

## Metering Specifications (Attachement A)

THE FOLLOWING INFORMATION IS PROVIDED TO BETTER SERVE THE CUSTOMERS OF THE CITY OF CONCORD ELECTRIC SYSTEMS, AND TO ASSIST CONTRACTORS DURING INSTALLATION OF ELECTRIC METER ENCLOSURES.

THE CITY OF CONCORD WILL PROVIDE ALL ELECTRIC METER ENCLOSURES, AND CT CABINETS FOR SERVICES UP TO 400 AMPS. METERING APPLICATIONS GREATER THAN 400 AMPS WILL BE COORDINATED THRU ELECTRIC METERING SYSTEMS AT (704)920-5316/5317 OR (704-920-5555).

THE EQUIPMENT FURNISHED BY THE CITY WILL REMAIN THE PROPERTY OF THE CITY OF CONCORD.

ALL ELECTRICAL SERVICES RATED FOR 200 AMPS OR LESS WILL BE METERED WITH SELF CONTAINED ELECTRIC WATTHOUR METERS.

ELECTRICAL SERVICES RATED IN EXCESS OF 200 AMPS, AND/OR THOSE SERVICES WITH VOLTAGES IN EXCESS OF 240 VOLTS WILL BE METERED USING INSTRUMENT TRANSFORMERS (PROVIDED AND INSTALLED BY CITY)

ANY DEVIATIONS OR EXCLUSIONS FROM THESE METERING SPECIFICATIONS REQUIRE PRIOR APPROVAL.

THE FOLLOWING IS AVAILABLE FOR INSTALLATION FOR CUSTOMERS OF ELECTRICAL SERVICE FROM THE CITY OF CONCORD

### METER ENCLOSURES:

ALL METER ENCLOSURES ARE AND REMAIN THE PROPERTY OF THE CITY OF CONCORD.

ALL METER ENCLOSURES MUST BE PROPERLY MOUNTED AND WHEN REQUIRED MARKED PRIOR TO SERVICE BEING RUN.

- 150 AMP SINGLEPHASE OVERHEAD
- 200 AMP SINGLEPHASE OVERHEAD
- 200 AMP SINGLEPHASE UNDERGROUND
- 200 AMP POLYPHASE (3 PHASE) OVERHEAD
- 200 AMP POLYPHASE UNDERGROUND
- 200 AMP 2 GANG SINGLEPHASE OVERHEAD/UNDERGROUND
- 200 AMP 3 GANG SINGLEPHASE OVERHEAD/UNDERGROUND
- 200 AMP 4 GANG SINGLEPHASE OVERHEAD/UNDERGROUND
- 200 AMP 5 GANG SINGLEPHASE OVERHEAD/UNDERGROUND
- 200 AMP 6 GANG SINGLEPHASE OVERHEAD/UNDERGROUND
- 20 AMP 13 TERMINAL INSTRUMENT RATED (INSTALLED BY CITY)
- 20 AMP 8 TERMINAL INSTRUMENT RATED (INSTALLED BY CITY)
- 200 AMP MOBILE HOME PEDESTAL (UNDERGROUND) (INSTALLED BY THE CITY OF CONCORD ELECTRIC SYSTEMS AT THE CURRENT ESTABLISHED COST)

ALL METER ENCLOSURES SHALL BE 4 TO 5 FEET HIGH WHEN MEASURED FROM FINAL GRADE TO CENTERLINE OF METER ENCLOSURE. (SEE ATTACHED DRAWINGS)

***Customer Service Policies and Procedures  
City of Concord***

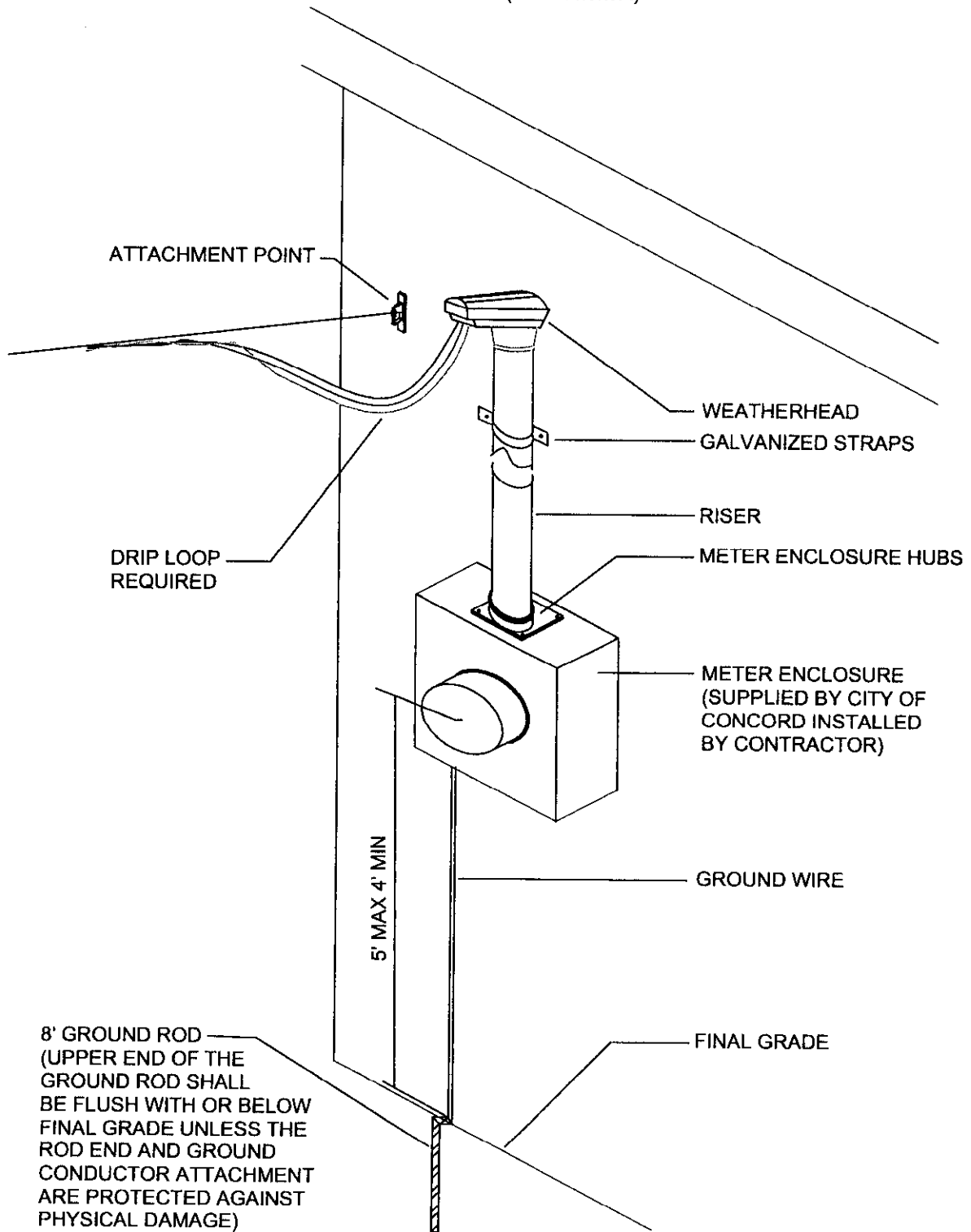
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MULTIPLE GANG (2-6 GANG) METER ENCLOSURES AND ENCLOSURES GROUPED TOGETHER, SHALL BE IDENTIFIABLY MARKED WITH THE ADDRESS TO WHICH THE SERVICE CONNECTS, PRIOR TO METERS BEING SET AND ELECTRICAL SERVICE CUT IN.

DOUBLE WIDE AND MODULAR HOMES SET UP ON THE CUSTOMERS' PROPERTY MAY HAVE METER ENCLOSURE MOUNTED ON THE SIDE OF THE HOME.

**ANY DEVIATIONS OR EXCLUSIONS FROM THESE METERING POLICIES REQUIRE PRIOR APPROVAL.**

Typical Permanent Overhead Residential Service (Attachment A)



## CT Cabinets

**ALL CT CABINETS ARE AND REMAIN THE PROPERTY OF THE CITY OF CONCORD**

24" X 24" X 8" ENCLOSURE.

TO BE USED FOR INSTRUMENT TRANSFORMER METERING AND TERMINATION OF 120/240 VOLT AND 120/208 VOLT SERVICES IN EXCESS OF 200 AMPS.

36" X 36" X 12" ENCLOSURE.

TO BE USED FOR INSTRUMENT TRANSFORMER METERING AND TERMINATION OF 277/480 VOLT SERVICES.

ALL CT CABINETS SHALL BE 36 INCHES HIGH WHEN MEASURED FROM FINAL GRADE TO THE **BOTTOM** OF CT CABINET.

NO CUSTOMER OWNED EQUIPMENT SHALL BE MOUNTED WITHIN 16" EITHER SIDE OF CT CABINET, SUCH AS BREAKER PANEL, MAIN DISCONNECT, ETC.

**(THIS AREA FOR CITY USE)(ANY EQUIPMENT MOUNTED IN THIS WILL BE REMOVED PRIOR TO SERVICE BEING RUN).**

THE CITY WILL INSTALL MAIN FEEDER CONDUIT RISER TO THE CENTER OF THE CT CABINET, (BOTTOM FOR UNDERGROUND FEED, OR TOP FOR OVERHEAD FEED.)

THE CONTRACTOR WILL PROVIDE AND INSTALL OVERHEAD MAIN FEEDER CONDUIT RISER TO THE CENTER TOP OF CT CABINET.

BONDING LUGS PROVIDED BY CONTRACTOR SHALL BE PLACED INSIDE CT CABINET SO AS NOT TO INTERFERE WITH A 4 INCH CONDUIT RISER MOUNTED IN THE CENTER OF CT CABINET. (SEE DRAWING ON PAGE 5-37A)

A LENGTH OF FREE CONDUCTORS OF:

36 INCHES LONG (FOR 24" X 24" X 8" CT CABINET)

48 INCHES LONG (FOR 36" X 36" X 12" CT CABINET)

WILL BE LEFT IN CT CABINET FOR TERMINATION AND MAKEUP.

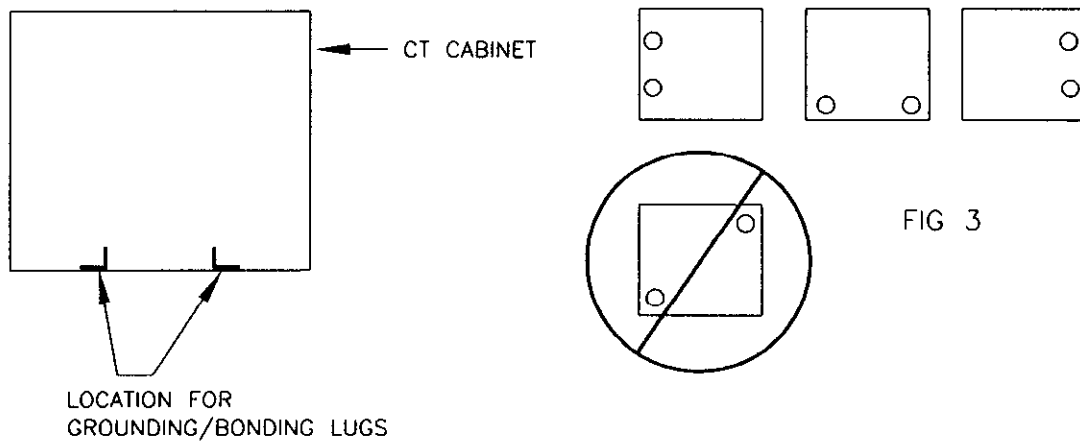
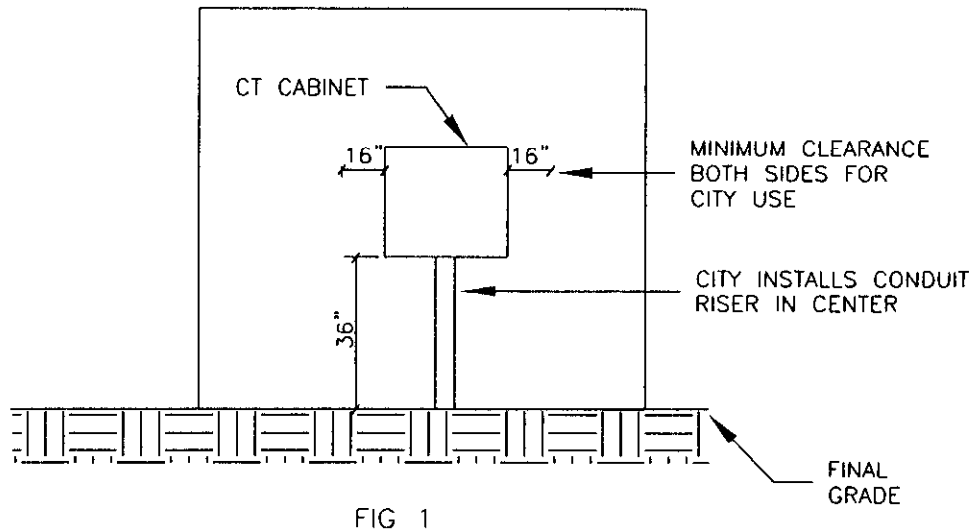
IF UNUSUAL CIRCUMSTANCES OCCUR THAT MAY REQUIRE DEVIATIONS FROM THESE METERING SPECIFICATIONS, CONTACT THE CITY OF CONCORD, ELECTRIC METERING SYSTEMS, (704)920-5316/5317 OR (704)920-5555.

**Customer Service Policies and Procedures**  
**City of Concord**

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CT CABINETS WILL BE ISSUED BY THE CITY OF CONCORD WAREHOUSE DEPARTMENT ONLY AS SPECIFIED ABOVE. **NO EXCEPTIONS** WILL BE MADE WITHOUT APPROVAL OF ELECTRIC METERING SYSTEMS (704)920-5316 OR (704)920-5317.

## CT Cabinet Installation (Attachment B)



CT CAN SHALL BE MOUNTED 36" ABOVE FINAL GRADE MEASURED FROM BOTTOM OF CABINET. SEE FIG 1

NO EQUIPMENT SHOULD BE MOUNTED WITHIN 16" EITHER SIDE OF CT CAN. (SEE FIG 1)

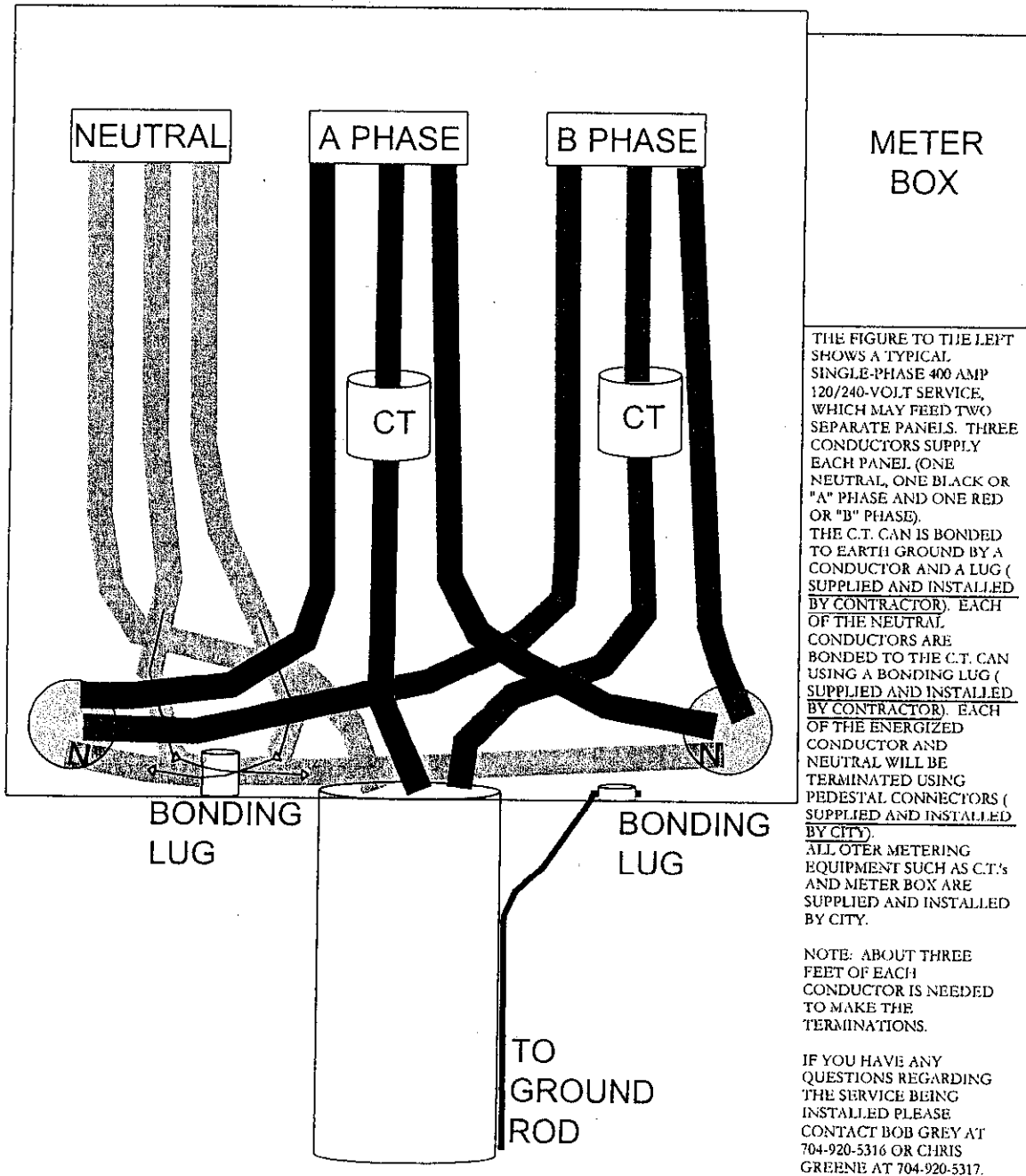
BONDING LUGS SHOULD BE MOUNTED INSIDE BOTTOM SO AS NOT TO INTERFERE WITH 4" CONDUIT RISER MOUNTED IN THE CENTER OF CT CABINET. (SEE FIG 2 AND PAGE 37A)

CUSTOMER LOAD SIDE CONDUCTORS SHOULD ENTER AS PICTURED IN FIG 3

ALL NEC REQUIRED BONDING WILL BE COMPLETED BY CONTRACTOR BEFORE SERVICE WILL BE ENERGIZED. SEE DRAWING PAGE 37A.

IF ANY UNUSUAL CIRCUMSTANCES EXIST PLEASE CONTACT ELECTRIC SYSTEMS CITY OF CONCORD (704)920-5316 OR (704)920-5317

## Typical CT Can Make-up

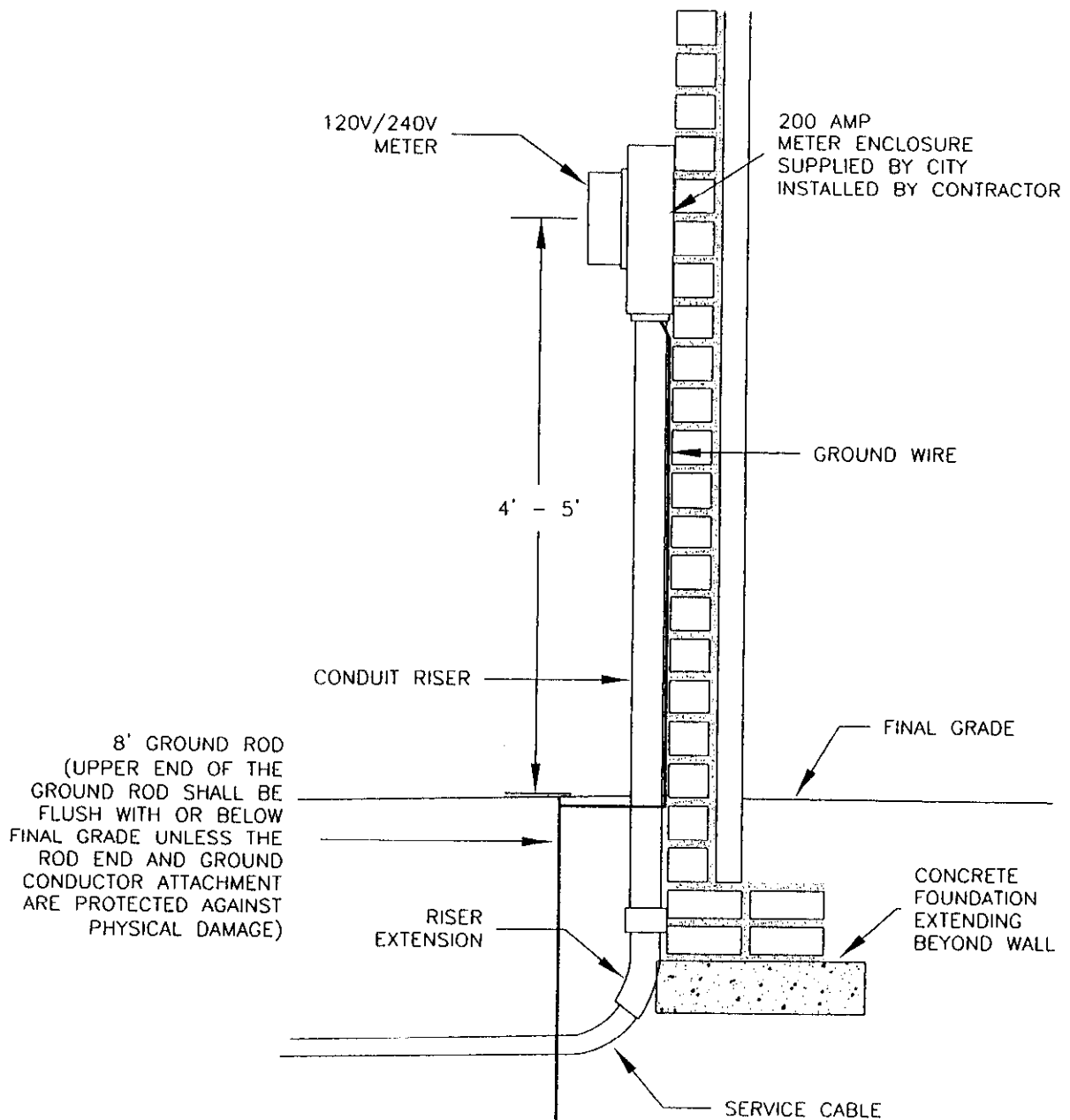


THE FIGURE TO THE LEFT SHOWS A TYPICAL SINGLE-PHASE 400 AMP 120/240-VOLT SERVICE, WHICH MAY FEED TWO SEPARATE PANELS. THREE CONDUCTORS SUPPLY EACH PANEL (ONE NEUTRAL, ONE BLACK OR "A" PHASE AND ONE RED OR "B" PHASE). THE C.T. CAN IS BONDED TO EARTH GROUND BY A CONDUCTOR AND A LUG (SUPPLIED AND INSTALLED BY CONTRACTOR). EACH OF THE NEUTRAL CONDUCTORS ARE BONDED TO THE C.T. CAN USING A BONDING LUG (SUPPLIED AND INSTALLED BY CONTRACTOR). EACH OF THE ENERGIZED CONDUCTOR AND NEUTRAL WILL BE TERMINATED USING PEDESTAL CONNECTORS (SUPPLIED AND INSTALLED BY CITY). ALL OTHER METERING EQUIPMENT SUCH AS C.T.'S AND METER BOX ARE SUPPLIED AND INSTALLED BY CITY.

NOTE: ABOUT THREE FEET OF EACH CONDUCTOR IS NEEDED TO MAKE THE TERMINATIONS.

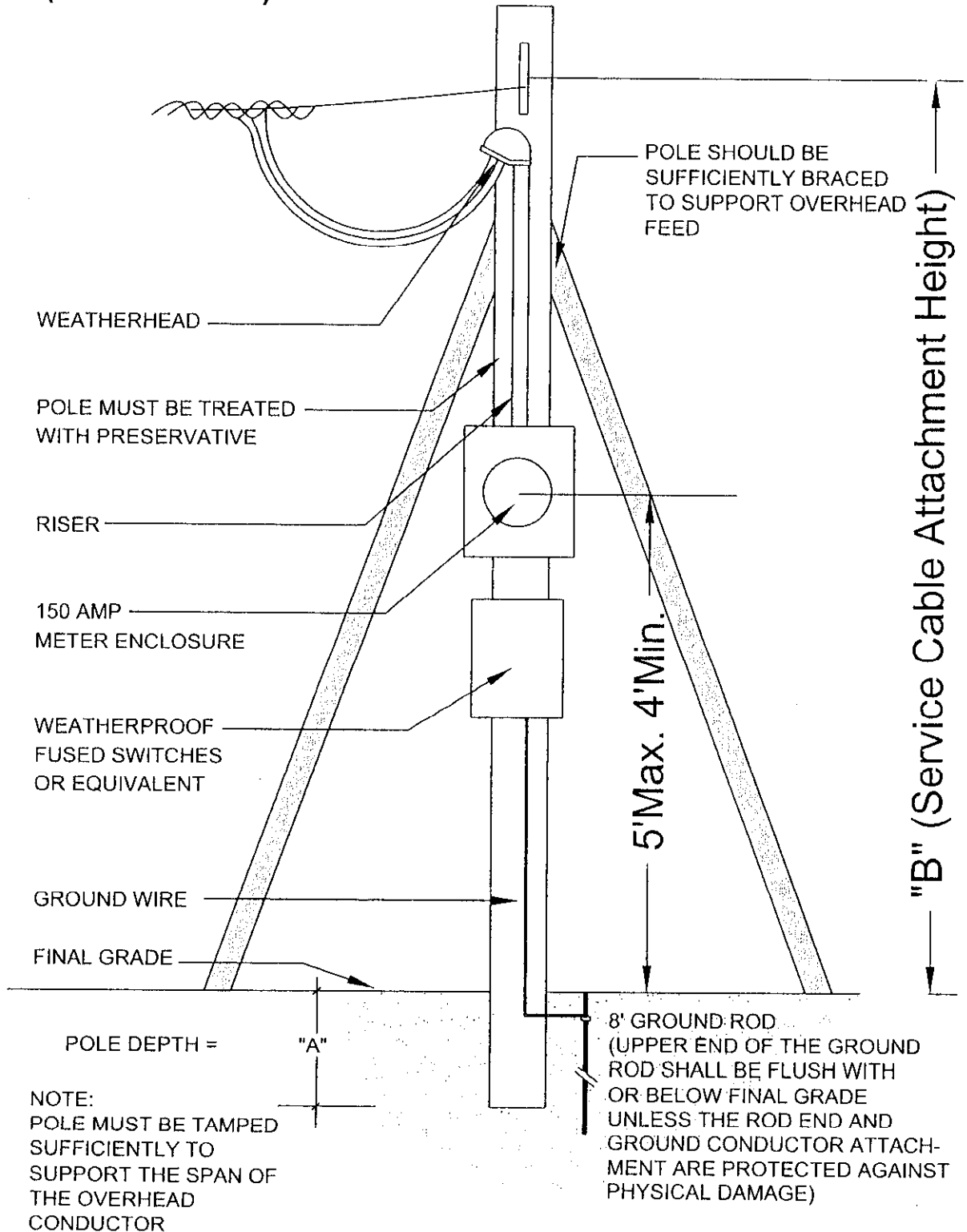
IF YOU HAVE ANY QUESTIONS REGARDING THE SERVICE BEING INSTALLED PLEASE CONTACT BOB GREY AT 704-920-5316 OR CHRIS GREENE AT 704-920-5317.

## Typical Permanent Underground Residential Service (Attachment C)

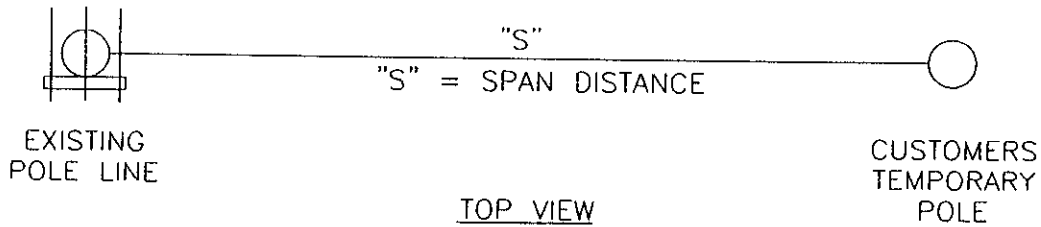




**Typical Temporary Overhead Residential Service  
(Attachment D)**



## Temporary Service (Attachment D)



**WARNING**  
POLE SHALL NOT BE ATTACHED TO TREES.

NOTES:

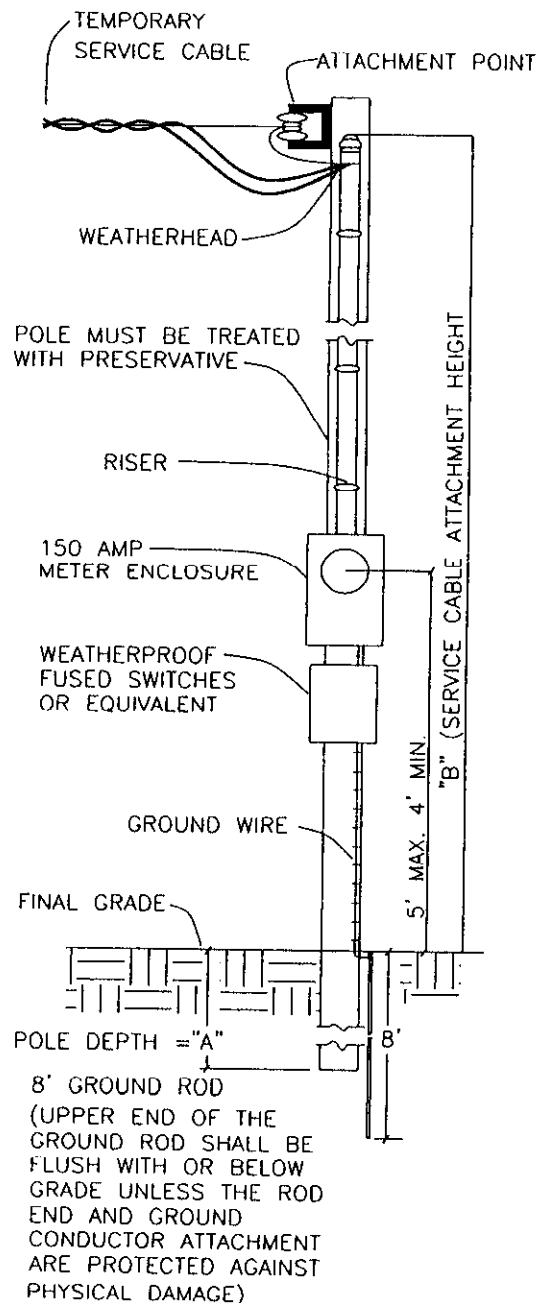
1. THESE DRAWINGS SHOW A TYPICAL INSTALLATION. ALL INSTALLATIONS SIMILAR OR DISSIMILAR TO THESE INSTALLATIONS MUST BE CHECKED FOR PROPER INSTALLATION BEFORE THE CABLE ATTACHMENT IS MADE.
2. THE DEPTH OF THE POLE SHALL BE VERIFIED.
3. THE POLE SHALL BE PROPERLY TAMPED.
4. THE "A", "B" AND "S" VALUES ARE LISTED ON PAGE OF NESC CLEARANCES (ATTACHED)
5. TEMPORARY SERVICES LARGER THAN 100 AMP, CONTACT ELECTRIC SYSTEMS FOR POLE SPECIFICATIONS.

CUSTOMER FURNISHES AND INSTALLS PER NEC (NATIONAL ELECTRIC CODE AND LOCAL ORDINANCES)

1. POLE
2. WEATHERPROOF FUSE OR BREAKER BOX
3. RISER AND WEATHERHEAD
4. GROUND ROD AND GROUND WIRE

CITY OF CONCORD FURNISHES AND INSTALLS

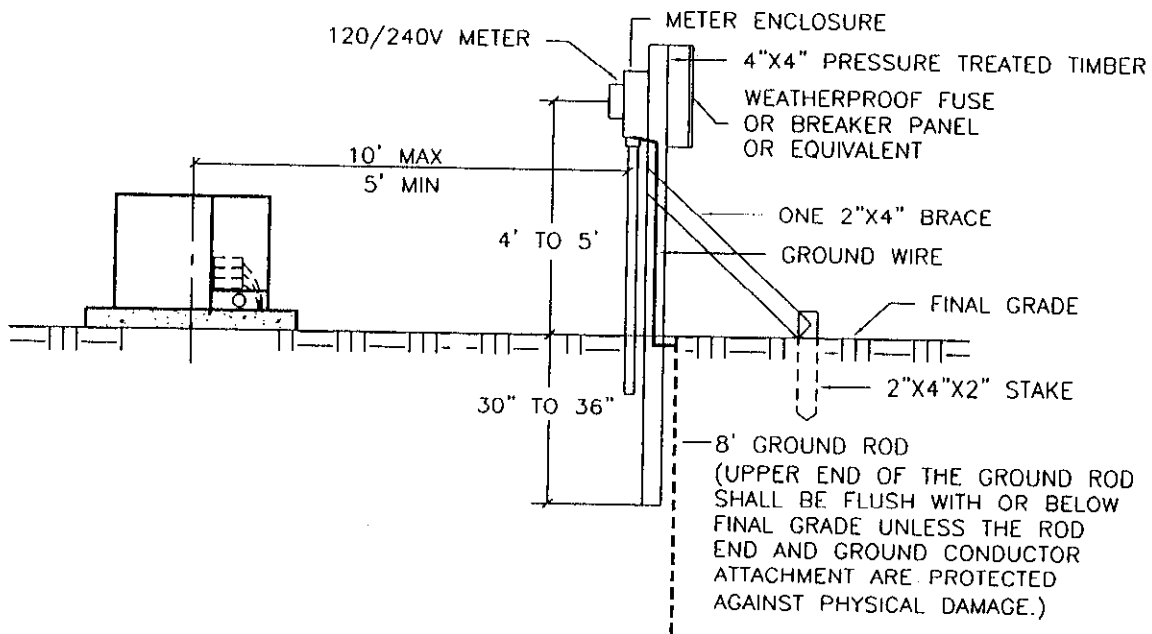
1. 120/240 VOLT METER
2. TEMPORARY SERVICE #2 TWIST CABLE
3. ATTACHMENT POINT
4. METER BOX IS FURNISHED, (CUSTOMER INSTALLS BOX).



## Temporary Underground Service (Attachment B)

NOTES:

1. THESE DRAWINGS SHOW A TYPICAL INSTALLATION. ALL INSTALLATIONS SIMILAR OR DISSIMILAR TO THESE INSTALLATIONS MUST BE CHECKED FOR PROPER INSTALLATION BEFORE THE SERVICE CABLE IS INSTALLED.
2. THE DEPTH OF THE POLE SHALL BE VERIFIED.
3. THE POLE SHALL BE PROPERLY TAMPED.



GENERAL

TEMPORARY SERVICE IS AVAILABLE ONLY WITHIN TEN FEET OF AN EXISTING UNDERGROUND TRANSFORMER OR SECONDARY PEDESTAL. TEMPORARY SERVICE SHOULD NOT BE INSTALLED IN THE PATH OF SERVICE BETWEEN TRANSFORMER AND HOUSE. IF TRANSFORMER OR SECONDARY PEDESTAL IS NOT AVAILABLE, REQUEST FOR SERVICE MUST BE COORDINATED WITH THE CITY OF CONCORD ELECTRIC SYSTEMS.

CUSTOMER FURNISHES:

1. THE 4" X 4" PRESSURE TREATED TIMBER, AND BRACE
2. WEATHERPROOF FUSE OR BREAKER BOX
3. GROUND ROD AND GROUND WIRE

CITY OF CONCORD FURNISHES AND INSTALLS:

1. 120/240 VOLT METER
2. TEMPORARY SERVICE CABLE
3. UNDERGROUND RISER CONDUIT
4. METER ENCLOSURE FURNISHED/CUSTOMER INSTALLS

## Sag Charts (Attachment D)

SAG CHARTS FOR 2/3-3 SERVICE CABLE FOR TEMPORARY POLE

SAG CHART 2/3-175									
TEMPERATURE (IN ° F)	10'	20'	30'	40'	50'	60'	70'	80'	SPAN DISTANCES FROM CUSTOMER'S POLE TO LINE
	STRINGING SAGS IN INCHES								
0°	6	6	6	11	18	27	38	50	
15°	6	6	6	12	19	28	38	50	
30°	7	7	7	12	20	28	39	51	
40°	7	7	7	13	20	29	39	51	
60°	8	8	8	14	21	30	40	52	
80°	9	9	9	14	21	30	41	53	
100°	9	9	9	15	22	31	41	53	
120°	9	9	9	15	22	31	41	54	

SAG CHART 2/3-400							
TEMPERATURE (IN ° F)	50'	60'	70'	80'	90'	100'	SPAN DISTANCES FROM CUSTOMER'S POLE TO LINE
	STRINGING SAGS IN INCHES						
0°	4	7	12	17	23	30	
15°	5	9	13	18	24	31	
30°	6	10	15	20	26	32	
40°	7	11	15	21	26	33	
60°	9	12	17	22	28	35	
80°	10	14	18	24	30	36	
100°	11	15	20	25	31	38	
120°	12	16	21	26	33	39	

NOTES:

1. THE STRINGING SAGS ARE BASED ON NESC MEDIUM LOADING, 15°F WITH 1/4" ICE @ 4 PSF WIND
2. SAG CHART 2/3-175 HAS DESIGN WIRE TENSION OF 175 POUNDS UNDER NESC MEDIUM LOADING
3. SAG CHART 2/3-400 HAS DESIGN WIRE TENSION OF 400 POUNDS UNDER NESC MEDIUM LOADING

NESC Clearances (Attachment D)

12' NESC CLEARANCES FOR SPACES OR WAYS SUBJECT TO PEDESTRIANS ONLY

"S" SPAN DISTANCE	"A" MINIMUM BURIAL DEPTH IN AVERAGE OR GOOD SOIL	"A" MINIMUM BURIAL DEPTH IN POOR SOIL	"B" MINIMUM ATTACHMENT HEIGHT ABOVE GROUND TO SERVICE CABLE	MINIMUM TIMBER OR POLE EQUIVALENT SIZE	SAG CHARTS
0' TO 30'	4'	5'	12'	4" X 4"	SAG CHART 2/3-175
0' TO 50'	4'	5'	14'	4" X 6"	SAG CHART 2/3-175
0' TO 80'	4'	5'	16'	4" X 6"	SAG CHART 2/3-175
0' TO 100' MAX	4'	5'	16'	6" X 6"	SAG CHART 2/3-400

16' NESC CLEARANCES FOR ROADS, STREETS AND OTHER AREAS SUBJECT TO TRUCK TRAFFIC FOR THE STATE OF NORTH CAROLINA  
16' NESC CLEARANCES FOR DRIVEWAYS, PARKING LOTS AND ALLEYS FOR THE STATE OF NORTH CAROLINA

"S" SPAN DISTANCE	"A" MINIMUM BURIAL DEPTH IN AVERAGE OR GOOD SOIL	"A" MINIMUM BURIAL DEPTH IN POOR SOIL	"B" MINIMUM ATTACHMENT HEIGHT ABOVE GROUND TO SERVICE CABLE	MINIMUM TIMBER OR POLE EQUIVALENT SIZE	SAG CHARTS
0' TO 30'	4'	5'	16'	6" X 6"	SAG CHART 2/3-175
0' TO 50'	4'6"	5'6"	18'	6" X 6"	SAG CHART 2/3-400
0' TO 80'	4'6"	5'6"	20'	6" X 6"	SAG CHART 2/3-400
0' TO 100' MAX	4'6"	5'6"	23'	6" X 6"	SAG CHART 2/3-400

18' NESC CLEARANCE FOR ROADS, STREETS AND OTHER AREAS SUBJECT TO TRUCK TRAFFIC  
FOR STATE OF NORTH CAROLINA PER DOT REQUIREMENTS

"S" SPAN DISTANCE	"A" MINIMUM BURIAL DEPTH IN AVERAGE OR GOOD SOIL	"A" MINIMUM BURIAL DEPTH IN POOR SOIL	"B" MINIMUM ATTACHMENT HEIGHT ABOVE GROUND TO SERVICE CABLE	MINIMUM TIMBER OR POLE EQUIVALENT SIZE	SAG CHARTS
0' TO 30'	4'6"	5'6"	20'	6" X 6"	SAG CHART 2/3-175
0' TO 50'	4'6"	5'6"	20'	6" X 6"	SAG CHART 2/3-400
0' TO 100' MAX	4'6"	5'6"	23'	6" X 6"	SAG CHART 2/3-400

EXAMPLES

- IF THE CUSTOMER INSTALLS A TEMPORARY POLE WITHIN 30' OF A POLE LINE IN AN AREA THAT IS LIMITED TO PEDESTRIANS THEN THE CUSTOMER CAN USE A 4"X4" POLE WITH A 12' TEMPORARY SERVICE CABLE ATTACHMENT HEIGHT.
- IF THE CUSTOMER INSTALLS A TEMPORARY POLE WITHIN 50' OF A POLE LINE IN AN AREA THAT IS LIMITED TO PEDESTRIANS THEN THE CUSTOMER CAN USE A 4"X6" POLE WITH A 14' TEMPORARY SERVICE CABLE ATTACHMENT HEIGHT.
- IF THE CUSTOMER INSTALLS A TEMPORARY POLE WITHIN 80' OF A POLE LINE IN AN AREA LIMITED TO DRIVEWAYS, PARKING LOTS AND ALLEYS THEN THE CUSTOMER CAN USE A 6"X6" POLE WITH A 20' TEMPORARY SERVICE CABLE ATTACHMENT HEIGHT.

NOTES:

- THE SPAN DISTANCE IS THE DISTANCE FROM THE CUSTOMER'S TEMPORARY POLE TO THE NEAREST LINE.
- THE MINIMUM BURIAL DEPTH IS BASED ON WELL TAMPED AND COMPACTED BACKFILL; AVERAGE OR GOOD SOIL IS FIRM SAND, CLAY AND GRAVEL TYPE SOIL; POOR SOIL IS SOFT OR WET CLAY, LOOSE SANDS AND SOFT CLAYISH SILT TYPE SOIL.
- THE 12', 16' AND 18' CLEARANCES AND POLE HEIGHTS, SIZE AND DEPTH IS BASED ON THE NATIONAL ELECTRICAL CODE (NEC) AND DOT.