation will be made by TNMP.
2. Conduit size, number of elbows, and radius of elbows will be determined by a TNMP representative.
3. TNMP must approve the conduit installation before backfilling the trench.
4. Warning tape should be installed by the customer in the ditch approximately 1' below grade.

Conduit Installation

1. Inspection is required on all conduit prior to backfill.
2. Schedule PVC, Gray 40 color (approved for electrical use).
3. Schedule 80 from ground into slip meter riser.
4. All elbow radius per legend.

5. The customer remains responsible for conduit installation until all electrical facilities are installed.
6. Ditch shall be level and straight. Sand may be used to level ditch.
7. Flat braided mule tape shall be installed in each conduit section.
8. Yellow TNMP Warning Tape to be installed 12” to 18” inches above conduit.
9. See attached sheet(s) for information on conduit installation: UG-2-5, UG-3-1, UG-3-2, UG-3-3
10. All conduit bends at poles will be turned up away from traffic, whenever possible.
11. Slip meter risers are **required** below meter socket.
12. Schedule 80 PVC is **required** from ground level into slip meter riser.
13. TNMP-approved meter socket.

Conduit Clearances

Legend for conduit

All measurements in inches

			Elbow Radius			Elbow	
Use	Description	Size	Horizontal	Vertical	Cover Depth	Material	# Conduits
Primary	NA	NA	NA	NA	NA	NA	NA
Secondary	NA	NA	NA	NA	NA	NA	NA
Service	pole to meter	3	36	36	36	SCH 40 PVC	1

For scheduling of conduit/service entrance inspections or acount initiation, please call 972-317-5542 x4016 or x4018.

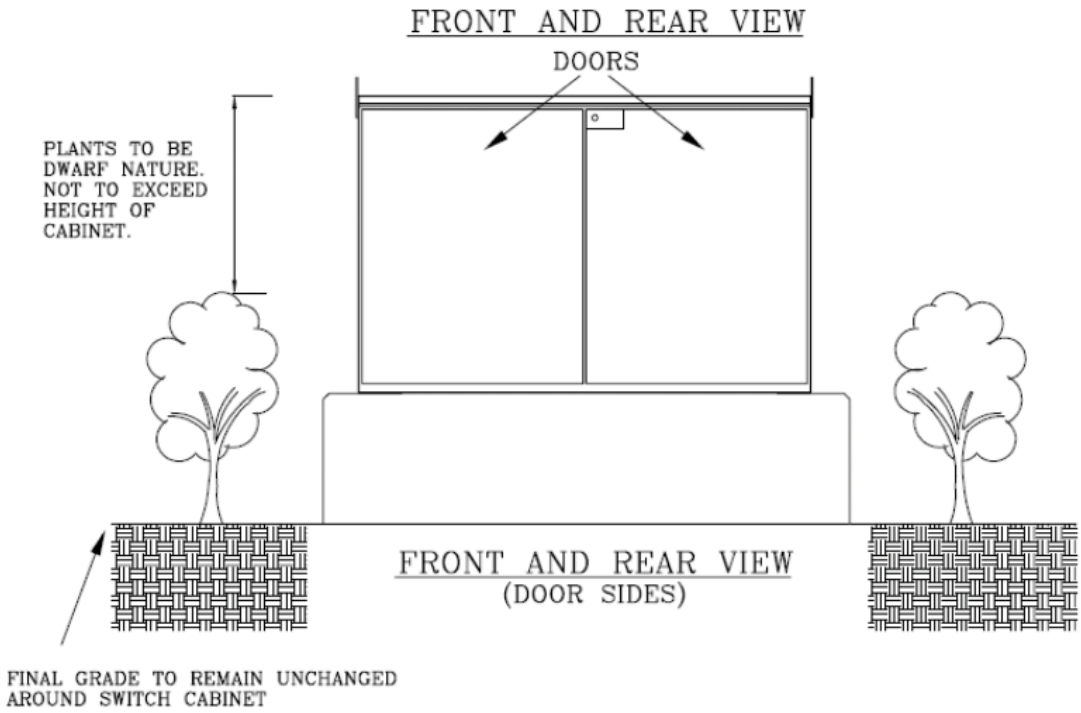
1. Minimum Depth = 48” from top of PRIMARY conduit to grade.
2. Minimum Depth = 36” from top of SECONDARY or SERVICE conduit to grade.
3. Five foot (5’) minimum horizontal distance from structures, buildings, etc.
4. Twelve-inch (12”) minimum clearance from other utilities.

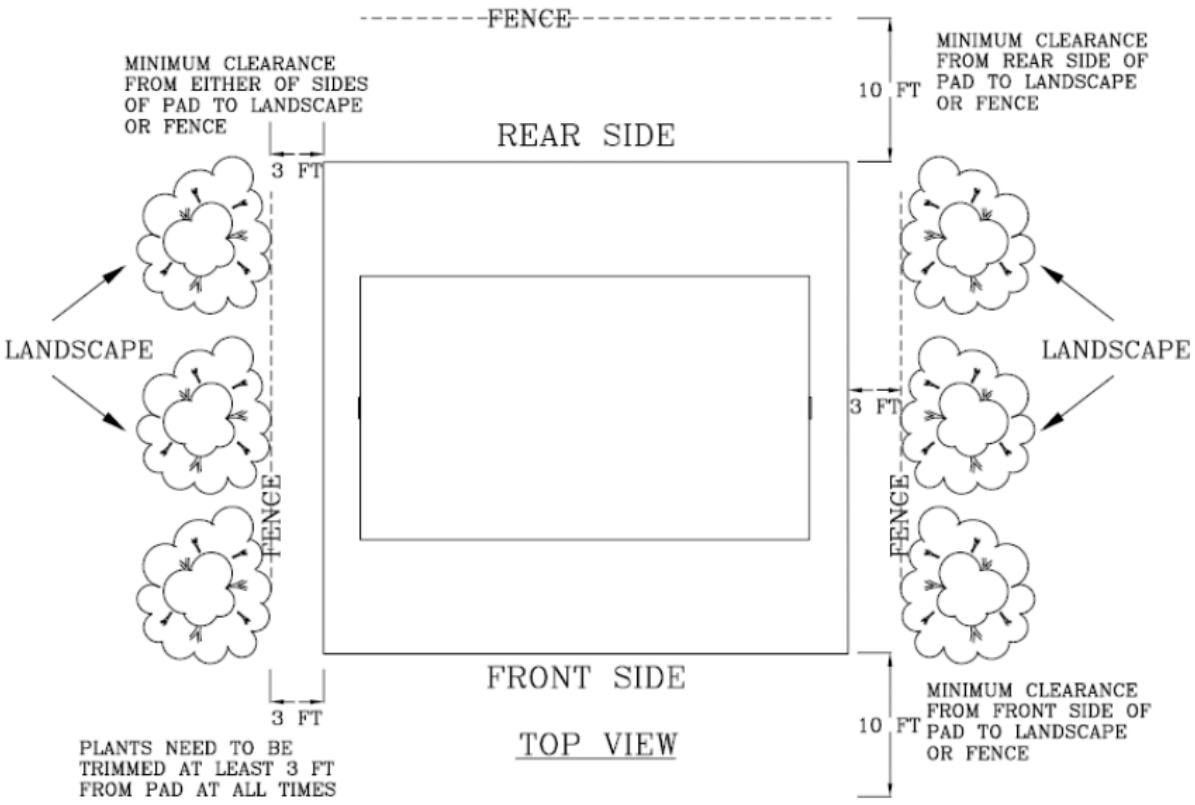
Energizing Customer’s Service

Only authorized employees of TNMP are to make and energize the connections between the company’s service wire and the customer’s service entrance conductor(s).

Texas-New Mexico Power

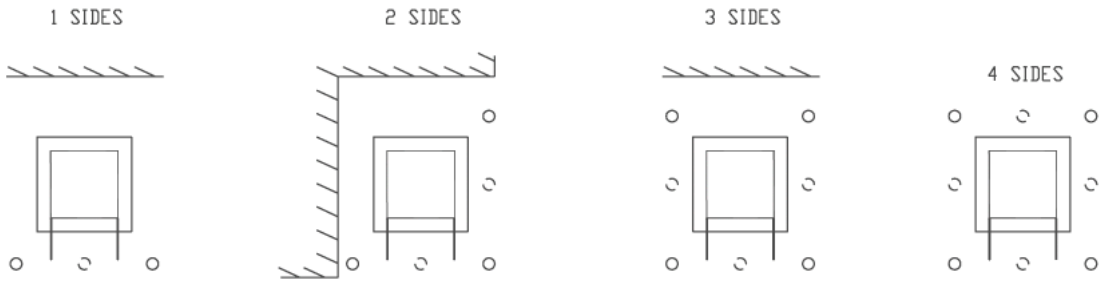
Drawing Sets



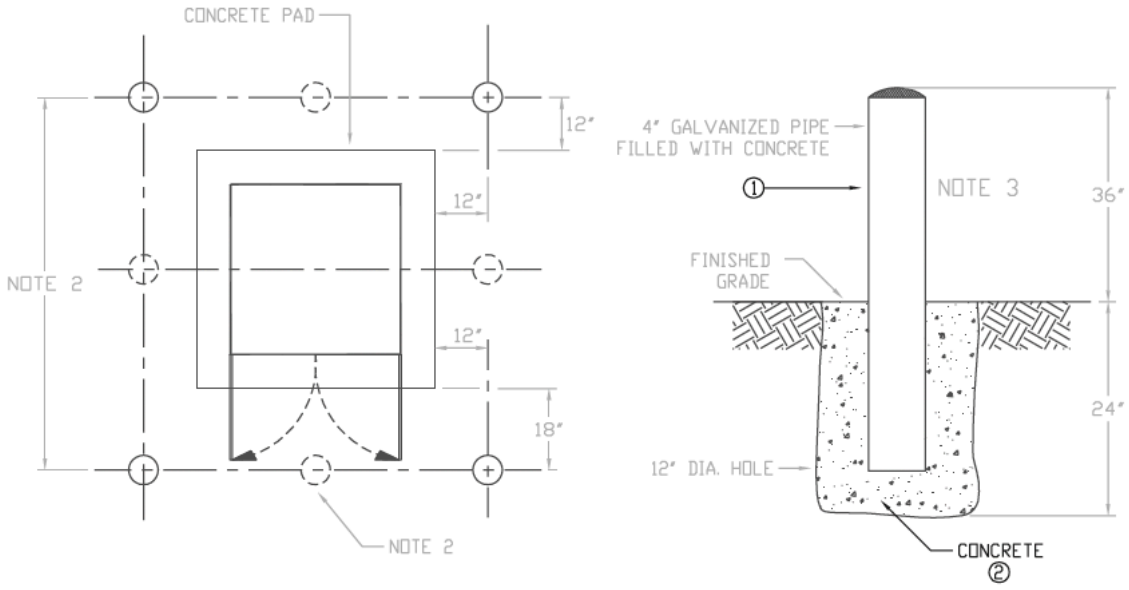


Notes:

1. Distance may be reduced to 5’ if equipment side is not used for hot stick switching.
2. Use UG-2-10 for oil filled equipment distances from building walls.
3. If gate is locked, TNMP lock shall be installed.
4. Minimum distance from gate to pad may be reduced to 5’ but minimum 10’ open area required in front of pad with gate open.
5. When installing a transformer, screening walls shall provide adequate ventilation.



TYPICAL LAYOUT FOR TRAFFIC AND PARKING



NOTES:

1. INSTALL GUARD POST WHERE PROTECTION FROM DAMAGE DUE TO VEHICLE TRAFFIC IS NEEDED.
2. DISTANCE BETWEEN POSTS SHOULD NOT EXCEED 4 FEET. ADD ADITIONAL POSTS WHERE NECESSARY TO MEET THIS CONDITION. VERIFY LOCATION OF POST IN FRONT OF TRANSFORMER TO ALLOW FOR DOOR OPENING.
3. INCREASE HEIGHT TO 48" AND DEPTH TO 36" IN TRUCK LOADING AREAS, AND INCREASE SIZE TO 6" GALVANIZED PIPE.

				MUN
ITEM	QTY	MATERIAL DESCRIPTION	M&S	CUN
1	AS REQD	CONDUIT, GALVANIZED IRON 4 IN.		
1	AS REQD	CONDUIT, GALVANIZED IRON 6 IN.		
2	AS REQD	CONCRETE		

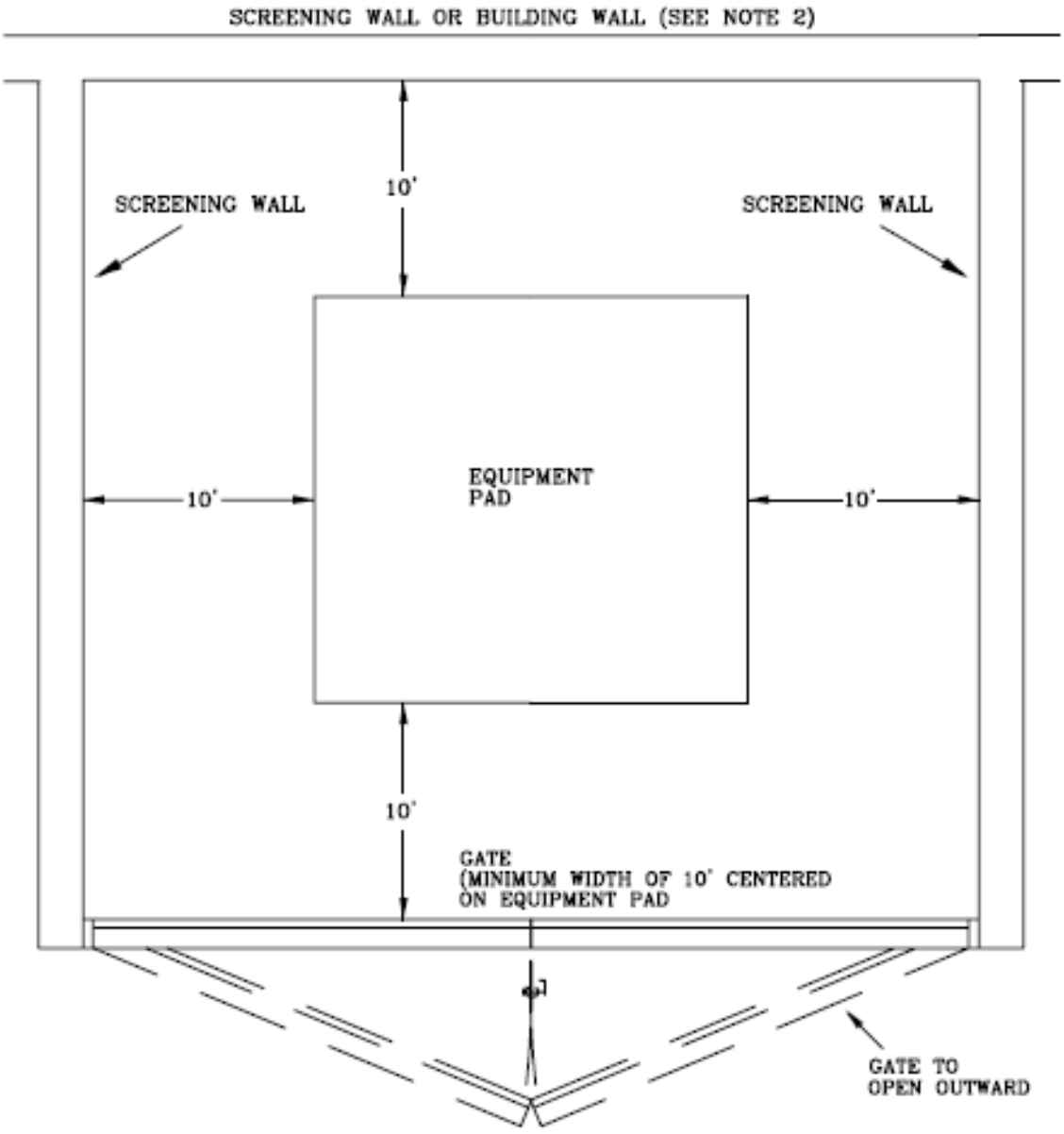
TEXAS NEW MEXICO POWER COMPANY
DISTRIBUTION CONSTRUCTION STANDARD

APP._____

DATE: 6/97

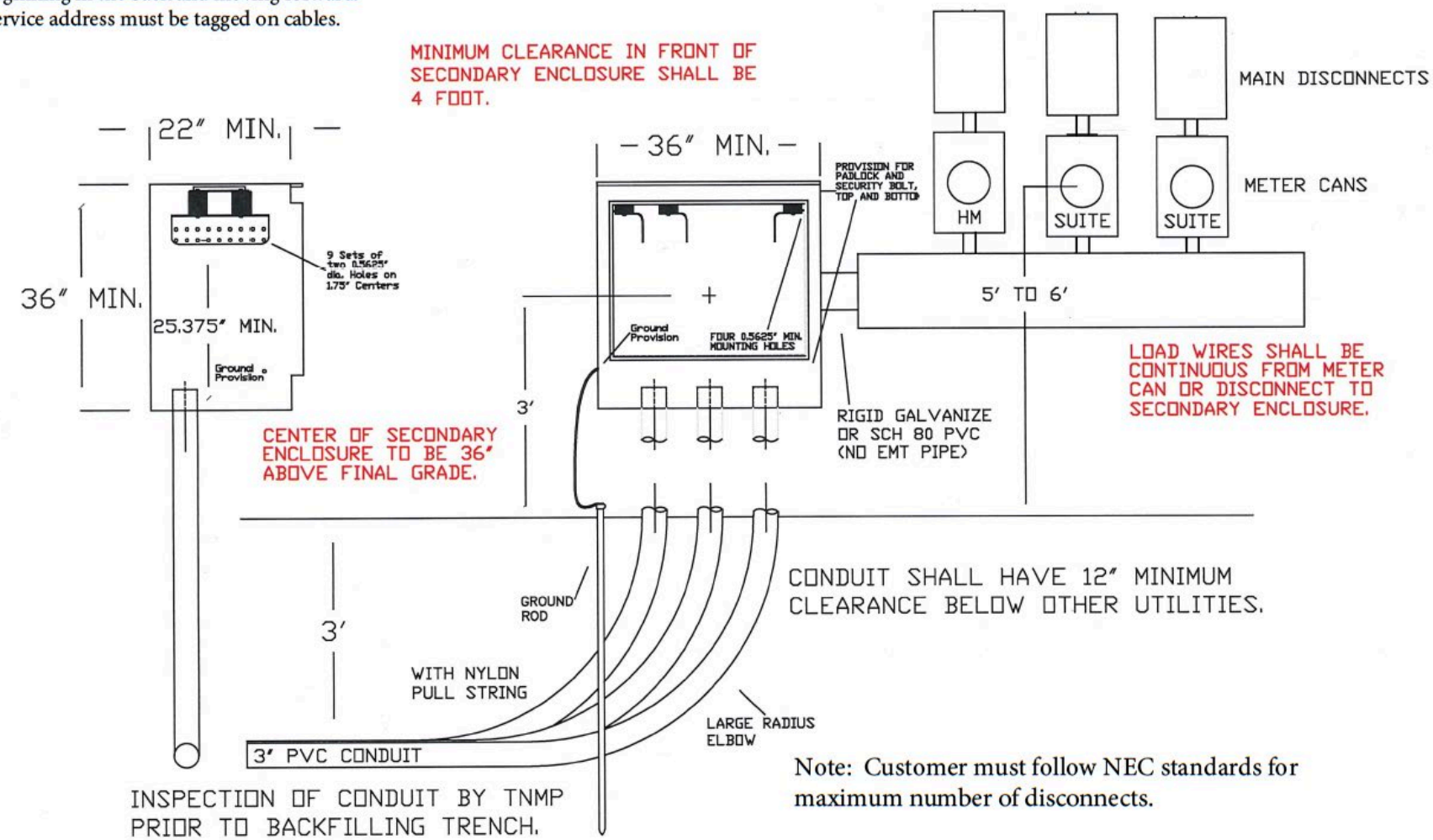
GUARD POST INSTALLATION

UG-5-15


SCREENING WALL OR BUILDING WALL (SEE NOTE 2)
SCREENING WALL
10'
SCREENING WALL
EQUIPMENT
PAD
10'
10'
10'
GATE
(MINIMUM WIDTH OF 10' CENTERED
ON EQUIPMENT PAD
GATE TO
OPEN OUTWARD

Note: TNMP will be in connected in the very back of the secondary enclosure. Each new service will be connected in the next available position beginning in the back and moving forward. Service address must be tagged on cables.

911 ADDRESS SHALL BE A MINIMUM 3" LETTERING MARKED ON METER CAN, POLE, OR DURABLE BLACK MATERIAL ATTACHED TO POLE AND SHOULD BE VISIBLE FROM STREET.

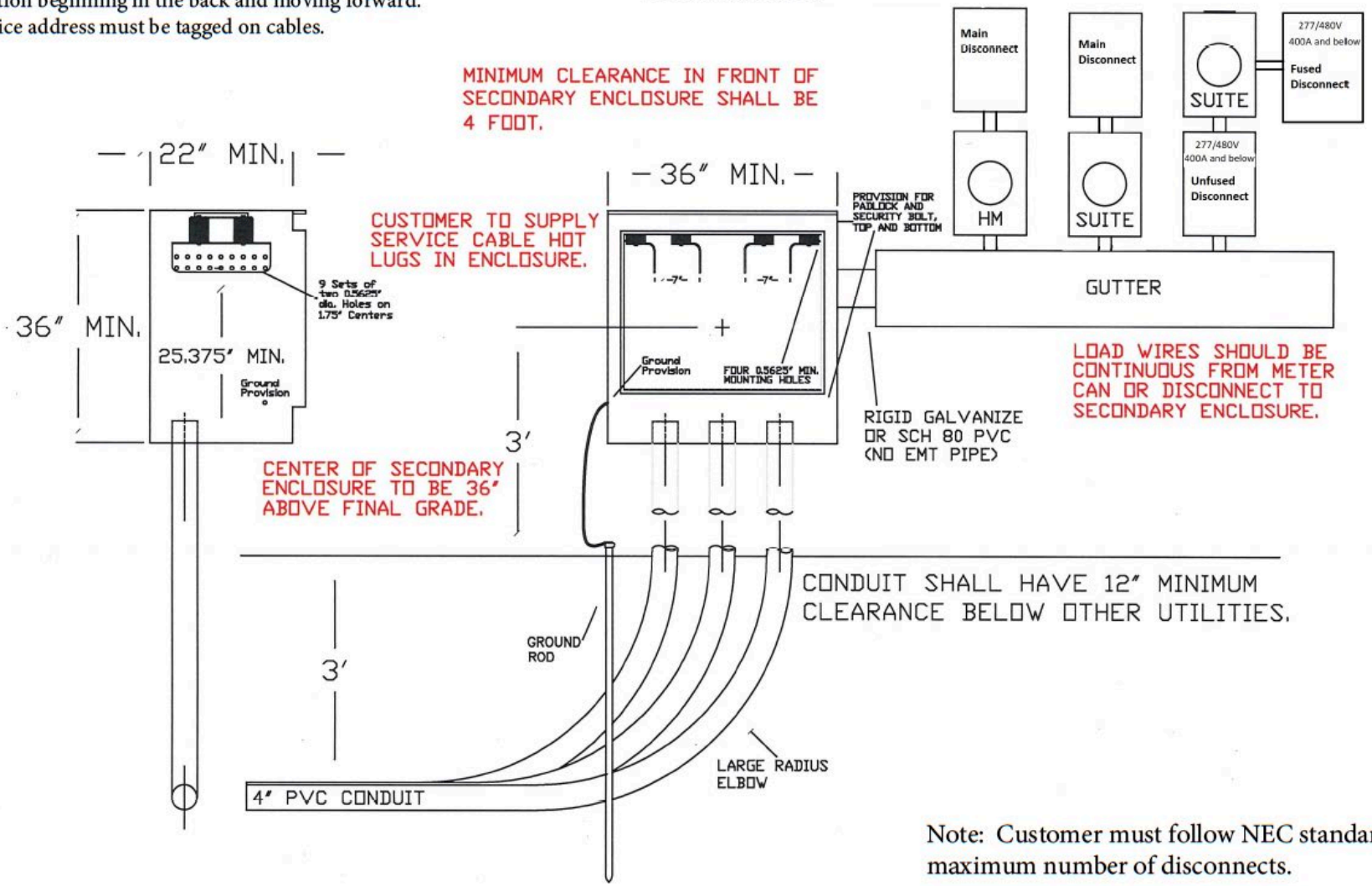


Note: Customer must follow NEC standards for maximum number of disconnects.

TNMP Texas-New Mexico Power	SINGLE-PHASE SECONDARY ENCLOSURE FOR UNDERGROUND SERVICE ENTRANCE	Dwn. SJB Ckd. XXX Date 07-12-16 Scale NTS DWG. NO. XXXX-X-XXXX

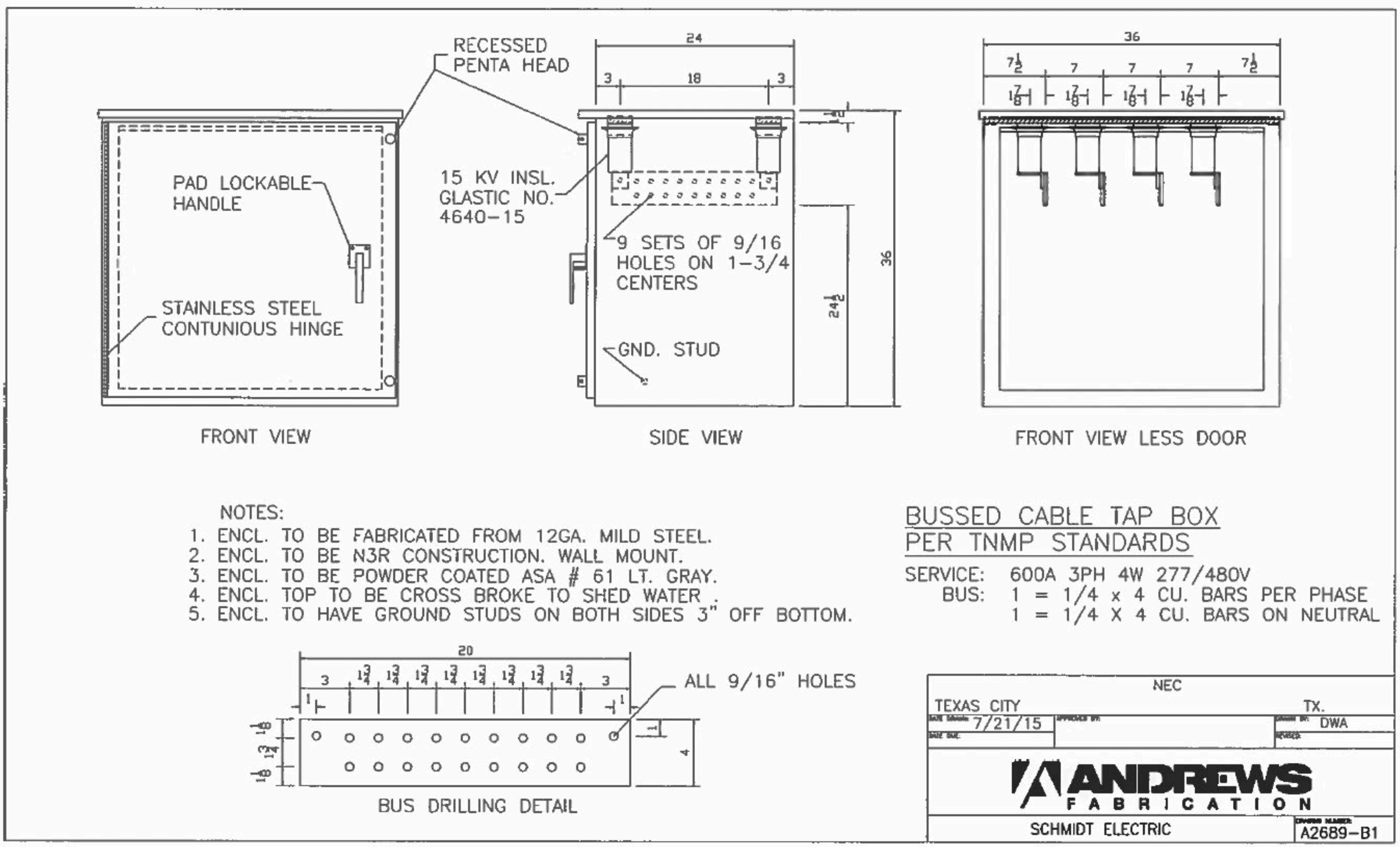
Note: TNMP will be in connected in the very back of the secondary enclosure.
Each new service will be connected in the next available position beginning in the back and moving forward.
Service address must be tagged on cables.

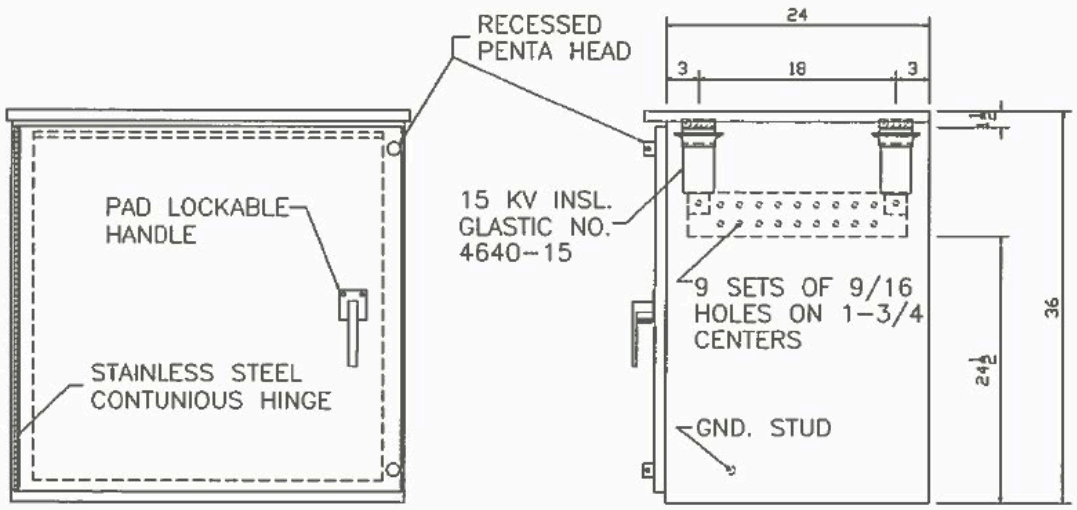
911 ADDRESS SHALL BE A MINIMUM 3" LETTERING MARKED ON METER CAN, POLE, OR DURABLE BLACK MATERIAL ATTACHED TO POLE AND SHOULD BE VISIBLE FROM STREET.

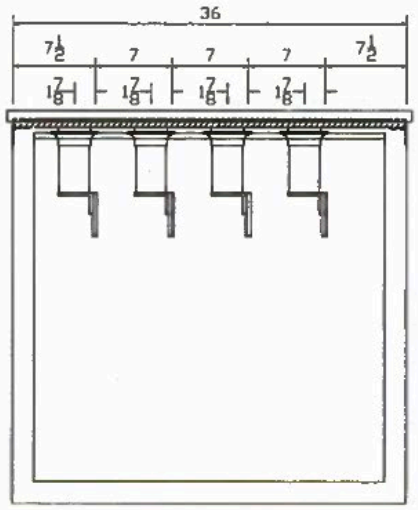


Note: Customer must follow NEC standards for maximum number of disconnects.

TNMP Texas-New Mexico Power	THREE-PHASE SECONDARY ENCLOSURE FOR UNDERGROUND SERVICE ENTRANCE	Dwn. SJB Ckd. XXX Date XX-XX-XX Scale NTS DWG. NO. XXXX-X-XXXX


RECESSED PENTA HEAD
PAD LOCKABLE HANDLE
STAINLESS STEEL CONTUNIOUS HINGE
FRONT VIEW
15 KV INSL. GLASTIC NO. 4640-15
9 SETS OF 9/16 HOLES ON 1-3/4 CENTERS
GND. STUD
SIDE VIEW
FRONT VIEW LESS DOOR
NOTES:
1. ENCL. TO BE FABRICATED FROM 12GA. MILD STEEL.
2. ENCL. TO BE N3R CONSTRUCTION. WALL MOUNT.
3. ENCL. TO BE POWDER COATED ASA # 61 LT. GRAY.
4. ENCL. TOP TO BE CROSS BROKE TO SHED WATER .
5. ENCL. TO HAVE GROUND STUDS ON BOTH SIDES 3" OFF BOTTOM.
BUSSED CABLE TAP BOX
PER TNMP STANDARDS
SERVICE: 600A 3PH 4W 277/480V
BUS: 1 = 1/4 x 4 CU. BARS PER PHASE
1 = 1/4 X 4 CU. BARS ON NEUTRAL
ALL 9/16" HOLES
BUS DRILLING DETAIL
NEC
TEXAS CITY
TX.
7/21/15
DWA
ANDREWS
FABRICATION
SCHMIDT ELECTRIC
A2689-B1





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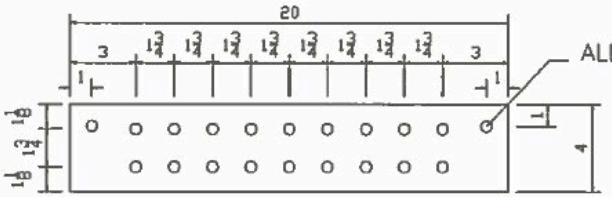
3. ENCL. TO BE POWDER COATED ASA # 61 LT. GRAY.
4. ENCL. TOP TO BE CROSS BROKE TO SHED WATER .
5. ENCL. TO HAVE GROUND STUDS ON BOTH SIDES 3" OFF BOTTOM.



BUS DRILLING DETAIL

BUSSED CABLE TAP BOX PER TNMP STANDARDS

SERVICE: 1200A 3PH 4W 277/480V
BUS: 1 = 5/16 x 4 CU. BARS PER PHASE
1 = 5/16 X 4 CU. BARS ON NEUTRAL

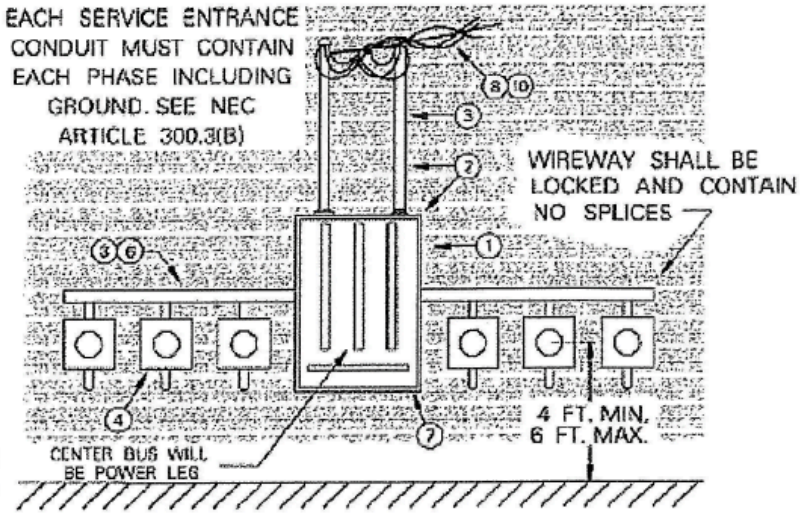
BUSHI BAN
LEAGUE CITY 2450 FM 2094 TX. 77573
4/13/15 DWA

ANDREWS FABRICATION

BLANCO ELECTRIC A2521-B1

OVERHEAD SERVICE TO TWO OR MORE SECONDARY SERVICE METERS

NOTES:



1. **A service enclosure installed by Customer on outside wall of building, is required for Secondary Service installations through 1500 amperes with two or more meter sockets. Contact Company for determination of service enclosure requirements.**
2. **Service head, service raceway and main service entrance conductors provided, installed and maintained by Customer. Line side conductors from weatherheads are to contact the center of bus bars. Load conductors to meter sockets to be connected equally on both ends of bus bars to obtain full current ratings.**
3. **Conductors and raceways provided, installed, and maintained by Customer.**
4. **Meter sockets shall be provided, installed and maintained by Customer.**
5. **For use of service voltages through 480 volts.**
6. **Service entrance conductors to be continuous form meter sockets to service enclosure**
7. **Customer provides all connectors and makes all connections in the enclosure. Approved connectors, plated 3/8" minimum diameter bolts, Belleville washers, and oxide inhibitor are required for connections to plated aluminum bus.**
8. **Service drop clearances must meet TNMP and NESC specifications.**
9. **Service switches, when installed near the service enclosure, should not interfere with service to an occupancy.**
10. **Service entrance conductors to extend from weatherhead to service landing, but in no case less than 24" minimum. Service Head(s) shall be located within 2' of service landing attachment. No more than three service mast allowed without prior Company approval.**
11. **Customer installs service drop attachment of adequate strength for Company's service drop conductors.**
12. **Insulated conduit bushings are required for raceways terminating in the meter base.**
13. **The use of flexible metallic conduit for service entrance raceway is prohibited.**
14. **Each socket must be clearly and permanently marked to indicate each apartment or location being served.**
15. **The use of Schedule 80 PVC for service mast not supporting service drop is allowed unless prohibited by the local inspecting authority.**