We Energies and Wisconsin Public Service Electric Distribution Standards						
B / We#	TWO PHASE FRAMING					

# **Table of Contents**

B01 / We#

TWO PHASE TANGENT ARM, 6 PIN ARM

B02 / We#

TWO PHASE 5-20 DEGREES, DOUBLE 6 PIN ARMS

B03 / We#

TWO PHASE 20-60 DEGREES, VERTICAL

B04 / We#

TWO PHASE 60-90 DEGREES, DOUBLE DEADEND, VERTICAL

B07 / We#

TWO PHASE DEADEND, ARM

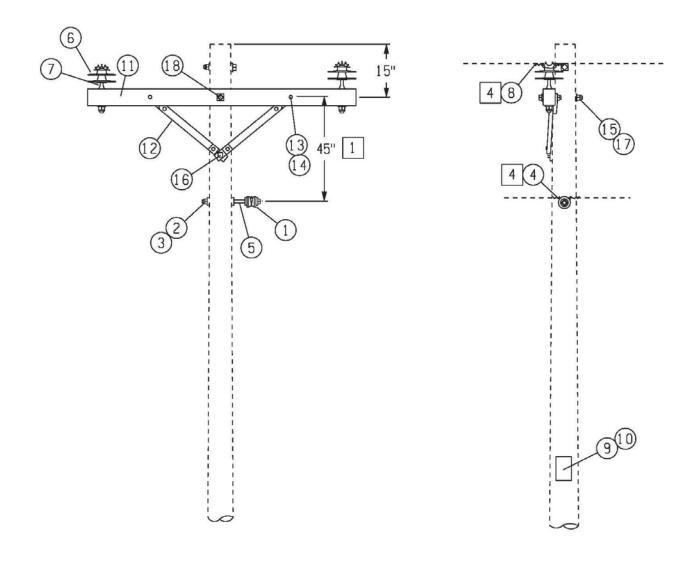
B08 / We#

TWO PHASE DOUBLE DEADEND, 0-30 DEGREES

B01 / We#

## TWO PHASE TANGENT ARM, 6 PIN ARM

Page 1 of 1



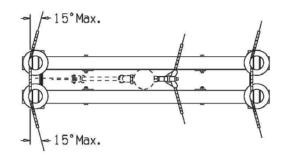
- 1. Provide adequate pole height and locate neutral as specified on other Standards if this is a future transformer setting (for extra long spans, see sag section).
- 2. A pair of pole keys is required on 795 AA for angles larger than 2 degrees and on long span 4/0 and 336.4 ACSR for angles larger than 1 degree.
- 3. Refer to Std C21 when using 795 AA, 4/0 ACSR and 336.4 ACSR for angles 3 through 5 degrees.
- 4. See Std OHC50 for proper use of preformed ties.

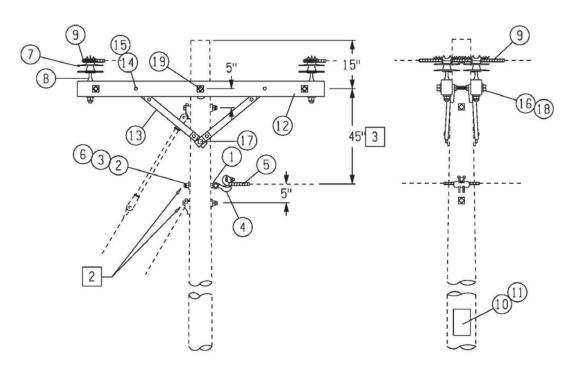
ITEM	MATERIAL	MATERIAL NO.REQ.			MATERIAL		NO.REQ.	
	ASSEMBLY: NEUT-TAN		1	9	NAIL, ROOFING, 1-1/2"	135-4420	0.0025	
1	INSULATOR, SPOOL	135-4240	1	10	SIGN, ELEC SAFETY	135-5460	1	
2	NUT, LOCK, 5/8" DIAMETER	135-4480	1		ASSEMBLY: XARM-6PIN-2W		1	
3	WASHER, SQUARE, 3/4"	135-9400	1	11	CROSSARM, POLE, 6 PIN	134-0151	1	
4	TIE, SPOOL, VARIABLE	SPL196X	1	12	BRACE, CROSSARM, 28"	134-1260	1	
5	BOLT, UPSET DOUBLE	UPD560X	1	13	BOLT, CARRIAGE, GALVA	135-0109	2	
	ASSEMBLY: PIN-XARM		2	14	NUT, LOCK, 3/8" MF	135-4460	2	
6	INSULATOR, PIN	134-4955	1	15	NUT, LOCK, 5/8" DIAMETER	135-4480	1	
7	PIN, INSULATOR	135-4516	1	16	SCREW, LAG, 1/2" DIAMETER	135-5300	1	
8	TIE, DISTRIBUTION	TOP198X	1	17	WASHER, SQUARE, 3/4"	135-9400	2	
	ASSEMBLY: SIGN HV		1	18	BOLT MACHINE 5/8"	MCH421X	1	

B02 / We#

## TWO PHASE 5-20 DEGREES, DOUBLE 6 PIN ARMS

Page 1 of 1





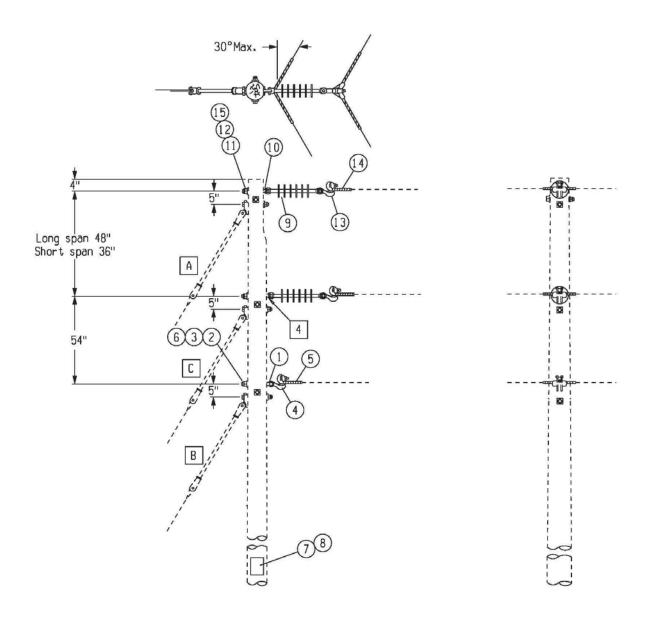
- 1. Use this construction for all conductors through 1/0 ACSR and 2/0 Cu on all angles 5 to 20 degrees. With larger conductors, use the construction shown on Stds B03 and C03.
- 2. See <u>Section G Standards</u> for guying information.
- 3. Provide adequate pole height and locate neutral as specified on other Standards if this is a future transformer setting.
- 4. Use armor rod for phase conductors. To protect the neutral, use armor rod on ACSR and line guard on AA.
- 5. See Std OHC50 for proper use of preformed ties.

ITEM	MATERIAL		NO.REQ.	ITEM	MATERIAL		NO.REQ.
	ASSEMBLY: NEUT-ANG		1	10	NAIL, ROOFING, 1-1/2"	135-4420	0.001
1	EYELET, 5/8" BOLT DI	135-3550	1	11	SIGN, ELEC SAFETY	135-5460	1
2	NUT, LOCK, 5/8" DIAMETER	135-4480	1		ASSEMBLY: XARM-6PIN-2W		1
3	WASHER, CURVED, 3/4"	135-9500	1	12	CROSSARM, POLE, 6 PIN	134-0151	2
4	CLAMP, ANGLE, VARIABLE	ANG186X	1	13	BRACE, CROSSARM, 28"	134-1260	2
5	ARMOR ROD/LINE GUARD	ARM100X	1	14	BOLT, CARRIAGE, GALVA	135-0109	4
6	BOLT, MACHINE, 5/8"	MCH421X	1	15	NUT, LOCK, 3/8" MF	135-4460	4
	ASSEMBLY: PIN-XARM-DBL		2	16	NUT, LOCK, 5/8" DIAMETER	135-4480	6
7	INSULATOR, PIN	134-4955	2	17	SCREW, LAG, 1/2" DIAMETER	135-5300	2
8	PIN, INSULATOR	135-4516	2	18	WASHER, SQUARE, 3/4"	135-9400	10
9	TIE, DOUBLE SIDE, V	SDE193X	1	19	BOLT, DOUBLE ARMING	DBA320X	3
	ASSEMBLY: SIGN HV		1				

B03 / We#

## TWO PHASE 20-60 DEGREES, VERTICAL

Page 1 of 1



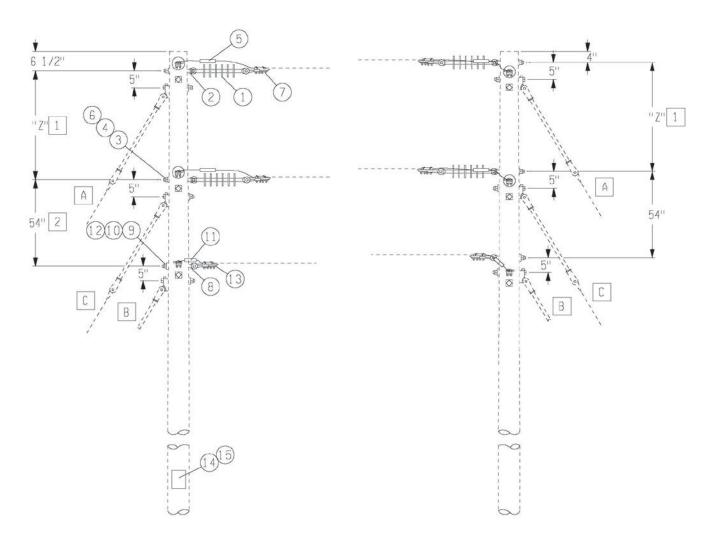
- 1. This construction is for 1/0 ACSR or smaller with angles 20 to 60 degrees; for 4/0 ACSR or larger with angles 5-60 degrees. For all conductor sizes with angles greater than 60 degrees, see <a href="Std C04">Std C04</a>.
- 2. Use line guard on AA conductors and armor rod on ACSR conductors.
- 3. See <u>Section G Standards</u> for guying requirements. Add guys in order indicated above (A, B, C) as the guy tension chart requires. For more than one phase, A & B are both required.
- 4. For 795 AA conductor, use a 3/4" machine bolt with a 3/4" eye nut.

ITEM	MATERIAL		NO.REQ.	ITEM	MATERIAL		NO.REQ.
	ASSEMBLY: NEUT-ANG		1	8	SIGN, ELEC SAFETY	135-5460	1
1	EYELET, 5/8" BOLT DI	135-3550	1		ASSEMBLY: SUS		2
2	NUT, LOCK, 5/8" DIAMETER	135-4480	1	9	INSULATOR, DEADEND S	134-5200	1
3	WASHER, CURVED, 3/4"	135-9500	1	10	EYELET, 5/8" BOLT DI	135-3550	1
4	CLAMP, ANGLE, VARIABLE	ANG186X	1	11	NUT, LOCK, 5/8" DIAMETER	135-4480	1
5	ARMOR ROD/LINE GUARD	ARM100X	1	12	WASHER, CURVED, 3/4"	135-9500	1
6	BOLT, MACHINE, 5/8"	MCH421X	1	13	CLAMP, ANGLE, VARIABLE	ANG186X	1
	ASSEMBLY: SIGN HV		1	14	ARMOR ROD/LINE GUARD	ARM100X	1
7	NAIL, ROOFING, 1-1/2"	135-4420	0.001	15	BOLT, MACHINE, 5/8"	MCH421X	1

B04 / We#

TWO PHASE 60-90 DEGREES, DOUBLE DEADEND, VERTICAL

Page 1 of 1



- 1. "Z" shall be 48" for long span construction and 36" for short span construction.
- 2. See Sag Stds OSAG200 thru OSAG225 for neutral tensions when putting up new conductor.
- 3. If there is a possibility the main line will continue at a later date, it shall be deadended a span beyond. If the line cannot be deadended a span beyond, shoulder eye bolts shall be installed in the positions from which the line will be extended.
- 4. Add guys in order indicated above (A, B, C) as the guy tension calculation chart requires them. See Section G Standards for information. For more than one phase, A & B are both required.
- 5. Install stirrups and hot line clamps and connect a separate copper jumper when this is a sectionalizing point and conductor is #2 ACSR equivalent or smaller. When sectionalizing is not required and conductor size and type being joined are the same, use of the loop splice is preferred over a connector.

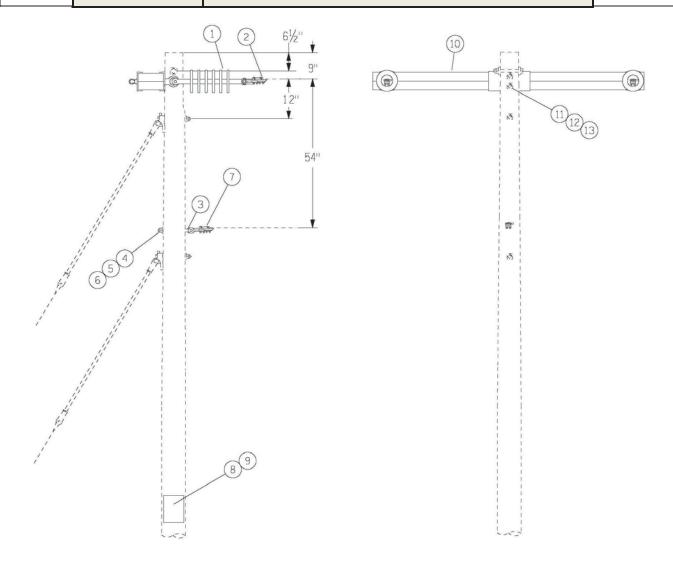
ITEM	MATERIAL		NO.REQ.	ITEM	MATERIAL		NO.REQ.
	ASSEMBLY: DDE-ANG		4	8	EYELET, 5/8" BOLT DI	135-3550	1
1	INSULATOR, DEADEND S	134-5200	1	9	NUT, LOCK, 5/8" DIAMETER	135-4480	1
2	EYELET, 5/8" BOLT DI	135-3550	1	10	WASHER, CURVED, 3/4"	135-9500	1
3	NUT, LOCK, 5/8" DIAMETER	135-4480	1	11	SPLICE, LOOP	COM164X	0.5
4	WASHER, CURVED, 3/4"	135-9500	1	12	BOLT, MACHINE, 5/8"	MCH421X	1
5	SPLICE, LOOP	COM164X	0.5	13	CLAMP, SUSPENSION	STD192X	1
6	BOLT, MACHINE, 5/8"	MCH421X	1		ASSEMBLY: SIGN HV		1
7	CLAMP, SUSPENSION	STD192X	1	14	NAIL, ROOFING, 1-1/2"	135-4420	0.001
	ASSEMBLY: NEUT-DDE		2	15	SIGN, ELEC SAFETY	135-5460	1

02/07/03

B07 / We#

TWO PHASE DEADEND, ARM

Page 1 of 1



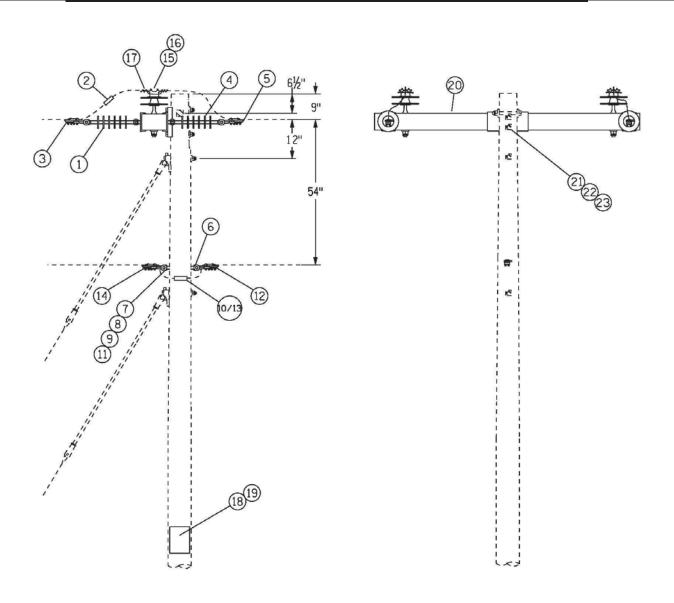
- 1. The Apitong deadend arm (without arm guys) has adequate strength to deadend a conductor on each end with a maximum guying tension of 3500 lbs.
- 2. See <u>Std OHC60</u> to determine appropriate suspension clamp for use on arm construction.
- 3. Tighten all hardware after installing in case of wood shrinkage.

ITEM	MATERIAL		NO.REQ.	ITEM	MATERIAL		NO.REQ.
	ASSEMBLY: DE-FGXARM		2		ASSEMBLY: SIGN HV		1
1	INSULATOR, DEADEND S	134-5200	1	8	NAIL, ROOFING, 1-1/2"	135-4420	0.001
2	CLAMP, SUSPENSION	STD192X	1	9	SIGN, ELEC SAFETY	135-5460	1
	ASSEMBLY: NEUT-DE		1		ASSEMBLY: XARM-APITONG-2		1
3	EYELET, 5/8", BOLT DI	135-3550	1	10	CROSSARM, POLE, 3-3/4	134-0240	1
4	NUT, LOCK, 5/8" DIA, 1	135-4480	1	11	NUT, LOCK, 5/8" DIA, 1	135-4480	2
5	WASHER, CURVED, 3/4"	135-9500	1	12	WASHER, SQUARE, 3/4"	135-9400	2
6	BOLT, MACHINE, 5/8"	MCH421X	1	13	BOLT, MACHINE, 5/8"	MCH421X	2
7	CLAMP, SUSPENSION	STD192X	1				

B08 / We#

## TWO PHASE DOUBLE DEADEND, 0-30 DEGREES

Page 1 of 1



- 1. The Apitong Deadend Crossarm (without arm guys) has adequate strength to deadend a conductor on each end with a maximum guying tension of 3500 lbs.
- 2. See <u>Std OHC60</u> to determine appropriate suspension clamp for use on arm construction.
- 3. Tighten all hardware after installing in case of wood shrinkage.

ITEM	MATERIAL	NO.REQ.	ITEM	MATERIAL		NO.REQ.	
	ASSEMBLY: DDE-FGXARM		2		ASSEMBLY: NUET-DE-BB-NP		1
1	INSULATOR, DEADEND	134-5200	1	13	SPLICE, LOOP	COM164X	0.5
2	SPLICE, LOOP	COM164X	1	14	CLAMP, SUSPENSION	STD192X	1
3	CLAMP, SUSPENSION	STD192X	1		ASSEMBLY: PIN-XARM		2
	ASSEMBLY: DE-FGXARM		2	15	INSULATOR, PIN	134-4955	1
4	INSULATOR, DEADEND	134-5200	1	16	PIN, INSULATOR	135-4516	1
5	CLAMP, SUSPENSION	STD192X	1	17	TIE, DISTRIBUTION	TOP198X	1
	ASSEMBLY: NEUT-DE-BB		1		ASSEMBLY: SIGN HV		1
6	EYELET, 5/8" BOLT DI	135-3550	1	18	NAIL, ROOFING, 1-1/2"	135-4420	0.001
7	NUT, EYE, ROUND, 5/8"	135-4425	1	19	SIGN, ELEC SAFETY	135-5460	1
8	NUT, LOCK, 5/8" DIAMETER	135-4480	1		ASSEMBLY: XARM-APITONG-2		1
9	WASHER, CURVED, 3/4"	135-9500	2	20	CROSSARM, POLE, 3-3/4	134-0240	1
10	SPLICE, LOOP	COM164X	0.5	21	NUT, LOCK, 5/8" DIAMETER	135-4480	2
11	BOLT, MACHINE, 5/8"	MCH421X	1	22	WASHER, SQUARE, 3/4"	135-9400	2
12	CLAMP, SUSPENSION	STD192X	1	23	BOLT, MACHINE, 5/8"	MCH421X	2