

# RENSSELAER MUNICIPAL ELECTRIC UTILITY

## ELECTRIC SERVICE SPECIFICATIONS

(The specifications contained herein are recommendations of the Rensselaer Electric Utility. All new services will be subject to inspection per NEC guidelines)

RENSELAER ELECTRIC MUNICIPAL UTILITY  
INSTALLATION REQUIREMENTS FOR SERVICES

1. When a meter socket is installed it will require (2) ground rods run in parallel.
2. Meter seals or service drops will not be cut by the electrician or homeowner.
3. Only copper conductor will be installed by the electrician or homeowner for overhead services.
4. All meter bases will be installed at eye level.
5. All meter bases will be mounted outside unless there is the danger of damage from vehicles.
6. The riser pipe will not be smaller than 1 1/2" for 100 amp services; 2" for 200 amp services.
7. Reducers will not be used at service entrance.
8. All meter will be inspected by an Electric Department employee (normally from the meter department).
9. Any licensed electrician can have license revoked for violations:
  - I<sup>st</sup> offense: Verbal warning
  - 2<sup>nd</sup> offense: Written notice
  - 3<sup>rd</sup> offense: Revoke license - renewal after 1 yearThis will be enforced for the Electric Superintendent.
10. Meter seals may be cut by emergency personnel (Fire Dept)
11. All service masts that extend through the roof will be no less than 24" to the top of the weatherhead. so that the conductor is no less than 18" above the roof. The service mast will be rigid metal conduit.
12. If service mast is located under the roof edge it can be PVC Schedule 40, PVC Schedule 80 or rigid metal pipe No 1MT or EMT.
13. All underground conductors will be in conduit from pole to service. Conduit will be rigid metal, PVC Schedule 40, or PVC Schedule 80 - No IMT or EMT.

200 Amp Service --- 2 1/2" or 3" conduit

400 Amp Service --- 3" conduit

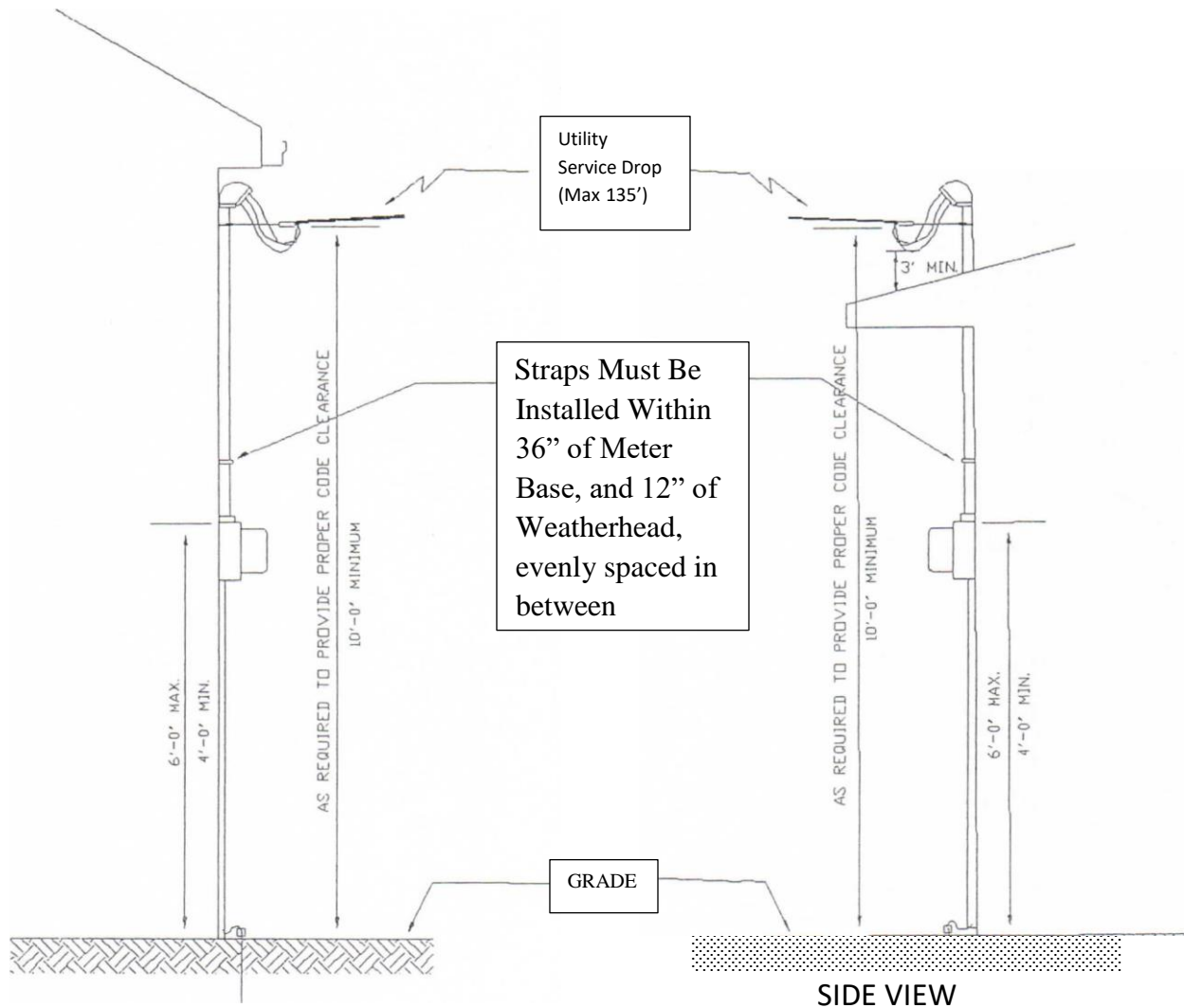
Installation of the conduit is the responsibility of the electrician or homeowner. The electrician or homeowner must also supply sufficient conduit to reach secondary on pole, appropriate size weatherhead, and (5) pipe straps.

14. All meters will have a service disconnect if the wire length is more than 10 feet from the meter base to load panel. This disconnect is to be furnished by the electrician or customer.
15. All services will comply to the latest National Electric Code (NEC).
16. No service will be turned on unless it has been inspected by the Electric Utility..
17. The meter is the responsibility of the Electric Utility to maintain. It is the responsibility of the homeowner or electrician to install all new components of a new installation. If an old meter base is not repairable it is the homeowner's responsibility to replace the meter base.
18. A service may be disconnected if it is determined to be unsafe.
19. No tools will be loaned to city contractors.

METERS - LOCATION  
FOR SERVICES RATED 600 VOLTS or LESS

1. Meters, six (6) or less, installed outdoors should generally be located directly below the point of attachment of the overhead service drop or directly above the underground service lateral. Meters should be located in an area where the meter will not be damaged and which will remain free of obstructions and permit convenient accessibility for meter reading and testing.
2. A single meter position, or a multiple meter position mounted in a horizontal row, the meter socket shall be mounted at a height such that the top of the meter socket will be five feet six inches (5' 6") above the permanent ground level, floor, or suitable platform, on which the meter reader will stand when reading the meters. When multiple meter positions are to be mounted in a vertical row, the meter sockets shall be mounted at a height such that the top of the highest meter socket or the top of the lowest meter will not exceed 79 inches or be less than 39 inches respectively above the permanent platform.
3. The meter socket or meter mounting board shall be plumb, level, and securely level.
4. Electric meters shall be located not less than one (1) foot from any gas meter.
5. A building or other structure served shall be supplied by only one service.
6. Conductors other than the service conductors (excluding ground conductors) shall not be installed in the same service raceway.
7. In no case shall the point of attachment of the service drop conductors to a building or other structure be less than ten feet (10'0") above the finished grade.
8. Service entrance conductors shall not be spliced.
9. Service heads shall be located above the point of attachment of the service drop conductors to the building or structure.
10. The service disconnecting means shall be installed at a readily accessible location either outside of a building or structure, or inside nearest the point of entrance of the service conductors.
11. All services shall comply with the current edition of the National Electric Code Article 230 - Services.
12. Meters shall be installed outdoors on the outside wall of the building or structure being served.

Rensselaer Electric Dept.  
Overhead Service Riser  
Single Phase 3 Wire 120 / 240 Volts  
100, 200, 320 Ampere Services



**NOTES:**

1. LEAVE 24" LEADS FOR FINAL CONNECTION BY UTILITY
2. ALL RISERS SHALL HAVE A WEATHCRHEAD.
3. SERVICE CONDUCTORS SHALL BE INSTALLED IN RIGID CONDUIT.
4. METER BASE FINISHED BY AND INSTALLED BY CONTRACTOR OR HOMEOWNER, MUST BE 200 AMP
5. GROUNDING CONDUCTOR IS TO BE CONDUIT AND MUST BE BONDED TO GROUND ROD.
6. GROUND ROD REQUIRED - MIN 5/8" DIAMETER, COPPER CLAD, 8' LENGTH  
2 ground rods required install 6 ft apart



OVERHEAD SERVICE  
INSTALLATION  
DRAWING

OVERHEAD SERVICE ENTRANCE  
 SINGLE PHASE, 3 WIRE, 120/240 V  
 100 , 200, 320 AMPERE SERVICES

**Rensselaer Electric Utility will:**

1. Will furnish & install the necessary service wires from the nearest distribution facility to the point of attachment on customer's structure or metering point in one direct span not to exceed 100 feet. Any additional poles or span of service wire needed shall be paid for by the customer prior to installation.

**Customer/ Electrician will:**

1. Install the meter base, riser, weatherhead, service conductors, grounding conductors, and two (2) ground rods.
2. Provide suitable facilities for mounting the attachment brackets in the case of buildings having other than wood exteriors (tile, stucco, concrete, asbestos shingles, brick or stone veneer, vinyl, aluminum, etc. the customer/electrician shall provide mounting bracket).
3. Meter base and service disconnecting equipment to be bonded.
4. Grounding electrode conductor shall be of solid copper with no splices.
5. Grounding shall conform to the current National Electric Code (NEC).  
 (Note: Rensselaer Electric Utility requires 2 ground rods installed 6 feet apart)
6. The conductors in the entrance run shall extend at least two (2) feet beyond the upper and outer end of the raintight service head
7. The service disconnecting means shall be installed at a readily accessible location nearest the point of entrance of the service entrance conductors.
8. Service entrance cable (SE) shall not be used between the rain tight service head and meter base or the meter base and service disconnecting means.
9. Service entrance conductors shall be copper only.

<u>Service Size</u>	<u>Conduit Service Mast Entrance Run</u>	<u>Conductors Service Entrance (3) Wire Copper</u>	<u>Grounding (copper,)</u>
100	1 ½ “	#2 THW OR #3 THW (#2 preferred)	#6
200	2 or 2 ½”	4/0 AWG Type TW 3/0 AWG Type RH, THW	#4
320	2 ½”	350 MCM Type REI, THW	#2

## SERVICE- OVERHEAD ATTACHMENT

USE: Requirements for overhead attachments at the customer's premises.

### Service Drop or Rack

The contractor or customer will furnish and install a service bracket or rack on all buildings. The contractor or customer shall install and provide a safe and adequate anchorage for the service drop attachment.

### Service Drop Clearance

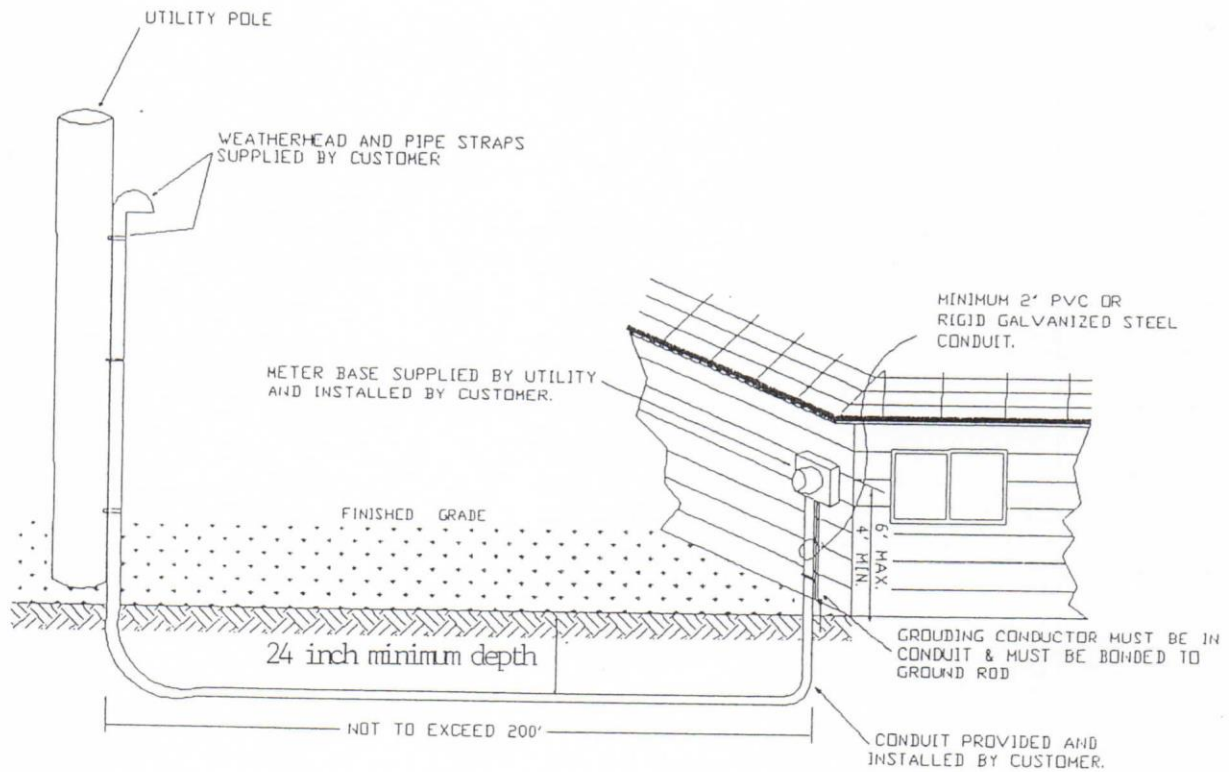
The service drop bracket or rack shall be so placed as to maintain a clearance of at least twelve (12) inches between the service drop conductors and any existing CATV, telephone, signal wires, or cables, and three (3) feet from building fixtures, and so forth. Service drop conductors shall not be readily accessible.

The service drop conductors must clear ground, sidewalks, and all platforms or projections from which they may be reached, by at least ten (10) feet. Residential driveways and property and commercial areas not subject to truck traffic by at least fifteen (15) feet; and driveways on other than residential property, alleys and public roads, by at least eighteen (18) feet. They must also have a clearance of at least eight (8) feet from the highest point of roofs over which they may pass, except where the voltage between the conductors does not exceed 300 volts and the roof cannot be readily walked upon, the clearance may not be less than three (3) feet.

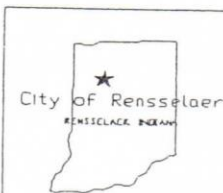
### Service Mast

If due to wall height or the position of eaves the service bracket or rack cannot be mounted on the wall at sufficient height to provide the service drop conductor clearances stated above, then a suitable support for the service drop conductors of ample strength to hold the strain of the electric utility's wires shall be provided by the customer. A service mast or service entrance riser should be used for this purpose. The mast or riser shall consist of an Underwriter's approved galvanized steel assembly or may be field constructed with rigid galvanized steel conduit and other approved materials and fittings. The mast or riser will constitute the entrance run and a rain tight service head must be used at the top.

Rensselaer Municipal Electric Dept.  
 Underground Service  
 1-Phase  $\leq$  400 Amps  
 3-Phase  $\leq$  200 Amps



- 1. GROUND ROD REQUIRED - MIN. 5/8" DIAMETER, 8' LENGTH, COPPER CLAD
- 2 ground rods required - installed 6 feet apart



Underground Service  
 Installation Drawing

TWR DRAWN BY	2/18/92 DATE	UGSEV.DWG ACAD NAME
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UNDERGROUND SERVICE RESPONSIBILITIES  
Single Phase Services < 400 amps - Residential Three Phase  
Services 200 amps - Residential

A. Rensselaer Municipal Electric Utility will:

1. Supply and pull secondary conductors from transformer to line side of meter base if the appropriate conduit sizes are used. If not, the contractor will be required to pull the wire or replace the conduit.
2. Make all the secondary connections on the line side of the meter base.
3. Supply underground marking tape if necessary.

B. Customer or Electrical Contractor Will:

1. Provide / Install 200 AMP meter base UL Certified
2. Provide all trenching and backfilling necessary (minimum of 24 inches deep)
3. Run conduit from meter base to the pole, secondary splice box or padmount transformer (no water pipe or reducers). Conduit runs shall not exceed 200 feet.
  - a) 200 amp services                      2 1/2" PVC or rigid galvanized steel conduit
  - b) 400 amp services                      3" PVC or rigid galvanized steel conduit
4. Supply the utility with the sufficient conduit to reach secondary on pole (approx 20 ft), appropriate size weatherhead, and at least 3 pipe straps.
5. Customer shall not build any structures or fencing over the conduits.
6. On a gang meter base disconnect, switches must be located after each meter base position.
7. On gang or multiple meter bases, all bases must be labeled as to which apartments they service.
8. All wiring and grounding shall be done according to the NEC.
9. All commercial wiring must be done by a City Licensed Electrician.
10. The Electric Utility will not be responsible nor will they repair or replace disconnects in gang meter bases.
11. Each apartment complex will be responsible to place seals on gang base disconnects. Outage calls for tripped disconnects on gang base meters could result in charges from the Electric Utility if a seal has not been placed on the disconnect.

UNDERGROUND SERVICE RESPONSIBILITIES  
Single Phase Services 400 amps - Commercial / Industrial

Three Phase Services 200 amps - Commercial / Industrial

A. The Rensselaer Electric Utility will:

1. Install the primary riser on the Electric Utility's pole.
2. Furnish and install all primary service cables from the riser pole to the padmount transformer.
3. Make all **primary** connections in the padmount transformer
4. Furnish metering transformers and "CT" cabinet, if necessary.

B. The Electric Contractor will:

1. Furnish Transformer.
2. Provide all trenching and backfilling for the new underground primary and secondary conduits. Trenching depth on primary shall be 36 inches.
3. Furnish padmount transformer pad per Rensselaer specifications fiberglass (transformer and metering to be located next to the building).
4. Furnish and install the incoming secondary conduits and conductors in concrete envelope from the padmount transformer to the new main switchboard.

Secondaries must be marked as follows: A $\emptyset$  = Red          B $\emptyset$  = Yellow  
C $\emptyset$  = Blue      Neutral = White

5. Provide 4-inch conduit for all 3 phase and 2 ½ inch conduit for all single phase primary.
6. Provide steel 90<sup>0</sup> and 45<sup>0</sup> elbows for any pull over 100 feet.
7. Make connections of secondary conductors to new main switchboard and padmount transformer secondary spades.
8. Furnish and install 1" rigid steel conduit from the secondary compartment of the padmount to the wall mounted meter base.

9. Install meter base and "CT" cabinet (if necessary) as per utility specification at the location determined by the utility.
10. Provide the connectors necessary for terminating the secondaries on the transformer and do terminations.
11. Provide property easements and documentation necessary for utility lines and underground cables at this location.
12. Provide utility with written information for the following:
  - a. Service size and voltage requirements
  - b. Expected starting and completion dates
  - c. Easements
  - d. Transformer and metering placement (both required to be located up by building)
  - e. Any special requirements
13. Provide all grounding to service disconnect as per NEC. Ground wire must be in rigid steel conduit.