11.00 METERING GENERAL

11.01 SELF-CONTAINED METERING GENERAL

11.02 SELF-CONTAINED METERING, SINGE-PHASE

11.03 SELF-CONTAINED METERING, THREE-PHASE

11.04 SELF-CONTAINED METERING, NETWORK (OPEN WYE)

11.07 TRANSFORMER-RATED METERING, SECONDARY, THREE-PHASE

11.08 TRANSFORMER-RATED METERING, PRIMARY, SINGLE-PHASE

11.09 TRANSFORMER-RATED METERING, PRIMARY, THREE-PHASE

11.11 TRANSFORMER-RATED METERING, PRIMARY, THREE-PHASE - UG

FOR MAINTENANCE ONLY DRAWINGS

THE FOR MAINTENANCE ONLY DRAWINGS LISTED BELOW ARE NOT CONTAINED IN THE PRINTED SPEC BOOK, BUT ARE AVAILABLE ONLINE

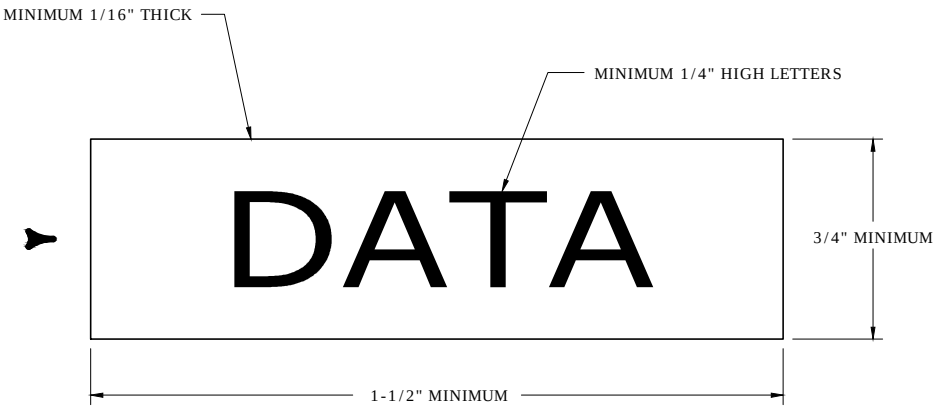
DUKE ENERGY.

REVISED	BY	CK'D	APPR.
5 6/30/15	KATIGBAK	BURLISON	ADCOCK
4 7/25/14	KATIGBAK	DANNA	ADCOCK
3 8/23/13	KATIGBAK	GUINN	ADCOCK
0 11/30/10	CECCONI	GUINN	ELKINS

SECTION 11 - METERING - OH

TABLE OF CONTENTS

DEC	DEM	DEP	DEF
			X



NOTES:

1. ON INSTALLATIONS, REPAIRS, REPLACEMENTS OR UPGRADES OF ENCLOSURES INVOLVING MORE THAN ONE METER ON A SINGLE PREMISE, THE CUSTOMER SHALL CORRECTLY IDENTIFY EACH METER ENCLOSURE ON THE OUTSIDE BY A NONFERROUS METAL OR PLASTIC PLATE ENGRAVED OR STAMPED WITH THE APARTMENT NUMBER, OFFICE SUITE, LOT NUMBER, ETC.

2. THE PLATE SHALL BE PERMANENTLY ATTACHED TO THE METER ENCLOSURE UTILIZING AN INDUSTRIAL-STRENGTH ADHESIVE SUITABLE FOR EXTERIOR USE. TWO-SIDED TAPE IS NOT ACCEPTABLE.

3. THE INSIDE OF EACH METER ENCLOSURE SHALL BE CORRECTLY IDENTIFIED WITH A PLATE DESCRIBED ABOVE OR WITH A PERMANENT MARKER.

4. CONDUCTOR LABELING FOR MULTI-TENANT METERING APPLICATIONS: WHERE ONE SERVICE IS C.T. METERED ON THE PAD-MOUNTED TRANSFORMER AND OTHER CUSTOMER OWNED SERVICES ARE RUN TO THE SAME TRANSFORMER BUT ARE METERED ELSEWHERE (BUILDING WALL OR METER ROOM), BOTH ENDS OF ALL CUSTOMER CABLES MUST BE CLEARLY AND SPECIFICALLY MARKED FOR PHASE AND LABELED WITH A TAG TO IDENTIFY THE LOCATION OF THE SOURCE AND LOAD ENDS OF THE CONDUCTOR. THE LOAD END OF EACH CABLE SHALL BE LABELED TO IDENTIFY THE SOURCE (TRANSFORMER LOCID NUMBER). EACH SOURCE END SHALL BE LABELED TO IDENTIFY THE LOCATION OF THE LOAD END OF THE CABLE (TROUGH NUMBER, SWITCH PANEL NUMBER, ETC.).

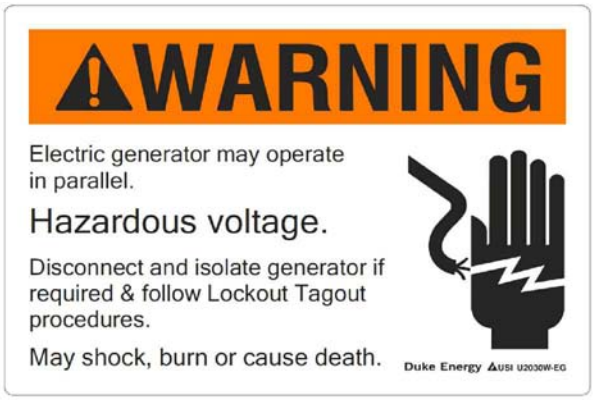
REVISED		BY	CK'D	APPR.
3				
2	9/12/14	SIMPSON	SIMPSON	ADCOCK
1	4/1/11	SIMPSON	SIMPSON	ELKINS
0	7/12/10	SIMPSON	SIMPSON	ELKINS

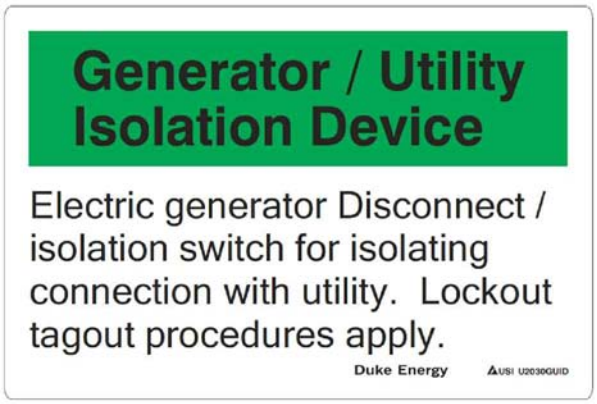
LABELING MULTIPLE METER ENCLOSURES
ON A SINGLE PREMISE

DUKE ENERGY.

DEC	DEM	DEP	DEF
		X	X

11.00-04





DISTRIBUTED GENERATION LABELS AND SIGNS				
ITEM NUMBER	TYPE	DESCRIPTION	APPLICATION	WHERE TO INSTALL
9220271204	LABEL	ELECTRIC GENERATOR WARNING (3"X2")	METER BASE/PRIMARY METER	LOWER LEFT
9220271203	LABEL	ELECTRIC GENERATOR WARNING (6"X4")	PAD MOUNTED TRANSFORMER	ABOVE THE LOCK
9220267181	SIGN	ELECTRIC GENERATOR WARNING (9"X6")	OVERHEAD TRANSFORMERS POLE	5' TO 6' ABOVE THE GROUND
9220271196	LABEL	GENERATOR ISOLATION DEVICE (3"X2")	SMALL DISCONNECT SWITCH	NEAR THE OFF POSITION
9220271197	LABEL	GENERATOR ISOLATION DEVICE (6"X4")	LARGE DISCONNECT SWITCH	NEAR THE OFF POSITION
9220271194	SIGN	GENERATOR ISOLATION DEVICE (9"X6")	ER RECLOSER/POLE DISCONNECT SWITCH	5' TO 6' ABOVE THE GROUND

NOTES:

1. SIGNS AND LABELS ARE TO BE INSTALLED BY DUKE ENERGY.
2. INSTALL SIGNS AND LABELS ON ALL KW SIZES OF DISTRIBUTED GENERATION SITES.
3. CLEAN THE SURFACE BEFORE INSTALLING LABELS.

3				
2				
1				
0	6/30/15	BOWDEN	VALENTIN	ADCOCK
REVISED		BY	CK'D	APPR.

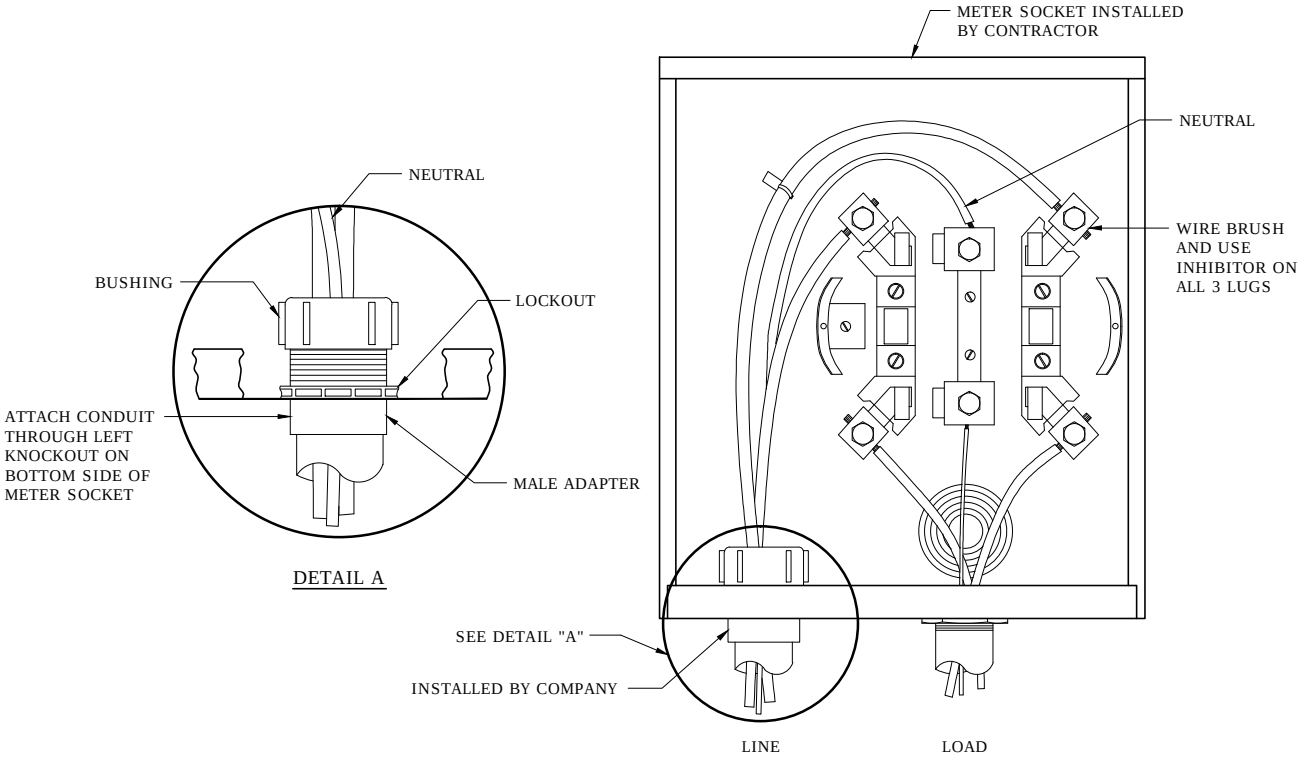
DISTRIBUTED GENERATION
LABELS AND SIGNS

DUKE ENERGY.

DEC	DEM	DEP	DEF
		X	X

11.01-00

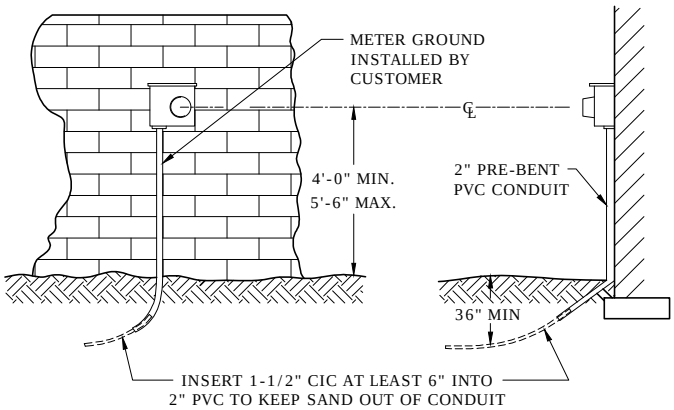
INSTALLATION DETAILS 120/240 VOLT SINGLE-PHASE
UNDERGROUND RESIDENTIAL SERVICE



THIS ILLUSTRATION IS FOR DE-ENERGIZED CONDITIONS. IF METER IS ENERGIZED USE PROPER SAFETY PROCEDURES AS OUTLINED IN THE ACCIDENT AND PREVENTION MANUAL.

METER BASE MAY BE ENERGIZED FROM CUSTOMER LOAD SIDE.

METER SOCKET CONNECTIONS



NOTE: CABLE SHOULD BE FED THROUGH CONDUIT BEFORE IT IS INSTALLED BELOW GRADE AND ATTACHED TO METER SOCKET.

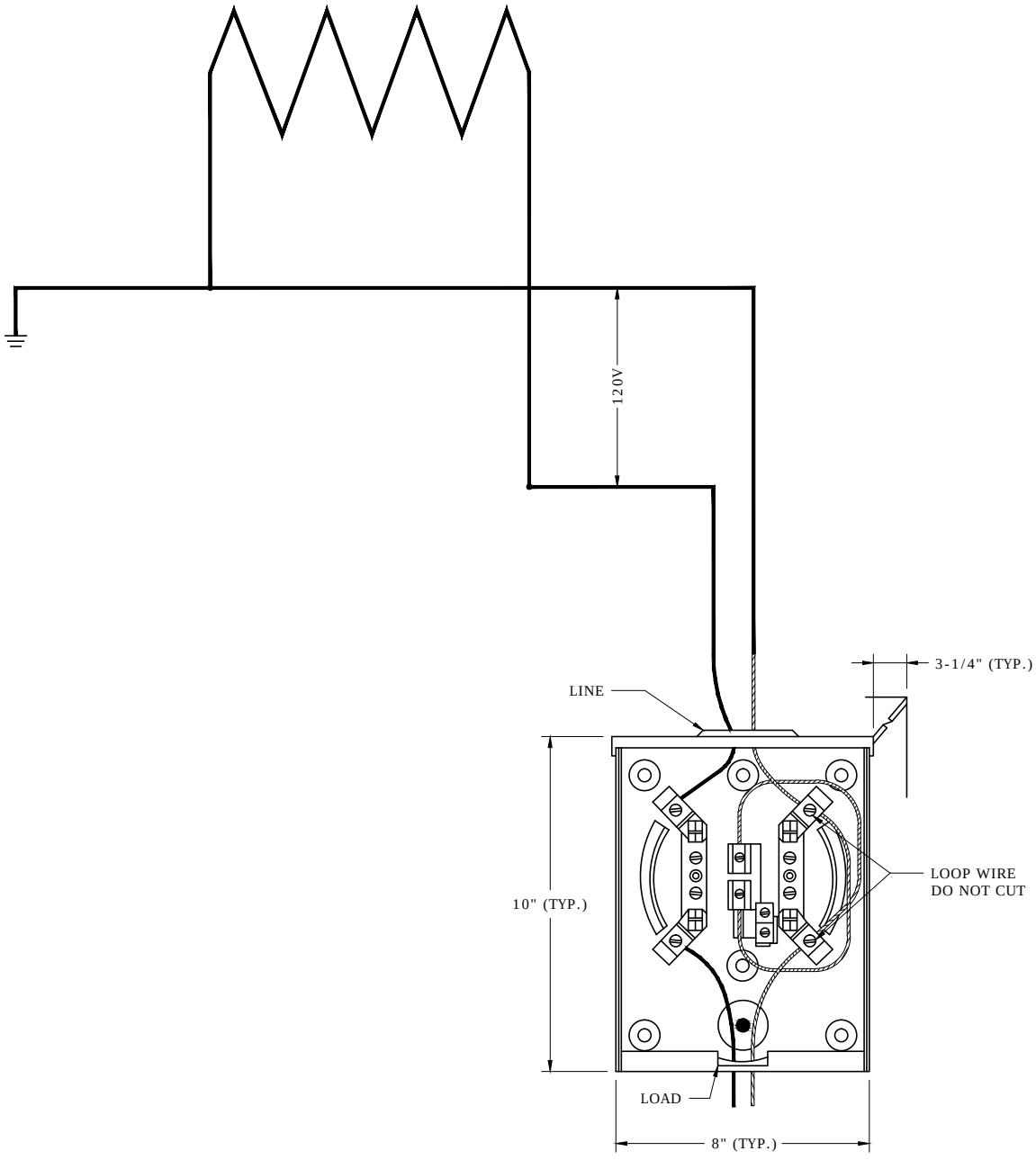
3				
2				
1				
0	11/3/10	SIMPSON	SIMPSON	ELKINS
REVISED		BY	CK'D	APPR.

INSTALLATION DETAILS 120/240 VOLT
SINGLE-PHASE UNDERGROUND RESIDENTIAL SERVICE
AND METER SOCKET CONNECTIONS

Duke Energy®

FLA

DWG. 11.02-08



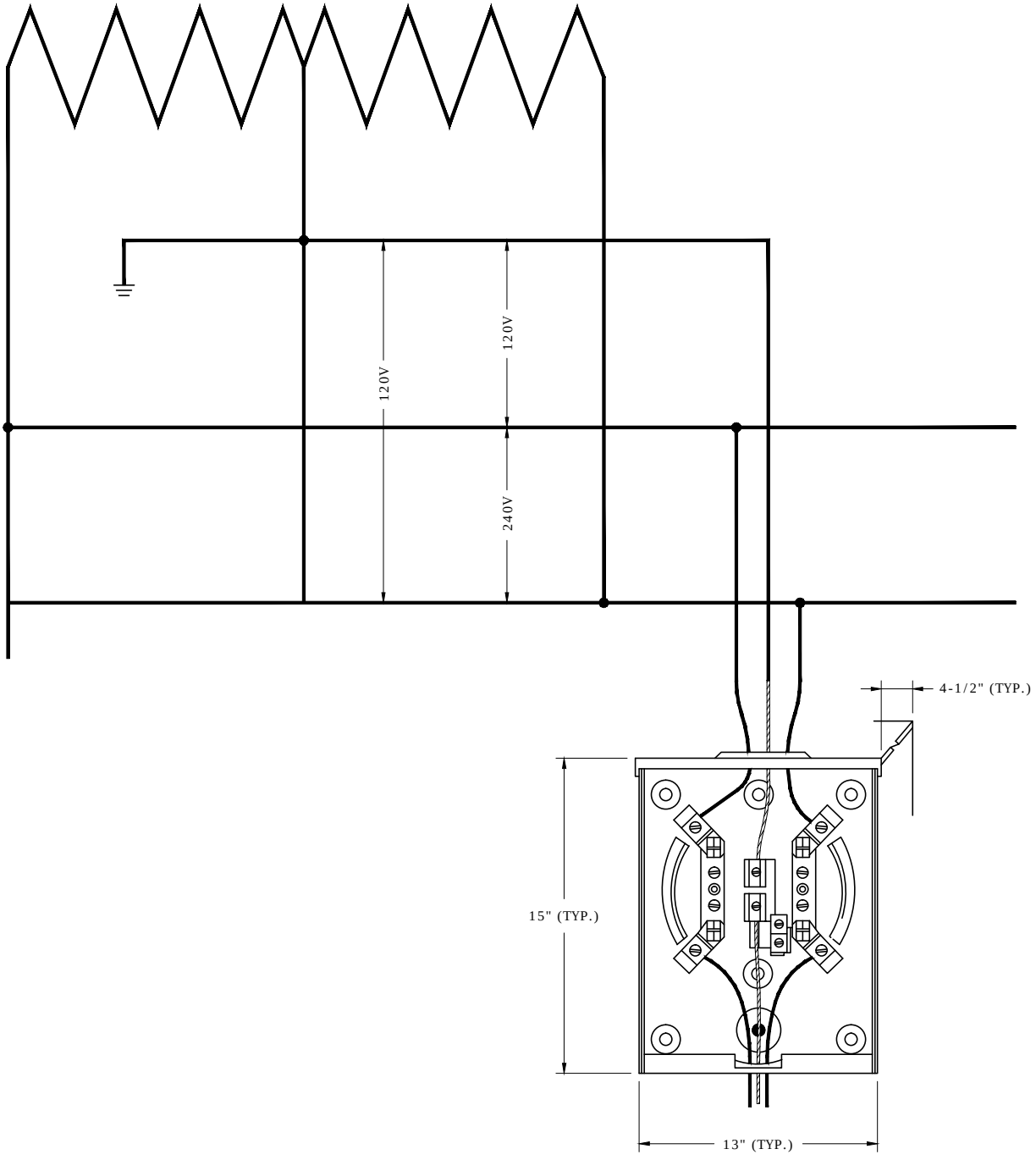
3				
2				
1				
0	11/30/10	SIMPSON	SIMPSON	ELKINS
REVISED		BY	CK'D	APPR.

SECONDARY SELF-CONTAINED METER WIRING DIAGRAM, SINGLE-PHASE, 2-WIRE

Duke Energy®

FLA

DWG. 11.02-12



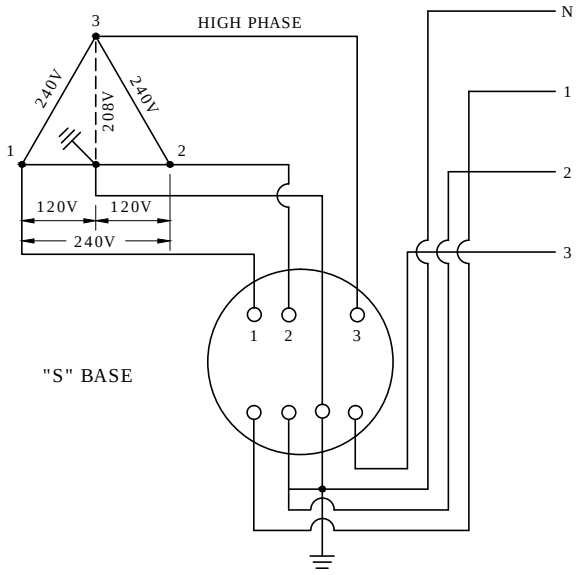
3				
2				
1				
0	11/30/10	SIMPSON	SIMPSON	ELKINS
REVISED		BY	CK'D	APPR.

SECONDARY SELF-CONTAINED
METER WIRING DIAGRAM,
SINGLE-PHASE, 3-WIRE

Duke Energy®

FLA

DWG.
11.02-14



THREE-PHASE, FOUR WIRE, DELTA

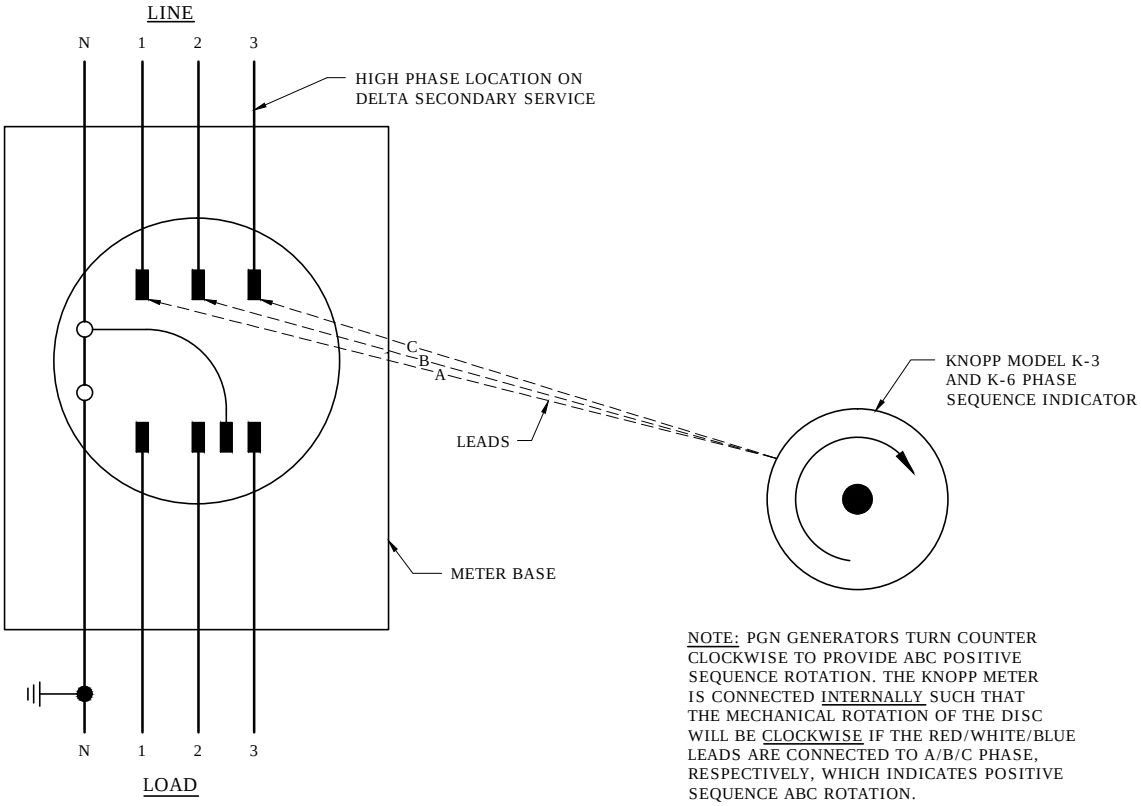
3				
2				
1				
0	11/30/10	SIMPSON	SIMPSON	ELKINS
REVISED		BY	CK'D	APPR.

SECONDARY SELF-CONTAINED 4-WIRE
DELTA WIRING DIAGRAM

Duke Energy®

FLA

DWG.
11.03-06



NOTE: PGN GENERATORS TURN COUNTER CLOCKWISE TO PROVIDE ABC POSITIVE SEQUENCE ROTATION. THE KNOPP METER IS CONNECTED INTERNALLY SUCH THAT THE MECHANICAL ROTATION OF THE DISC WILL BE CLOCKWISE IF THE RED/WHITE/BLUE LEADS ARE CONNECTED TO A/B/C PHASE, RESPECTIVELY, WHICH INDICATES POSITIVE SEQUENCE ABC ROTATION.

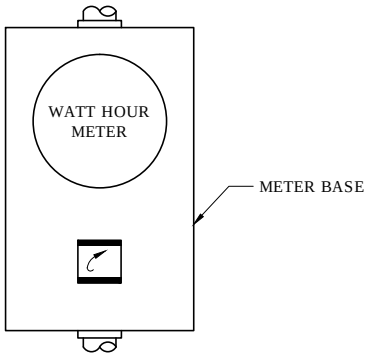
HIGH PHASE LOCATION ON DELTA SECONDARY SERVICE

NOTE: CONNECT ON LINE SIDE OF METER BASE WITH LEADS A, B, C (LEFT TO RIGHT) TO IDENTIFY CLOCKWISE OR COUNTER-CLOCKWISE ROTATION TO THIS SERVICE. THIS WILL IDENTIFY PHASE ROTATION ONLY: IT IS NOT AN INDICATION OF SOURCE PHASE IDENTIFICATION.

SEE DWGS. 23.04-03A, 23.04-03B AND 23.04-03C FOR STANDARD CABLE TAGGING.

INSTALL APPROPRIATE PHASE ROTATION INDICATION STICKER ON THE FACE OF THE METER BASE BELOW METER GLASS AND ALSO INSIDE THE METER BASE:

COUNTERCLOCKWISE: CN 440303
CLOCKWISE: CN 440302



STANDARD PHASE ROTATION IDENTIFICATION PROCEDURE
FOR SELF-CONTAINED METER BASES ONLY

REVISED		BY	CK'D	APPR.
3				
2				
1	11/12/12	DANNA	DANNA	ADCOCK
0	11/30/10	SIMPSON	SIMPSON	ELKINS

HIGH PHASE LOCATION ON DELTA SERVICE
AND STANDARD PHASE ROTATION
FOR SELF-CONTAINED METER BASES ONLY

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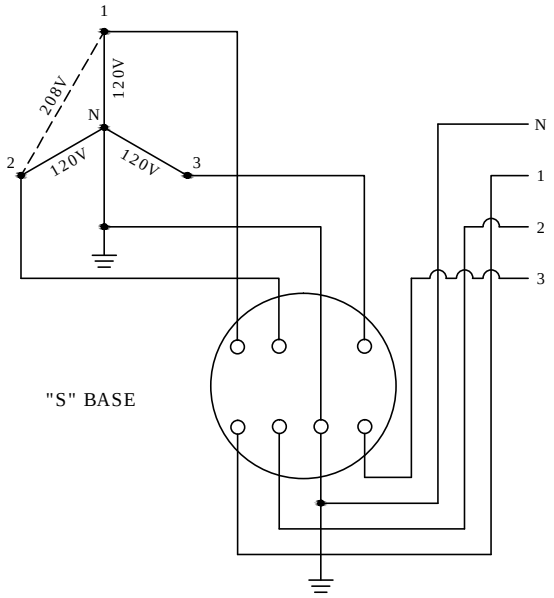
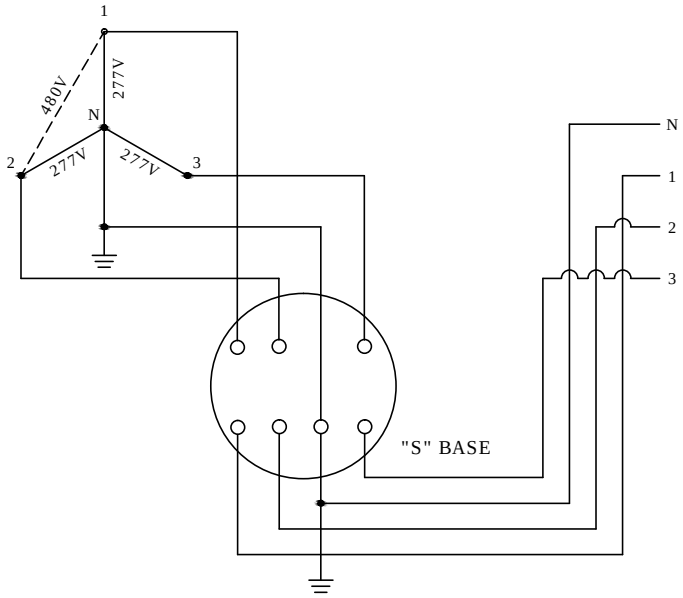
FLA

DWG. 11.03-08



THREE-PHASE, FOUR WIRE, WYE 120/208 VOLTS



THREE-PHASE, FOUR WIRE, WYE 277/480 VOLTS

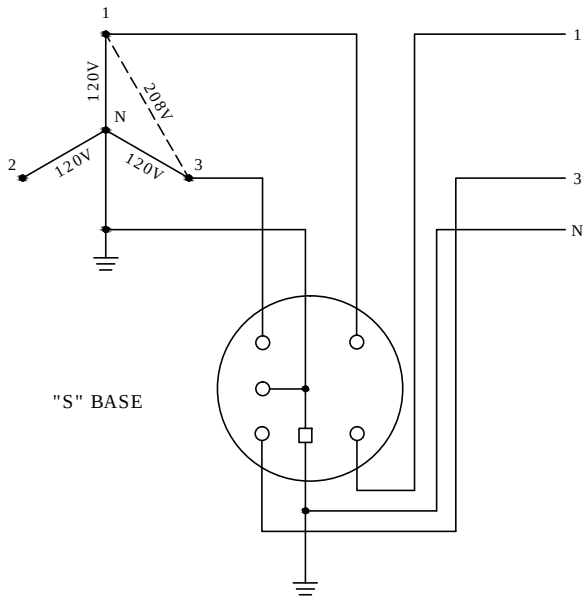
3				
2				
1				
0	11/30/10	SIMPSON	SIMPSON	ELKINS
REVISED		BY	CK'D	APPR.

SECONDARY SELF-CONTAINED 4-WIRE
WYE METER WIRING DIAGRAMS

Duke Energy®

FLA

DWG.
11.03-12



THREE WIRE NETWORK

REVISED	BY	CK'D	APPR.	
3				
2				
1				
0	11/30/10	SIMPSON	SIMPSON	ELKINS

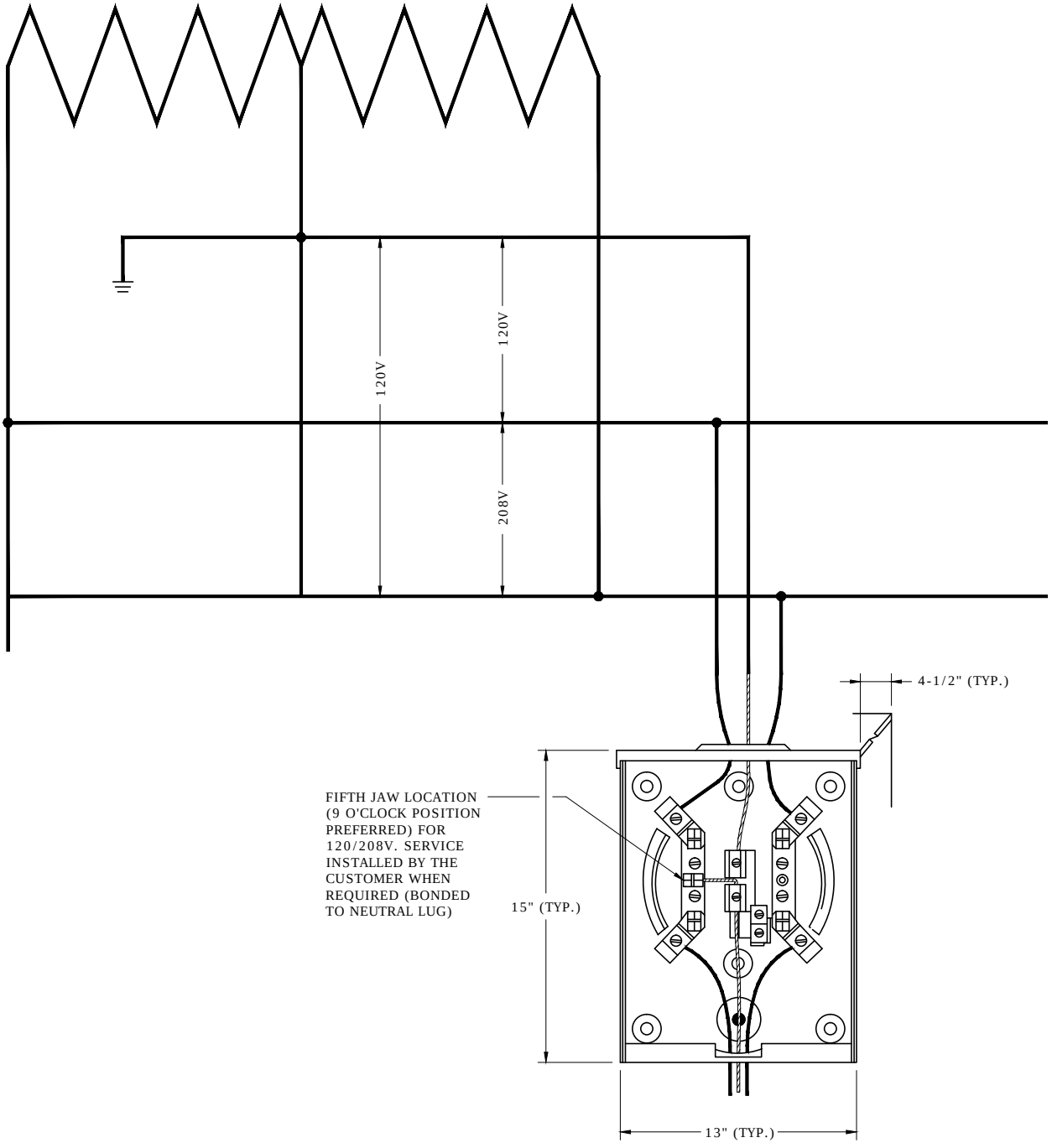
120/208 VOLT 3-WIRE NETWORK

SELF-CONTAINED METERING WIRING DIAGRAM

Duke Energy®

FLA

DWG. 11.04-02



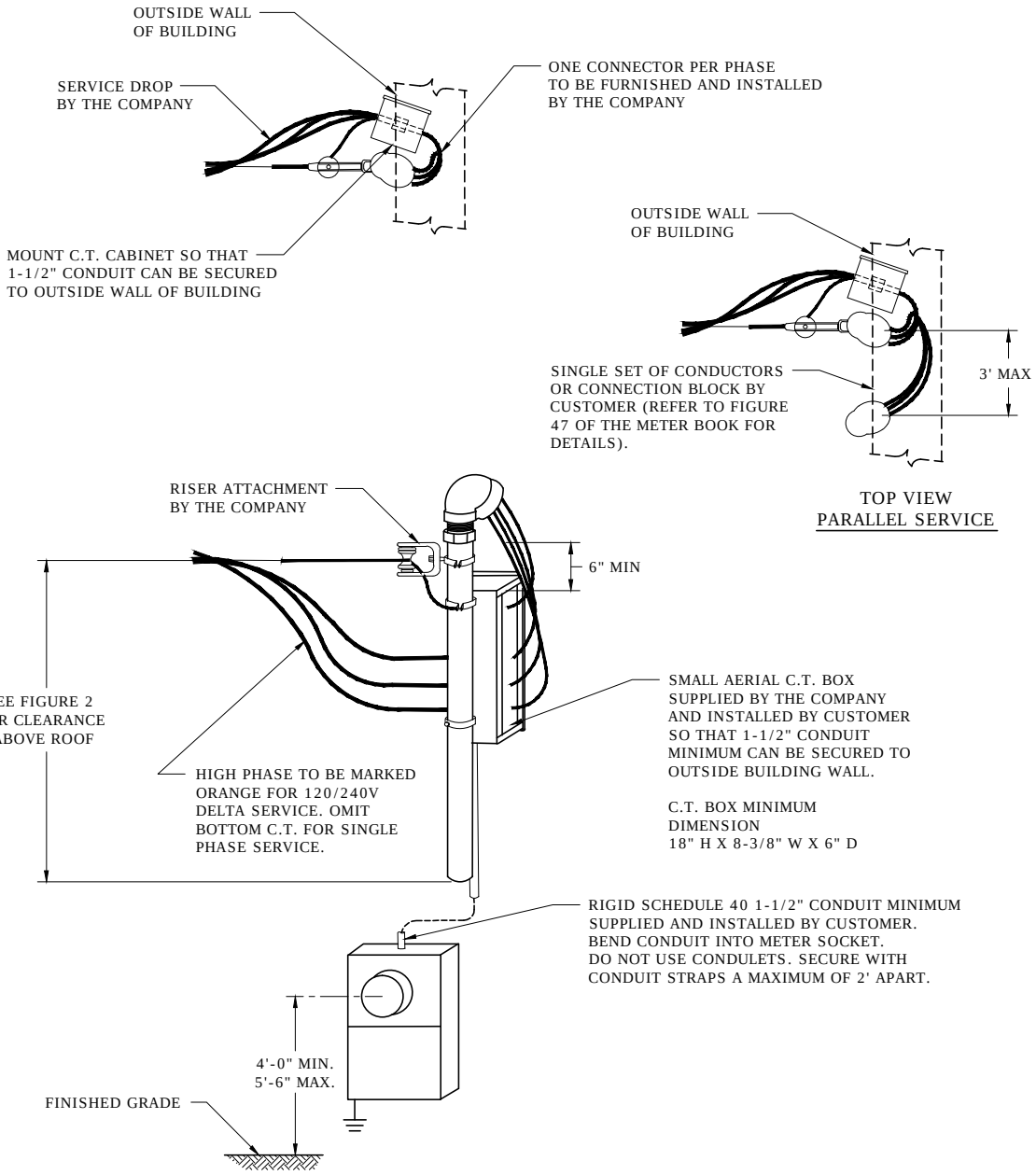
3				
2				
1				
0	11/30/10	SIMPSON	SIMPSON	ELKINS
REVISED		BY	CK'D	APPR.

SECONDARY SELF-CONTAINED METER WIRING CONNECTIONS, 120/208 VOLT, 3-WIRE - NETWORK

Duke Energy®

FLA

DWG. 11.04-03



NOTE: ALL METER CONTROL WIRE CONNECTIONS TO BE MADE INSIDE CURRENT TRANSFORMER ENCLOSURE.

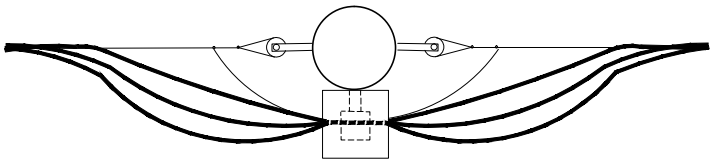
3				
2				
1				
0	11/30/10	SIMPSON	SIMPSON	ELKINS
REVISED		BY	CK'D	APPR.

CT CABINET INSTALLATION ON SERVICE RISER, THREE-PHASE, 4-WIRE OR SINGLE-PHASE, 3-WIRE SERVICE

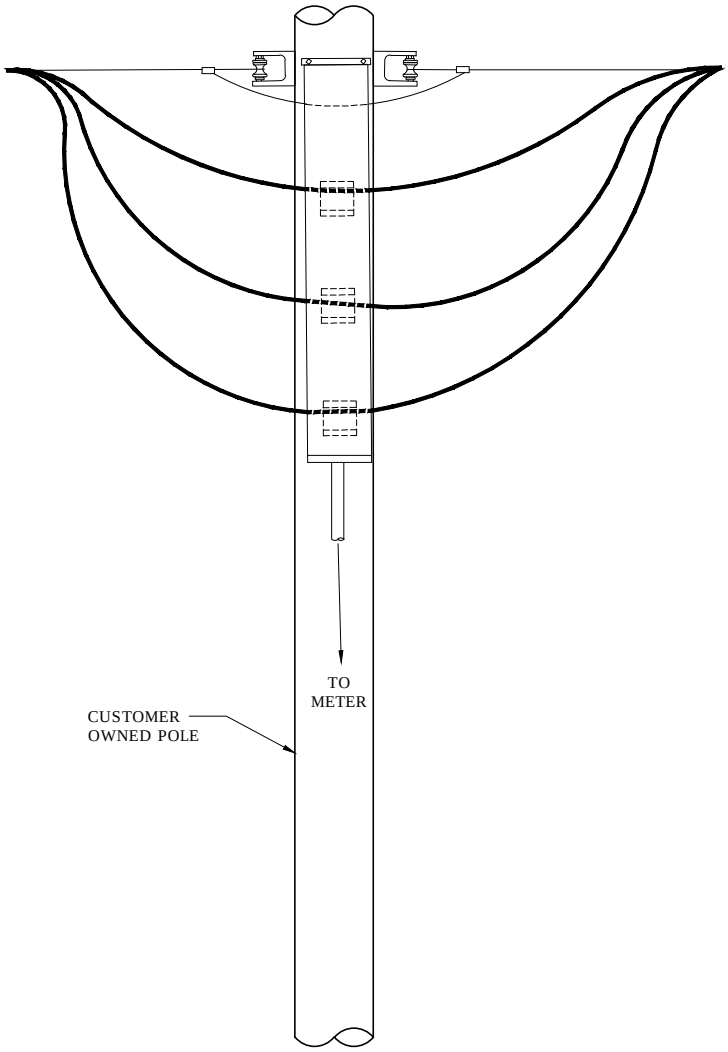
Duke Energy®

FLA

DWG. 11.07-08



PLAN VIEW



FRONT VIEW

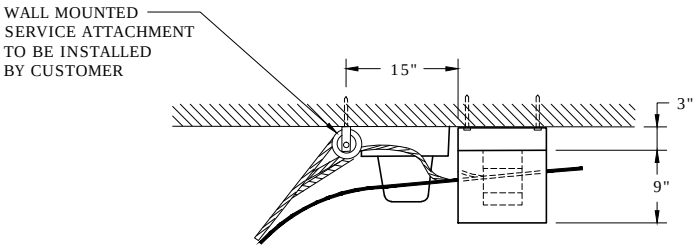
3				
2				
1				
0	11/30/10	SIMPSON	SIMPSON	ELKINS
REVISED		BY	CK'D	APPR.

CURRENT TRANSFORMER INSTALLATION
FOR SECONDARY METERING

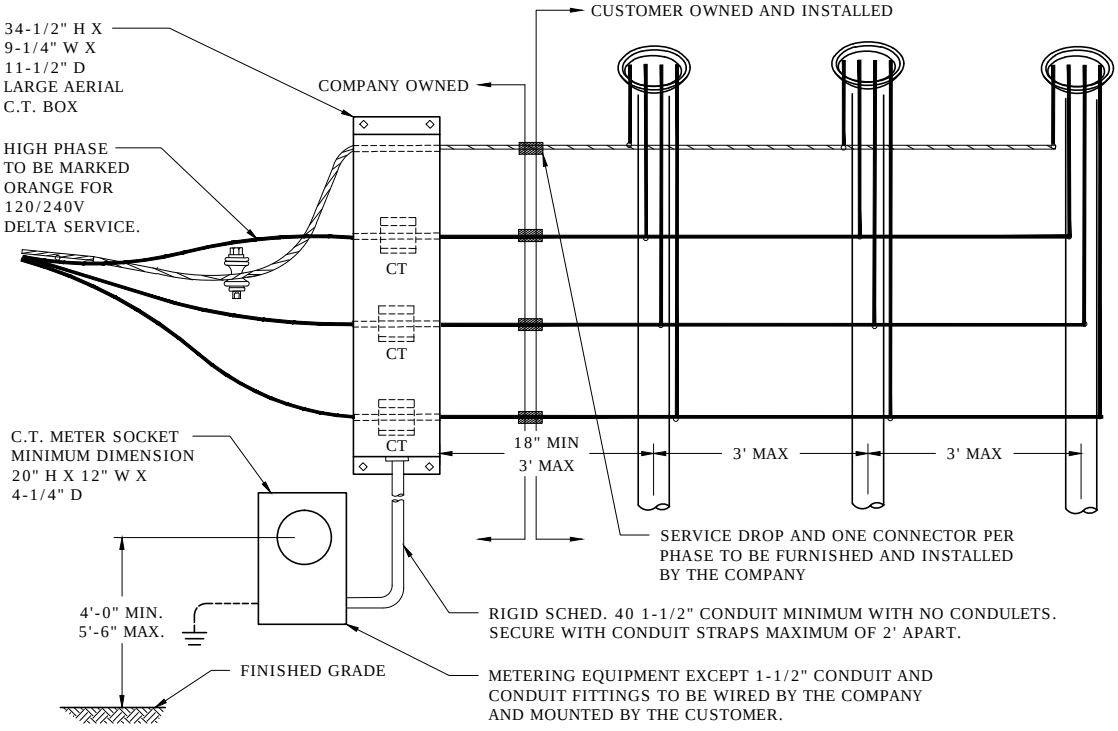
Duke Energy®

FLA

DWG.
11.07-10



CUSTOMER SHALL CONNECT MULTIPLE RISERS BEHIND THE C.T.'S TO A SINGLE SET OF CONDUCTORS OR CONNECTION BLOCK FOR CONNECTION TO THE SERVICE DROP BY THE COMPANY. (REFER TO FIG. 47 OF THE METER BOOK FOR CONNECTION BLOCK DETAILS)



NOTES:

1. CUSTOMER MUST PROVIDE ADEQUATE GROUNDING OF FACILITIES IN ACCORDANCE WITH THE N.E.C. AND AUTHORITY HAVING JURISDICTION, AND THE COMPANY.

2. ALL METER CONTROL WIRE CONNECTIONS TO BE MADE INSIDE CURRENT TRANSFORMER ENCLOSURE.

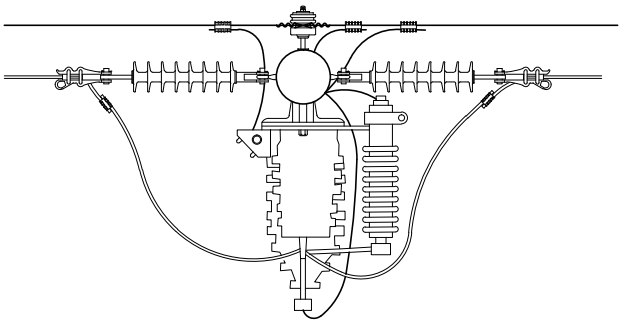
3				
2				
1				
0	11/30/10	SIMPSON	SIMPSON	ELKINS
REVISED		BY	CK'D	APPR.

CT CABINET INSTALLATION ON THREE-PHASE, 4-WIRE WALL MOUNTED

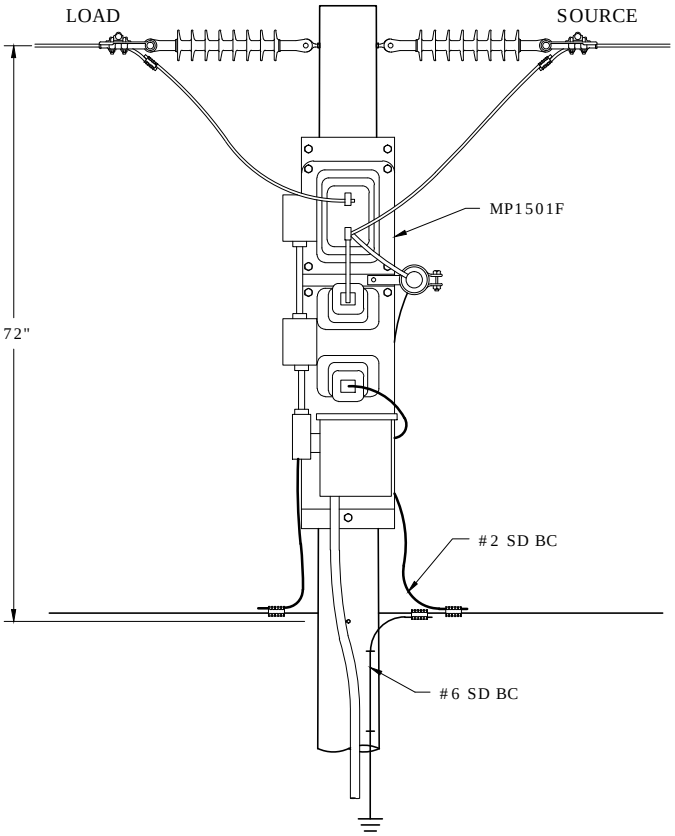
Duke Energy®

FLA

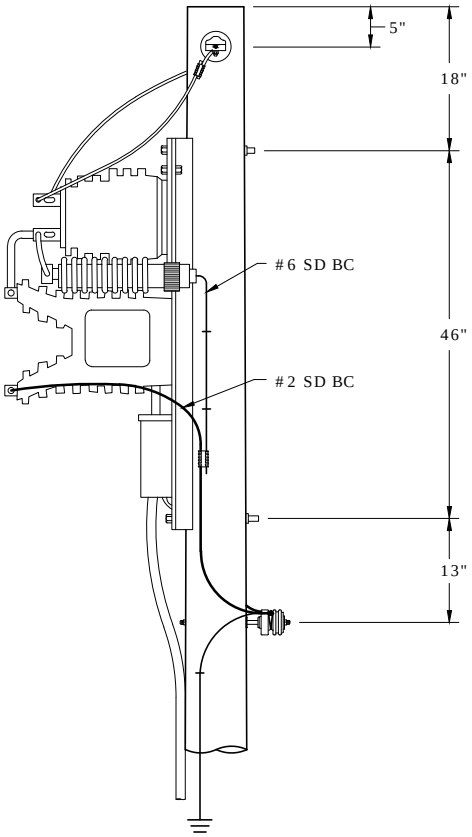
DWG. 11.07-12



PLAN VIEW



FRONT VIEW



SIDE VIEW

NOTES:

1. SEE SECTION 01 FOR ADDITIONAL GROUNDING DETAILS.

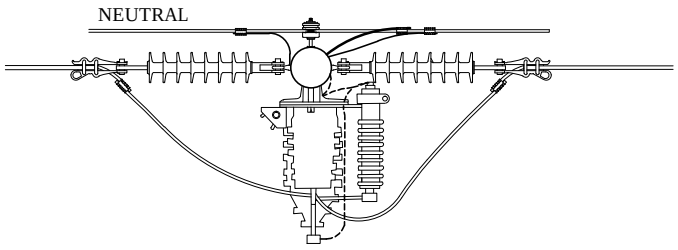
3				
2				
1				
0	11/30/10	STARNES	SIMPSON	ELKINS
REVISED		BY	CK'D	APPR.

SINGLE-PHASE PRIMARY METERING INSTALLATION -
15 KV OVERHEAD CLUSTER

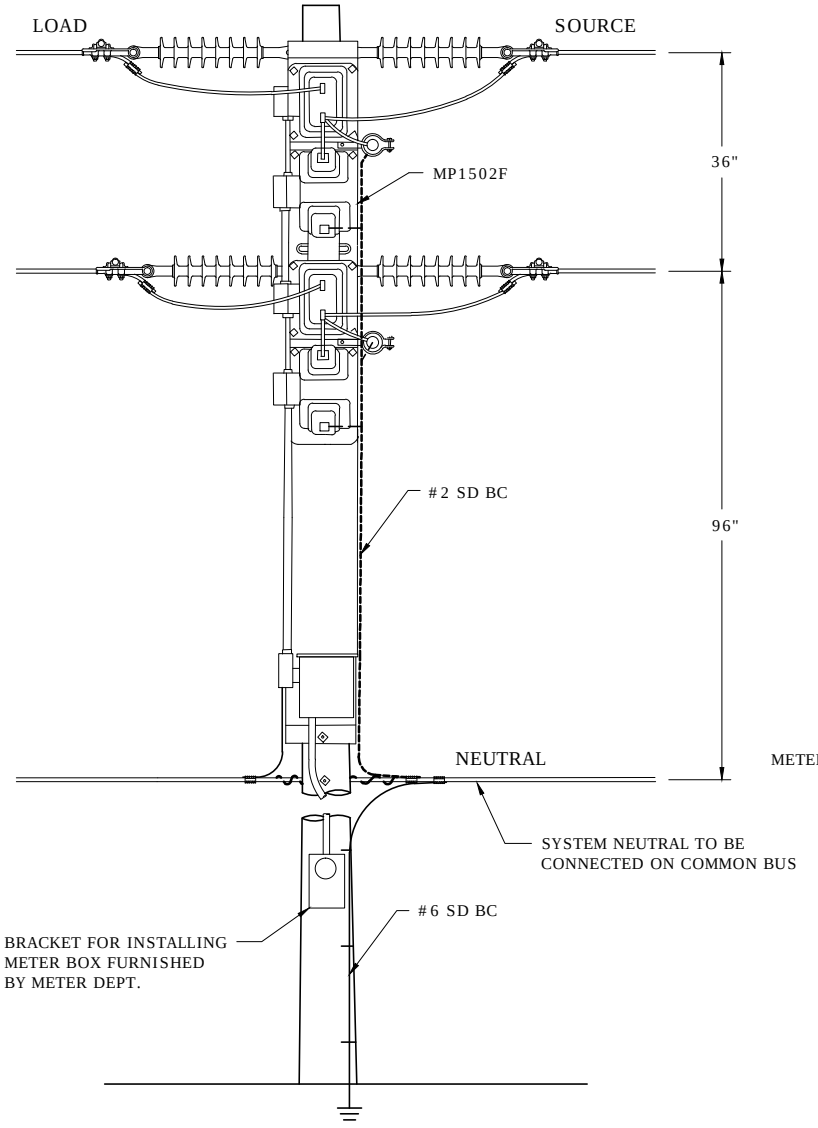
Duke Energy®

FLA

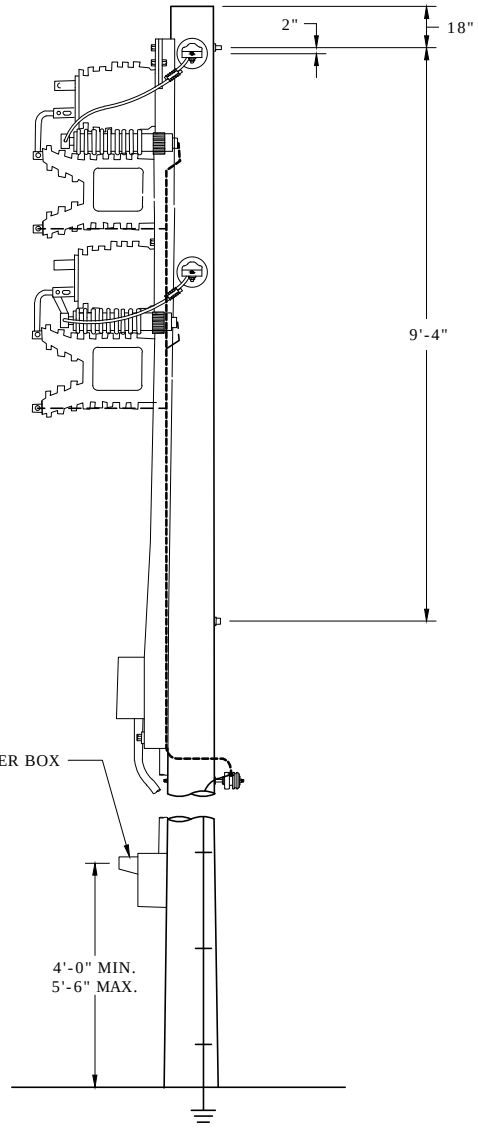
DWG. 11.08-04



PLAN VIEW



FRONT VIEW



SIDE VIEW

NOTES:

1. SEE SECTION 01 FOR ADDITIONAL GROUNDING DETAILS.

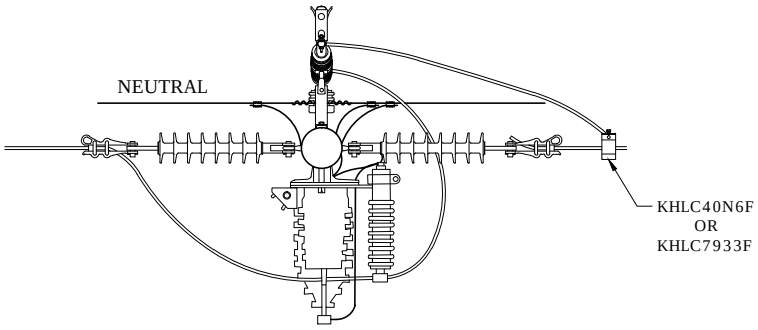
3				
2				
1				
0	11/30/10	STARNES	SIMPSON	ELKINS
REVISED		BY	CK'D	APPR.

POLYPHASE PRIMARY METERING INSTALLATION -
15 KV, 2 ELEMENT, OVERHEAD VERTICAL CLUSTER

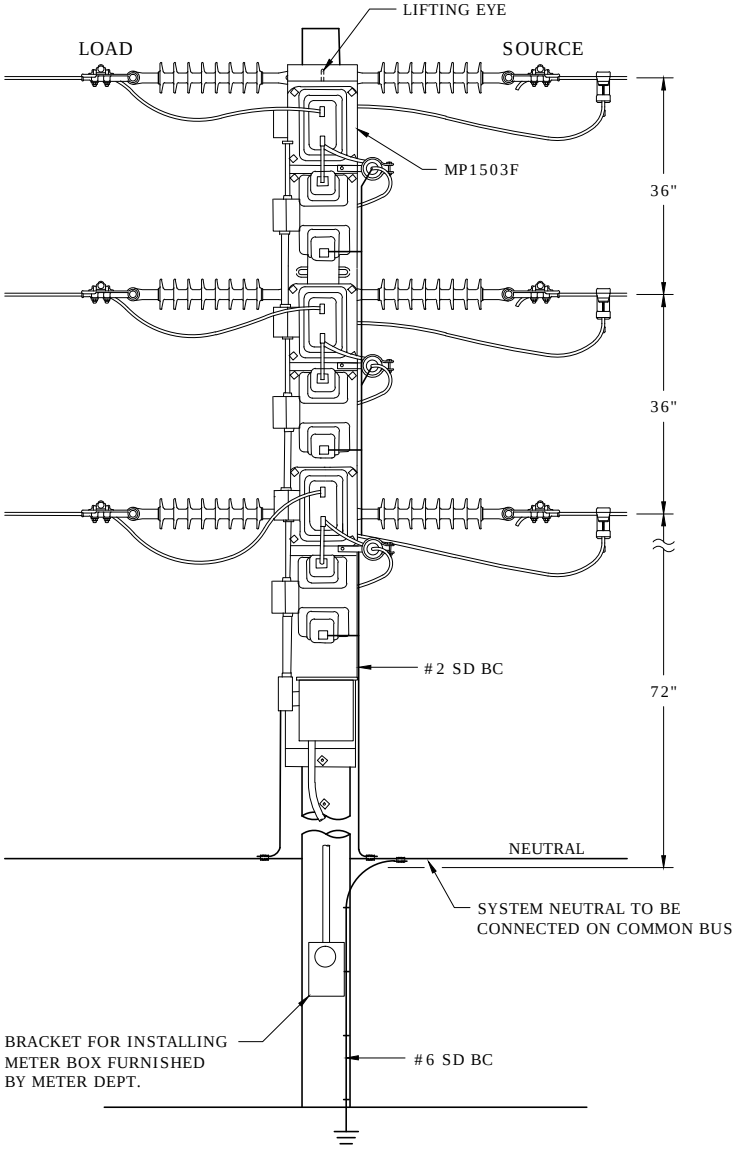
Duke Energy®

FLA

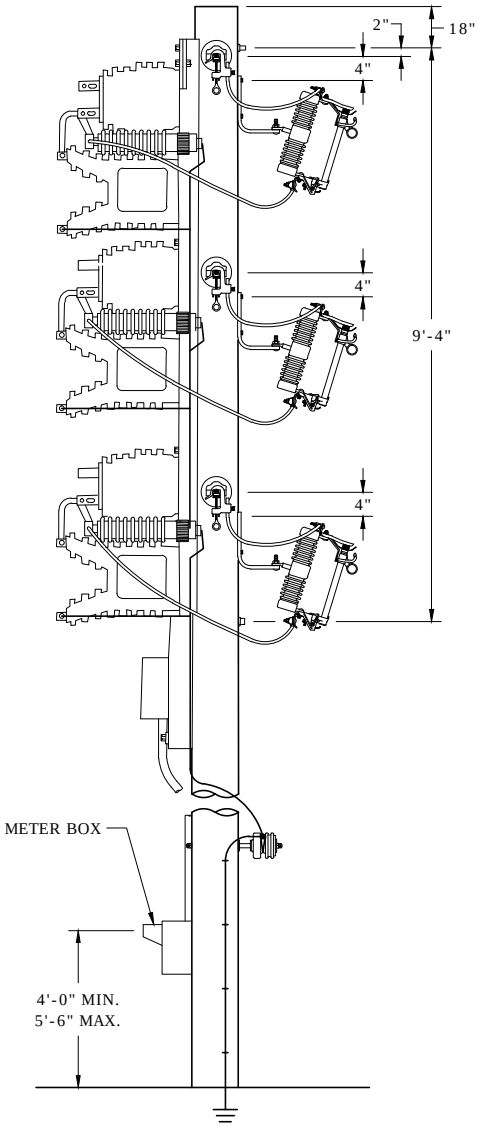
DWG. 11.09-06



PLAN VIEW



FRONT VIEW



SIDE VIEW

NOTES:

1. SEE SECTION 01 FOR ADDITIONAL GROUNDING DETAILS.
2. LINE FUSES MAY BE PLACED ON POLE UPSTREAM OF METER CLUSTER IF CIRCUIT CONFIGURATION PERMITS AND APPROVED BY PLANNER.

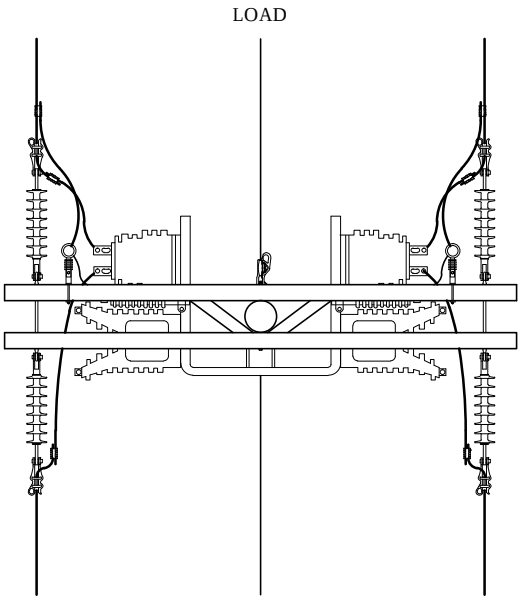
REVISED		BY	CK'D	APPR.
3	5/24/12	BURLISON	BURLISON	ELKINS
2	8/31/11	BURLISON	BURLISON	ELKINS
1	2/4/11	SIMPSON	BURLISON	ELKINS
0	11/30/10	STARNES	SIMPSON	ELKINS

THREE-PHASE PRIMARY METERING INSTALLATION - 15 KV, 3 ELEMENT, OVERHEAD VERTICAL CLUSTER

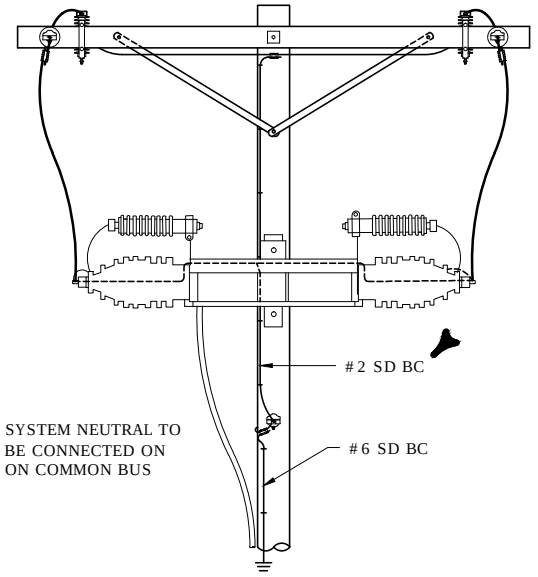
Progress Energy

FLA

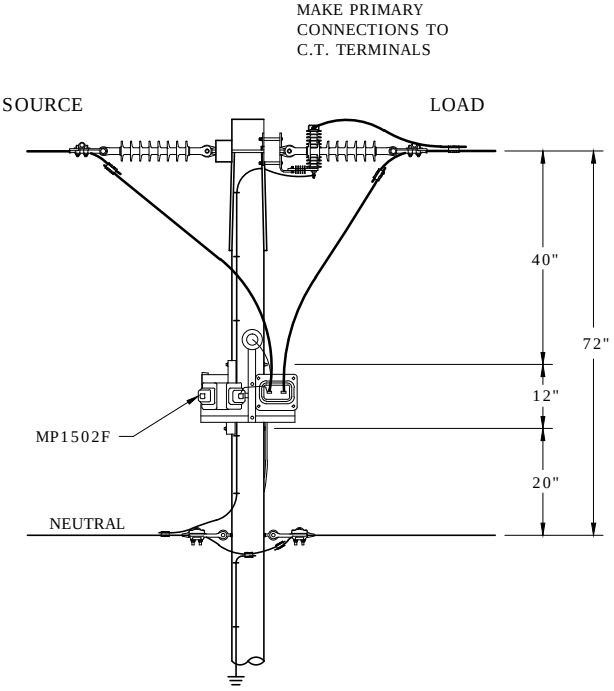
DWG. 11.09-10



PLAN VIEW



FRONT VIEW



SIDE VIEW

NOTES:

1. METER DEPARTMENT TO SPECIFY LOCATION FOR USE OF THIRD POTENTIAL TRANSFORMER.

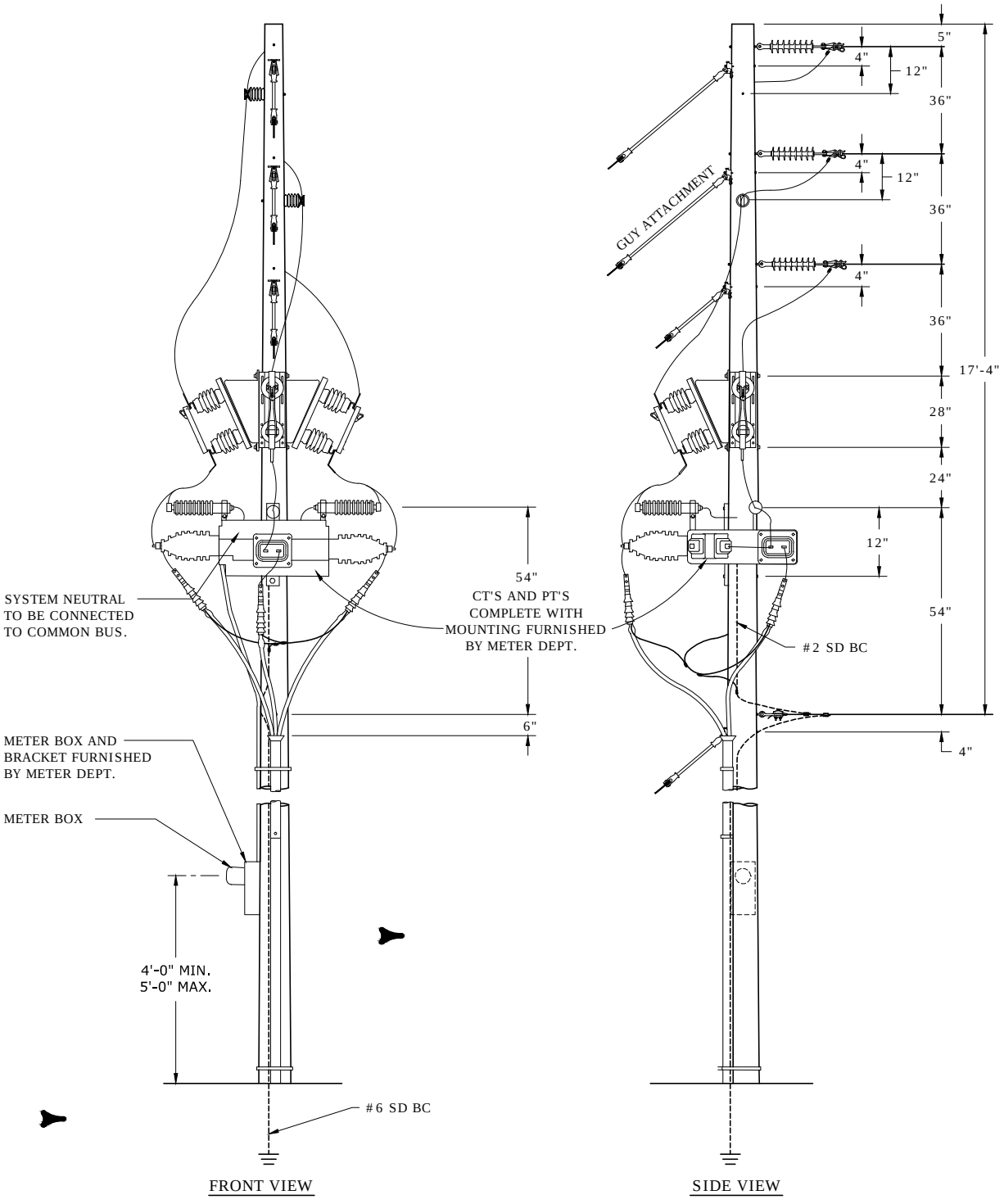
3				
2				
1	12/20/13	McCONNELL	GUINN	ADCOCK
0	11/30/10	STARNES	SIMPSON	ELKINS
REVISED		BY	CK'D	APPR.

THREE-PHASE PRIMARY METERING INSTALLATION - 15 KV, 2 ELEMENT, OVERHEAD HORIZONTAL CLUSTER

DUKE ENERGY.

FLA

DWG. 11.09-12



NOTES:

1. GUYS MUST BE BONDED TO POLE GROUND, NOT SHOWN HERE FOR CLARITY. REFER TO DWG. 02.04-04.

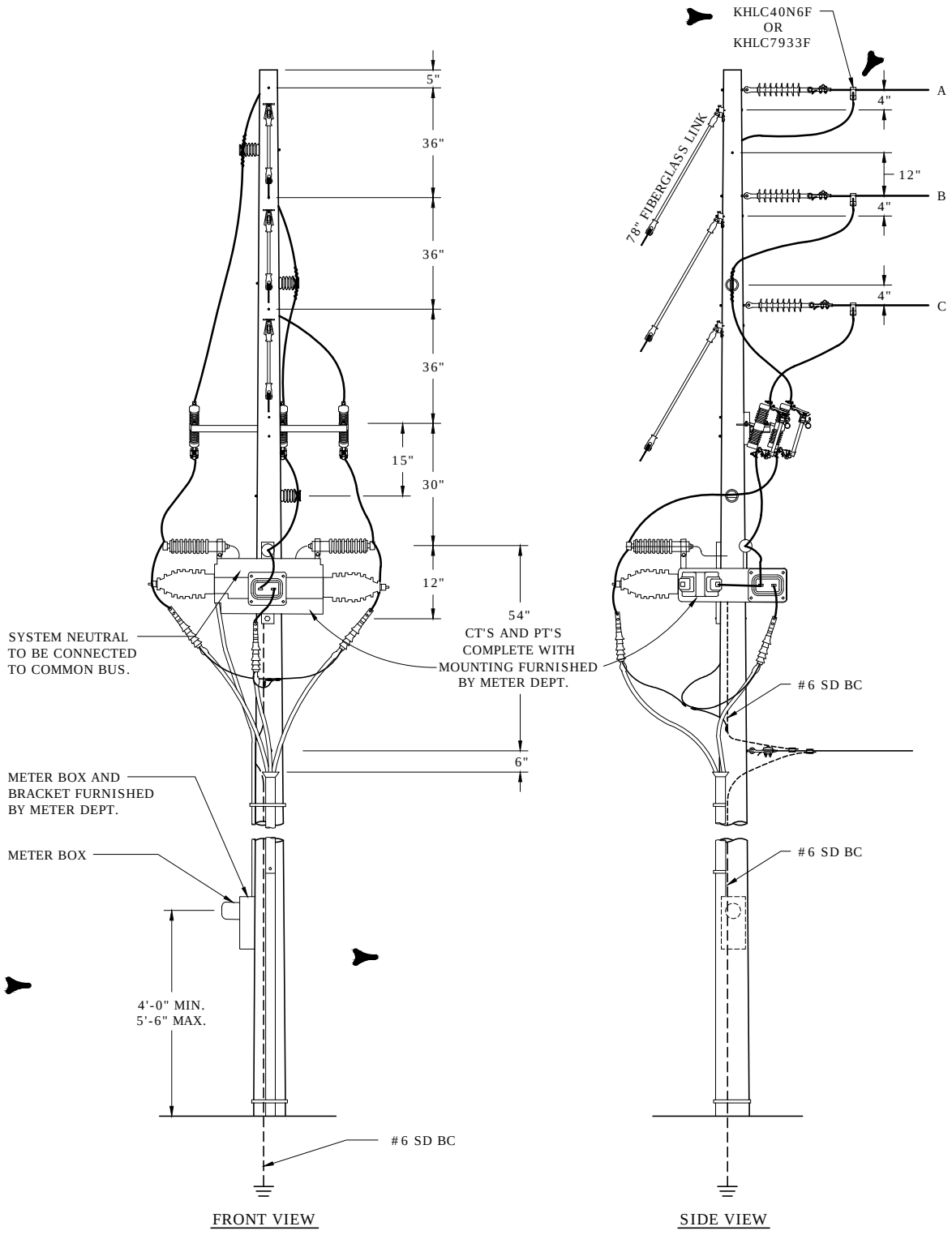
3				
2				
1	5/24/12	DANNA	BURLISON	ELKINS
0	11/30/10	SIMPSON	SIMPSON	ELKINS
REVISED		BY	CK'D	APPR.

THREE-PHASE PRIMARY METERING INSTALLATION - 15 KV, 600 AMP, 2-1/2 ELEMENT, OVERHEAD HORIZONTAL CLUSTER

Progress Energy

FLA

DWG. 11.09-16



NOTES:

1. GUYS MUST BE BONDED TO POLE GROUND, NOT SHOWN HERE FOR CLARITY. REFER TO DWG. 02.04-04.

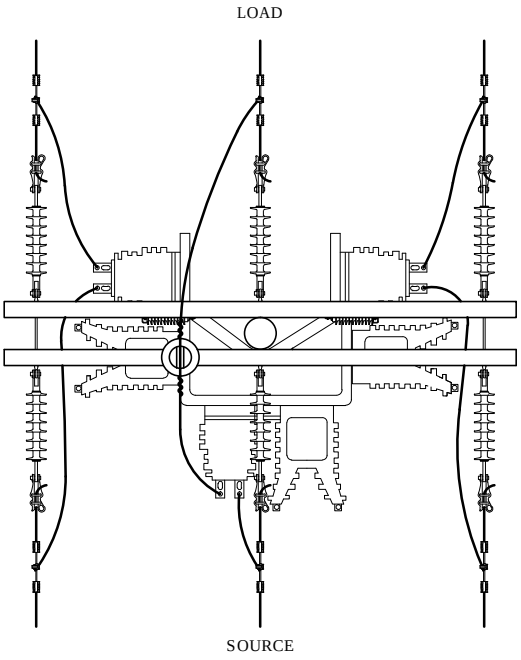
REVISED		BY	CK'D	APPR.
3				
2				
1	8/31/11	DANNA	BURLISON	ELKINS
0	11/30/10	SIMPSON	SIMPSON	ELKINS

THREE-PHASE PRIMARY METERING INSTALLATION - 15 KV, 200 AMP, 2-1/2 ELEMENT, OVERHEAD HORIZONTAL CLUSTER

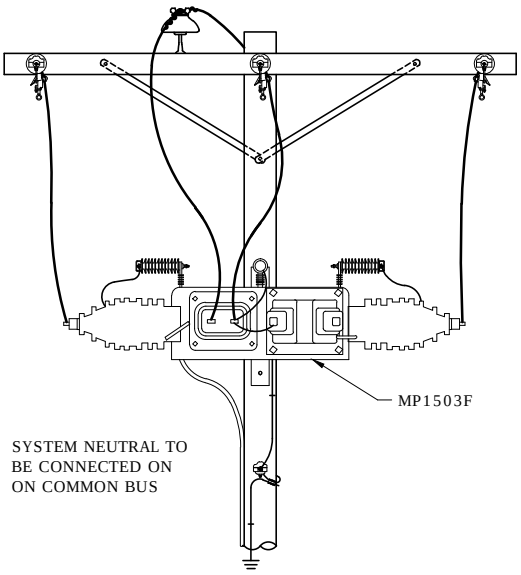
Duke Energy®

FLA

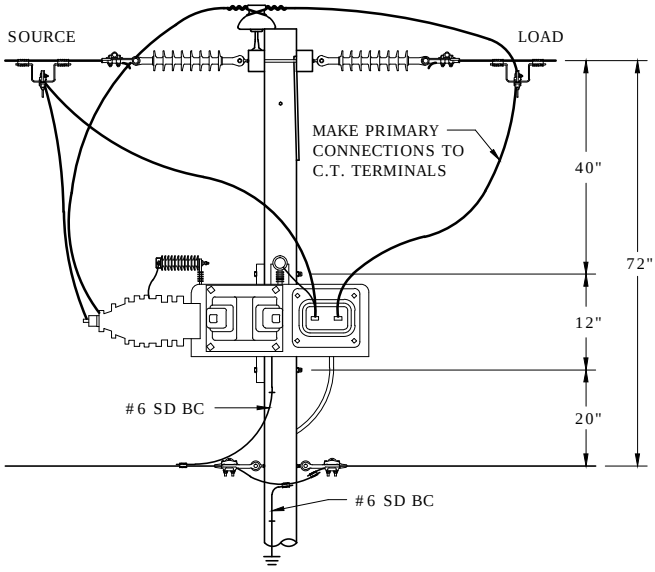
DWG. 11.09-18



PLAN VIEW



FRONT VIEW



SIDE VIEW

NOTES:

1. METER DEPARTMENT TO SPECIFY LOCATION FOR USE OF THIRD POTENTIAL TRANSFORMER.
2. CUTOUTS MAY BE INSTALLED ON ADJACENT SERVICE POLE IF SPECIFIED BY ENGINEER.
3. SEE SECTION 01 FOR ADDITIONAL GROUNDING DETAILS.

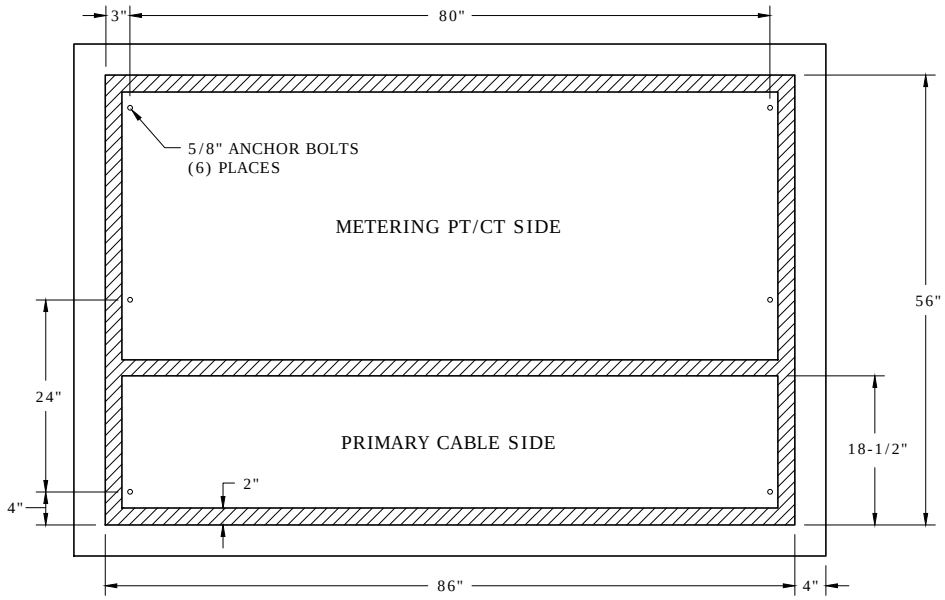
3				
2				
1				
0	11/30/10	STARNES	SIMPSON	ELKINS
REVISED		BY	CK'D	APPR.

THREE-PHASE PRIMARY METERING INSTALLATION - 15 KV, 3 ELEMENT, OVERHEAD HORIZONTAL CLUSTER

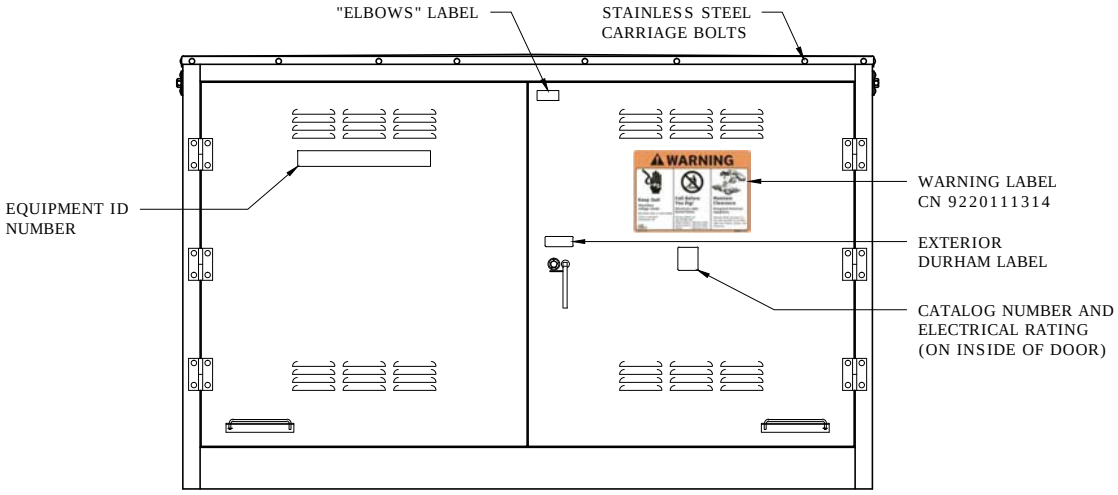
Duke Energy®

FLA

DWG. 11.09-20



ENCLOSURE FOOTPRINT



FRONT VIEW

BILL OF MATERIALS

MACRO UNIT	CU ITEM NO.	COMPATIBLE UNIT	QTY REQ'D	CATALOG NUMBER	QTY PER CU	DESCRIPTION
-	1	ENCMTRCTPTSF	1	001466	1	PAD-MOUNTED METER ENCLOSURE
	2	PAD3P82X87CF	1	327712	1	82" X 87" CONCRETE PAD
	3	-	1	9220111314	1	WARNING LABEL
	4	-	4	211298041	1	DANGER LABEL (SEE NOTE 2)

NOTES:

1. ISSUE GROUNDS SEPARATELY.
2. INSTALL DANGER LABEL ON INSIDE OF EACH DOOR: TOTAL (4) LABELS.
3. INSTALL 1 WARNING LABEL ON EACH SET OF DOORS (ONE PER SIDE).

REVISED		BY	CK'D	APPR.
3				
2	7/23/14	DANNA	DANNA	ADCOCK
1	10/7/13	DANNA	DANNA	ADCOCK
0	8/23/13	GUINN	GUINN	ADCOCK

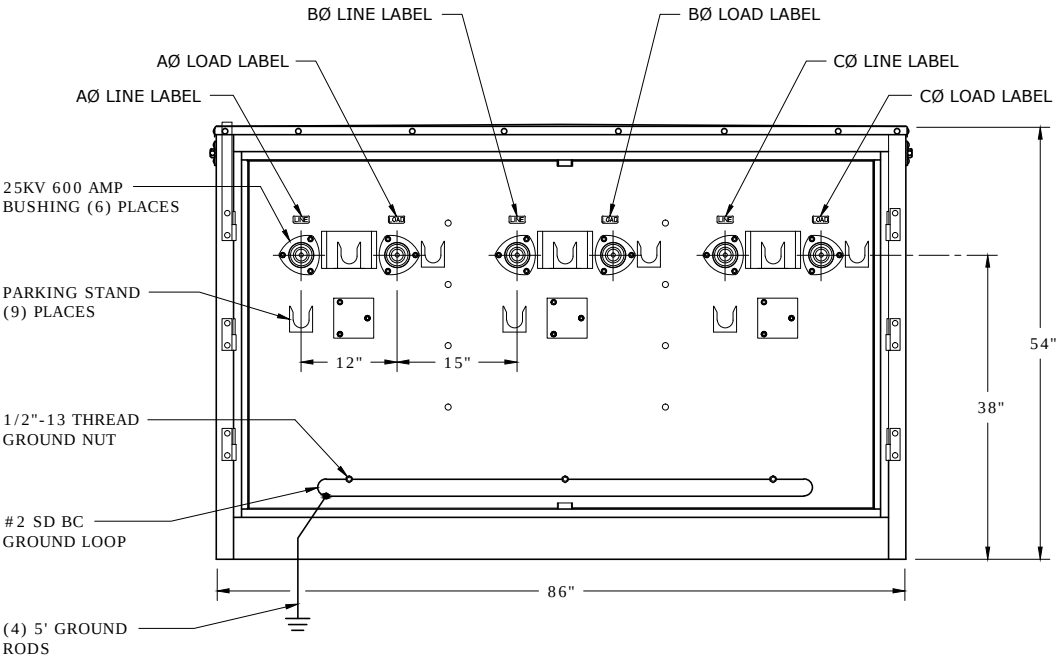
DUKE ENERGY.

DEC	DEM	DEP	DEF
			X

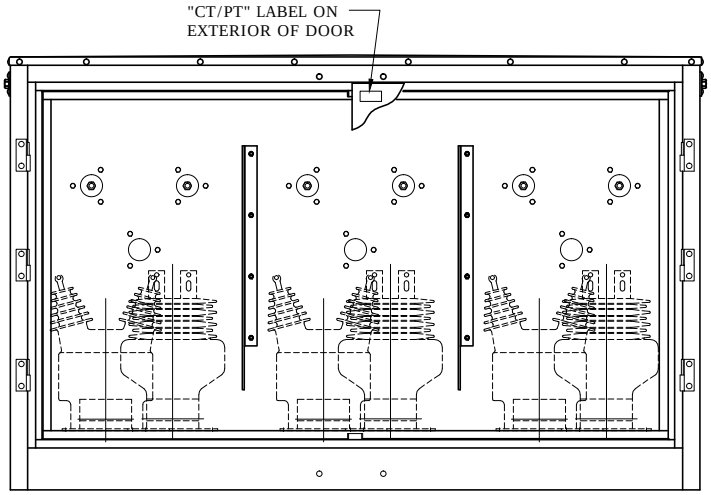
THREE-PHASE PRIMARY METERING ENCLOSURE

FRONT VIEW AND FOOTPRINT

11.11-01



FRONT VIEW (DOORS REMOVED)



BACK VIEW (DOORS REMOVED)

NOTES:

1. REAR SIDE ACCESS FOR METER DEPARTMENT ONLY.
2. CONTACT METERING WHEN THERE IS AN APPLICATION FOR THIS ENCLOSURE.
3. INSTALL ELBOW ARRESTERS ON BACK OF T-BODY.

3				
2				
1				
0	8/23/13	GUINN	GUINN	ADCOCK
REVISED		BY	CK'D	APPR.

THREE-PHASE PRIMARY METERING ENCLOSURE
BUSHING AND CT/PT LAYOUT

DUKE ENERGY.

FLA

DWG. 11.11-03

NOTES:

1. DEADFRONT CONSTRUCTION 600 AMP BOLTED ELBOW (T-BODY).

2. T-BODY IS NON-LOADBREAK (NO VOLTAGE AND CURRENT).

3. IT IS ACCEPTABLE TO CONNECT BOTH GROUND DRAIN LEADS TO THE GROUNDING BUSS USING SEPARATE CONNECTORS AS A METHOD OF CROSS BONDING.

4. CONNECT DRAIN WIRE FROM INSULATED CAP TO GROUND LOOP.

5. VERIFY LINE AND LOAD SIDE CABLES ARE CONNECTED PROPERLY (I.E. LINE TO LINE, LOAD TO LOAD, CORRECT PHASE).

   IMPROPER CONNECTION WILL RESULT IN INCORRECT METER READINGS!

6. SEE DWG. 22.06-10 FOR CABLE AND CONDUIT PLACEMENT.

7. MARK ALL CABLES USING WHITE PLASTIC CABLE IDENTIFICATION TAG. TAG MUST INCLUDE LINE OR LOAD DESIGNATION. SEE DWG. 27.00-03 FOR ADDITIONAL DETAIL.

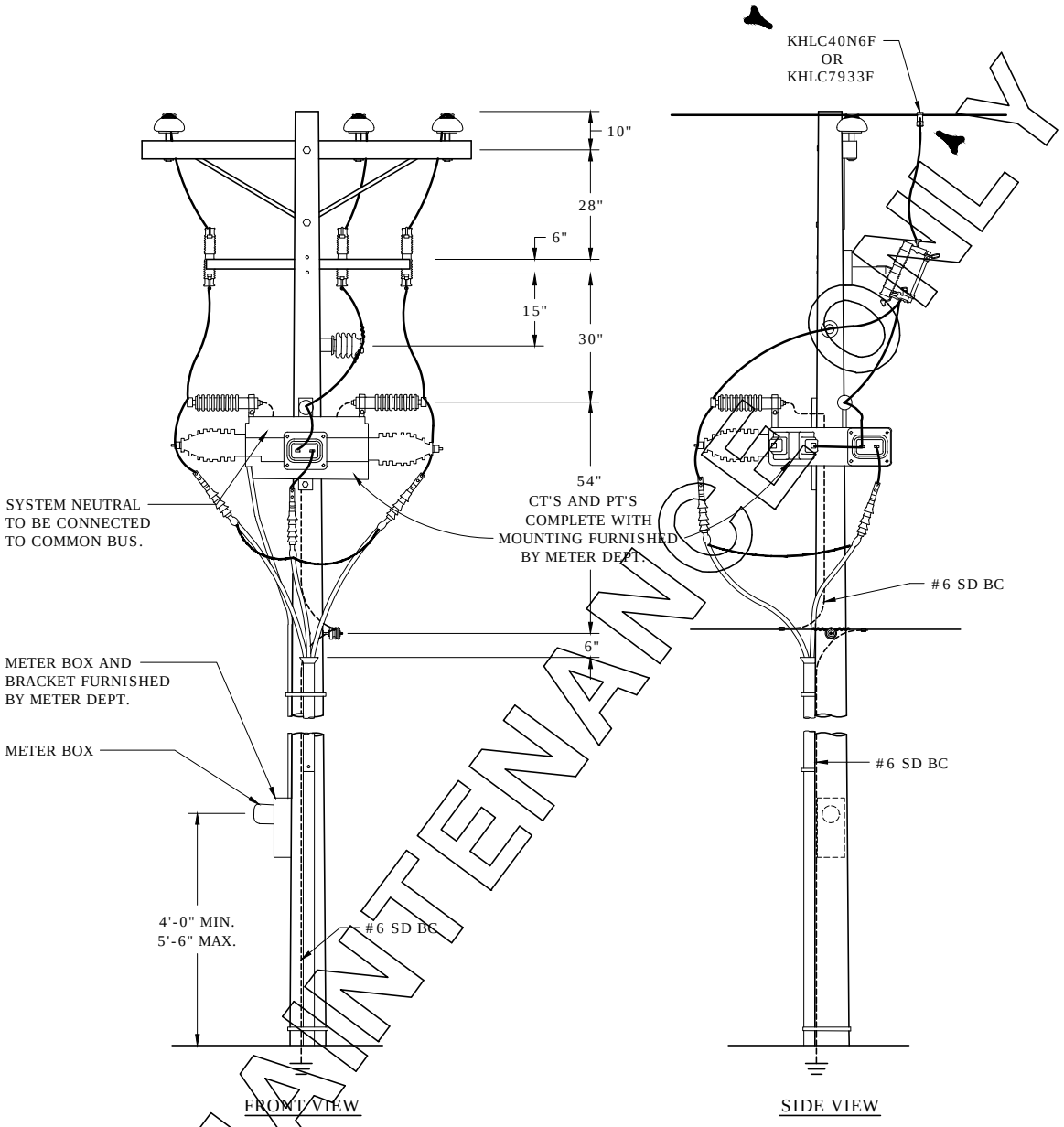
3				
2				
1				
0	8/23/13	GUINN	GUINN	ADCOCK
REVISED		BY	CK'D	APPR.

THREE-PHASE PRIMARY METERING ENCLOSURE

DUKE ENERGY.

FLA

DWG. 11.11-05



NOTES:

1. SEE SECTION 01 FOR ADDITIONAL GROUNDING DETAILS.

3				
2				
1	8/31/11	BURLISON	BURLISON	ELKINS
0	11/30/10	SIMPSON	SIMPSON	ELKINS
REVISED		BY	CK'D	APPR.

THREE-PHASE PRIMARY METERING INSTALLATION - 15 KV, 2-1/2 ELEMENT, OVERHEAD HORIZONTAL CLUSTER (FMO)

Duke Energy®

FLA

DWG. 11.09-14