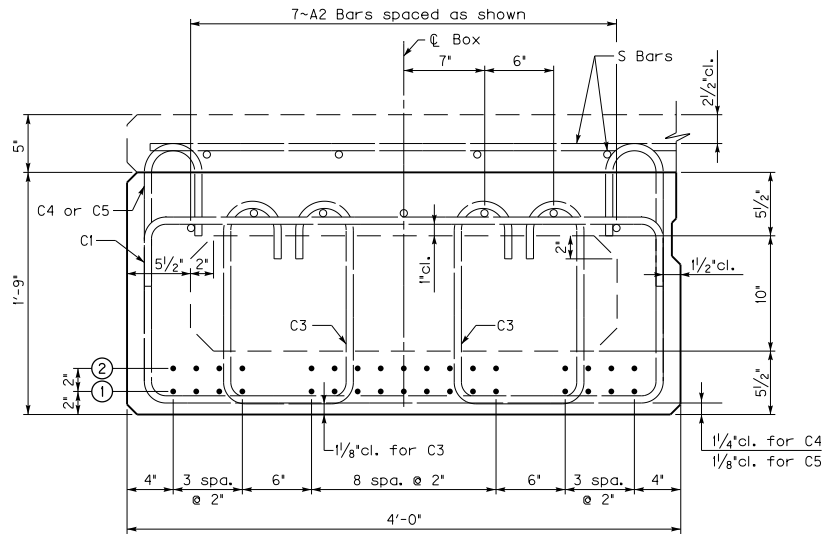
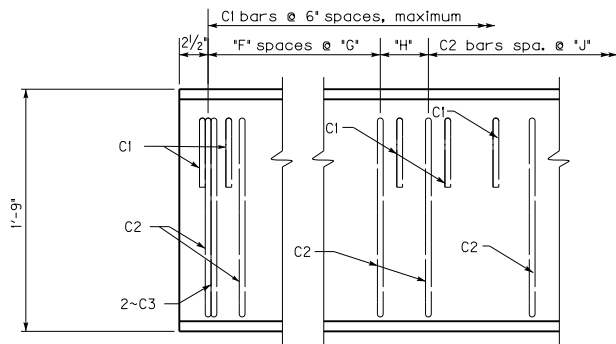


B21 BEAM

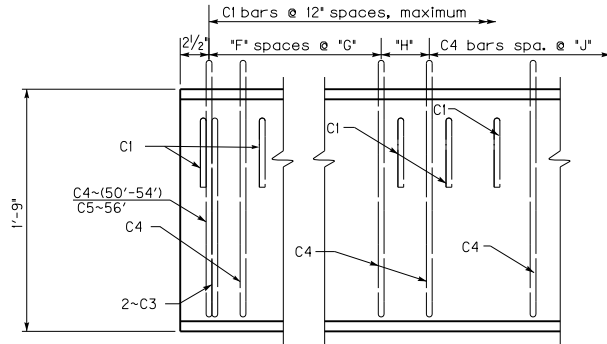


CB21 BEAM



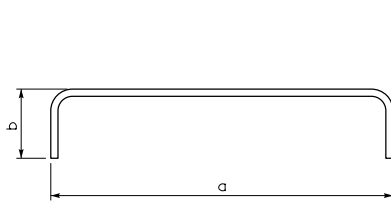
B21 ELEVATION OF 0° SKEW

(Refer to BDP-003, for skewed details)

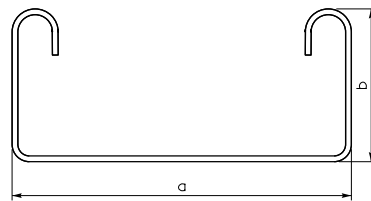


CB21 ELEVATION OF 0° SKEW

(Refer to BDP-003, for skewed details)



C1(e) Bar



C2(e)-C5(e) Bars

TABLE OF STRAND DATA

Beam Type	Beam Length (feet)	Number of Strands Required	
		Row ①	Row ②
B21	44	17	
	46	17	2
	48	17	4
	50	17	6
CB21	50	17	3
	52	17	4
	54	17	6
	56	17	8

TABLE OF DIMENSION DATA

Beam Type	Beam Length (feet)	"F"	"G"	"H"	"J"
B21	44	6	10'	12 1/2'	14'
	46	6	9'	11 1/2'	13'
	48	7	9'	8'	13'
	50	7	9'	7'	13'
CB21	50	7	9'	10 1/2'	16'
	52	7	9'	14 1/2'	16'
	54	7	9'	10 1/2'	16'
	56	9	8'	13 1/2'	16'

TABLE OF BAR QUANTITIES

Beam Type	Beam Length (feet)	C1	C2	C3	C4	C5
B21	44	89	42	4		
	46	93	47	4		
	48	97	50	4		
	50	101	52	4		
CB21	50	51		4	45	
	52	53		4	46	
	54	55		4	48	
	56	57		4	50	2

DESIGN DATA

Beam Type	Beam Length (feet)	DC kips	DW kips	LL kips	LL+I kips	Δd (in.)	Δc (in.)
B21	44	15.7	1.3	43.9	55.5		
	46	16.4	1.3	44.7	56.5		
	48	17.1	1.4	45.5	57.4		
	50	17.9	1.4	46.3	58.3		
CB21	50	24.1	1.4	46.3	58.3	0.3	1.0
	52	25.0	1.5	47.0	59.1	0.3	1.1
	54	26.0	1.5	47.7	60.0	0.4	1.2
	56	27.0	1.6	48.4	60.7	0.4	1.4

Straight Reinforcement

Mark	Size	Length
A(E)	#5	Beam Length Minus 3'
A2(E)	#4	Beam Length Minus 3'
D(E)	#8	2'-0"

Bent Reinforcement

Mark	Size	a	b
C1(e)	#5	3'-9"	6"
C2(e)	#4	3'-9"	1'-5 1/4"
C3(e)	#5	11 3/8"	1'-5 3/8"
C4(e)	#4	3'-9"	1'-10 1/4"
C5(e)	#5	3'-9"	1'-10 3/8"

KENTUCKY
DEPARTMENT OF HIGHWAYS

BOX BEAM
B21 & CB21
DETAILS

STANDARD DRAWING NO. BDP-008-04

SUBMITTED *Mad* 12-01-11
DIRECTOR DIVISION OF STRUCTURAL DESIGN DATE
APPROVED *Sh* 12-01-11
STATE HIGHWAY ENGINEER DATE