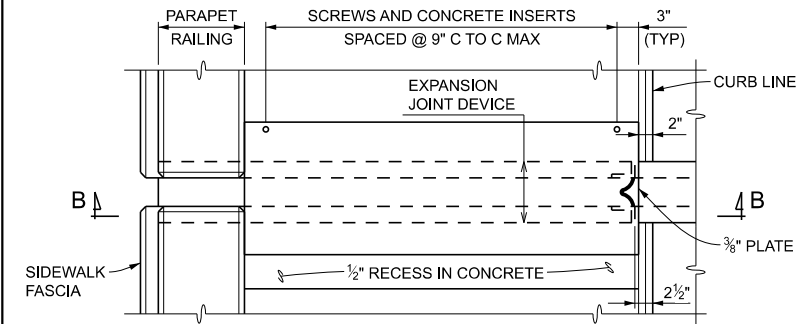
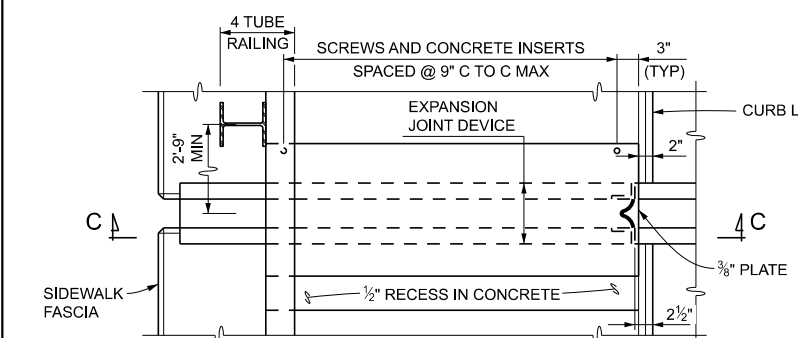


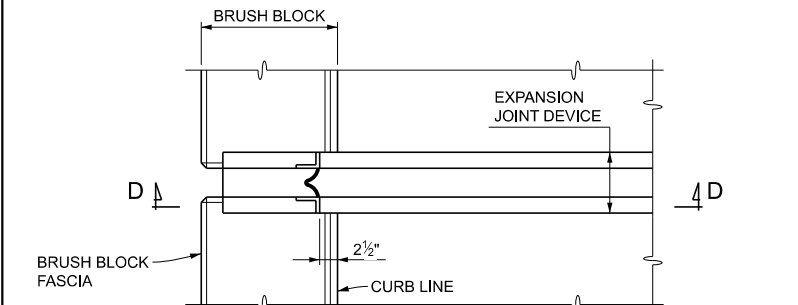
PLAN AT BARRIER RAILING TYPE 4 & TYPE 5



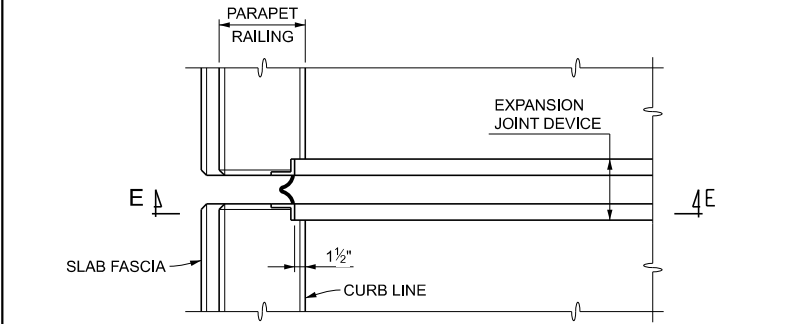
PLAN AT PARAPET RAILING WITH SIDEWALK



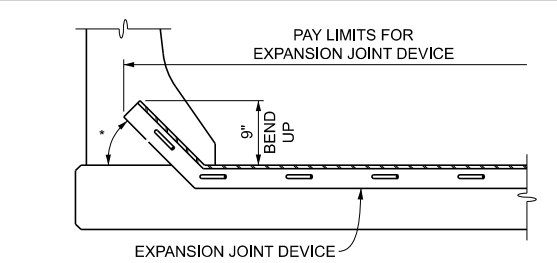
PLAN AT 3 TUBE WITH PICKETS (SIDEWALK) & 4 TUBE (PEDESTRIAN) STEEL RAILING



PLAN AT 2 TUBE, 3 TUBE WITH PICKETS (BRUSH BLOCK) & 4 TUBE (BICYCLE) STEEL RAILING

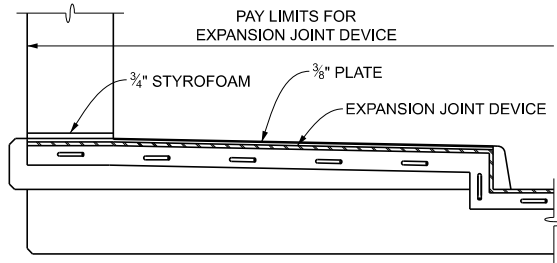


PLAN AT FLUSH MOUNT PARAPET RAILING

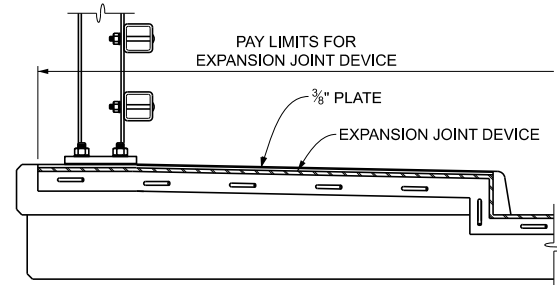


SECTION A - A

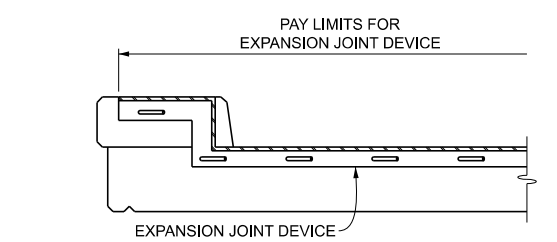
* BEND ANCHORAGE UP 45° ALONG C OF EXPANSION JOINT.



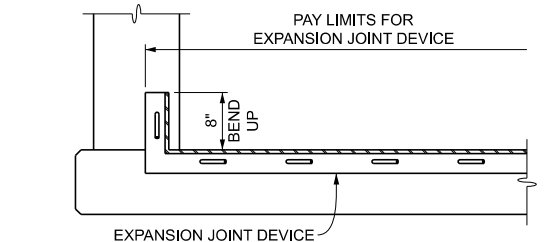
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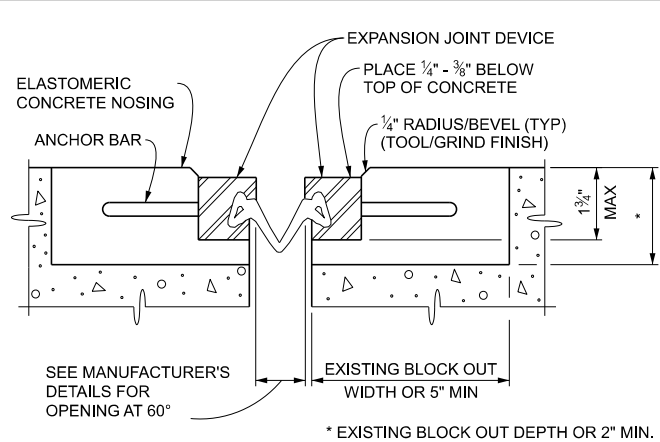
SECTION C - C



SECTION D - D

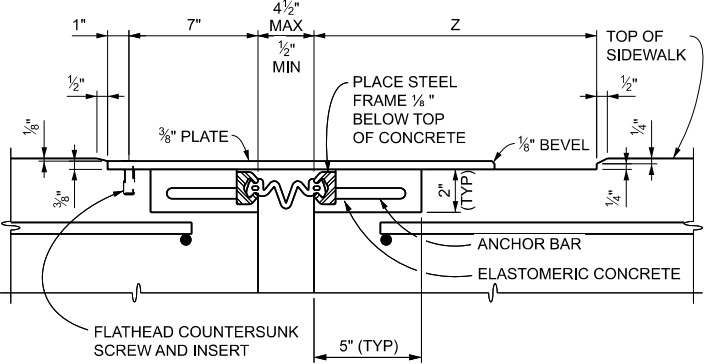


SECTION E - E



SECTION THROUGH EXPANSION JOINT

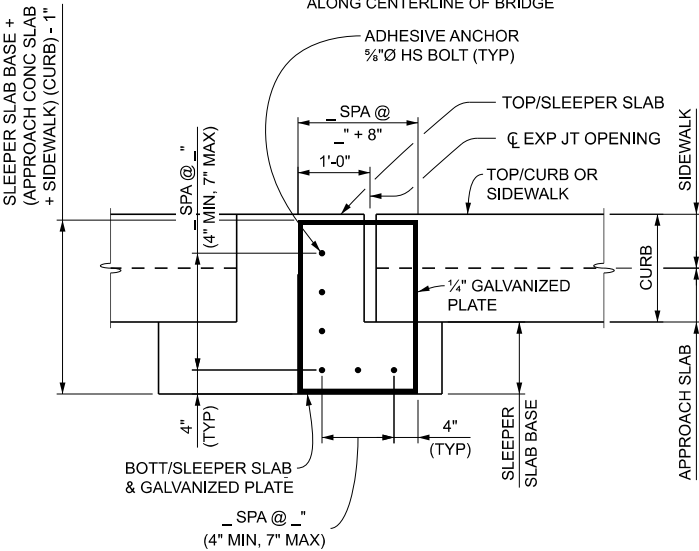
THE MINIMUM BLOCK OUT DIMENSIONS SHOWN ARE APPLICABLE FOR DEVICES WITH STRIP SEALS ONLY.



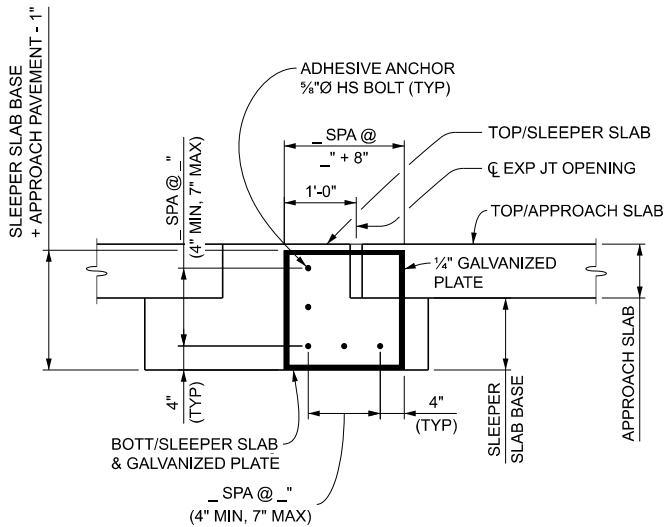
SECTION THROUGH EXPANSION JOINT AND COVER PLATE

TOTAL TRAVEL *	PLATE WIDTH	Z
≤ 1"	15"	7"
1" - 2"	16"	8"
2" - 3"	17"	9"
≥ 3"	18"	10"

* SEE TABLE FOR MINIMUM TOTAL TRAVEL ALONG CENTERLINE OF BRIDGE



END PLATE DETAIL (SLEEPER SLAB WITH APPROACH SLAB AND SIDEWALK OR CURB)



END PLATE DETAIL (SLEEPER SLAB WITH APPROACH SLAB/PAVEMENT)

NOTES:

JOINT TYPES

PROVIDE AN EXPANSION JOINT DEVICE THAT INCLUDES A CONTINUOUS NEOPRENE (OR EQUIVALENT) SEAL ACROSS THE DECK. UNLESS OTHERWISE NOTED, ANY OF THE DEVICES LISTED BELOW THAT ARE SUITABLE TO MEET THE TOTAL MOVEMENT NOTED ON THE PLANS ARE PERMITTED:

DEVICE	MANUFACTURER
STEEFLEX-SSE2	D.S. BROWN CO..
WABO STRIP SEAL - TYPE E	WATSON-BOWMAN & ACME, INC.

DETAILS AT CURBS OR BARRIERS

THE DETAILS ON THIS SHEET SHOW AN APPROVED MEANS OF TERMINATING THE EXPANSION JOINT DEVICE AT CURBS OR BARRIERS. VARIATIONS OR ALTERNATIVE SCHEMES WILL BE CONSIDERED AND MAY BE USED IF APPROVED BY THE ENGINEER.

COVER PLATE LENGTHS

COVER PLATES WITH A LENGTH GREATER THAN 11' MAY BE FABRICATED FROM TWO EQUAL LENGTH PIECES WITH A JOINT LOCATED AT THE CENTERLINE OF THE SIDEWALK OR PATH. PROVIDE A 1/2" WIDE GAP AT THE JOINT THAT IS PARALLEL TO THE CENTERLINE OF THE SIDEWALK OR PATH.

EXPANSION JOINT DEVICE WELD

WELDED SPLICES TO BE PLACED AT THE CROWN OF THE ROADWAY, AT LONGITUDINAL CONSTRUCTION JOINTS OR AT TRANSVERSE BREAKS IN THE DECK.

NO WELDING IS PERMITTED WHERE THE FRAME RAIL COMES IN CONTACT WITH THE NEOPRENE SEAL.

ALTERNATE WELD DETAILS WILL BE CONSIDERED AND MAY BE USED IF APPROVED BY THE ENGINEER.

STRUCTURE NUMBER	ANGLE OF CROSSING TO NEAREST 10°	LOCATION OF JOINT	MIN. TOT. TRAVEL ALONG CENTERLINE OF BRIDGE *	REQUIRED LENGTH OF EXPANSION JOINT DEVICE

QUANTITY		
ITEM	UNIT	AMOUNT
Expansion Joint Device	Ft	
Expansion Joint Device, Cover Plate	Ft	

END PLATE TABLE	
STRUCTURE NUMBER	SIZE

FINAL ROW PLAN REVISIONS SUBMITTAL DATE:					
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE



NO SCALE

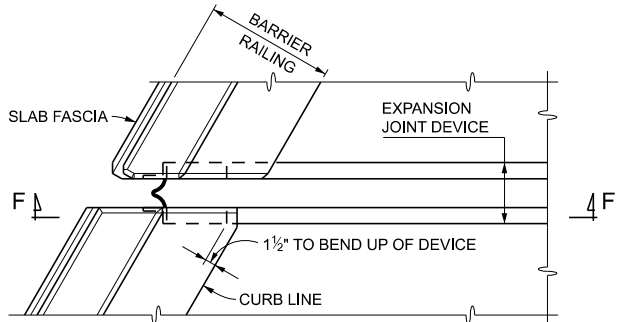
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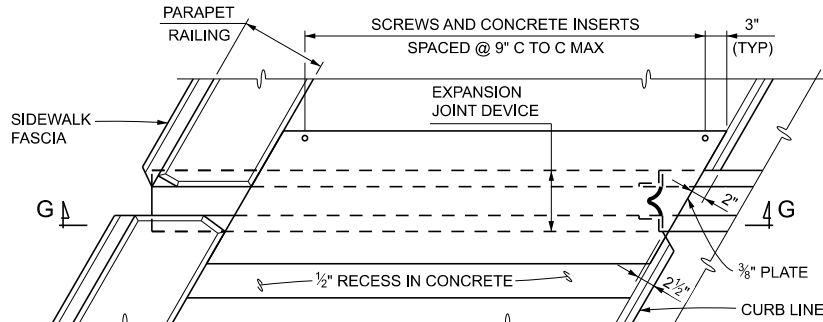
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JN:

EXPANSION JOINT DETAILS
DEVICE, BARRIER, AND END PLATE DETAILS
EJ4T (04-28-2025)

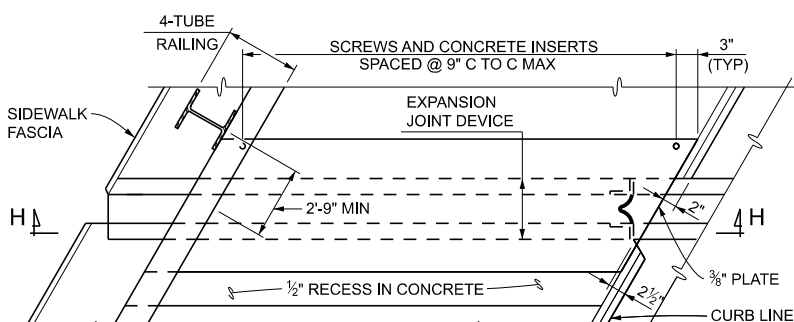
DRAWING SHEET
SECT



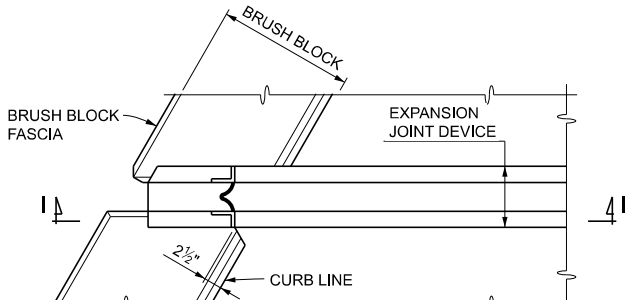
PLAN AT BARRIER RAILING TYPE 4 & TYPE 5



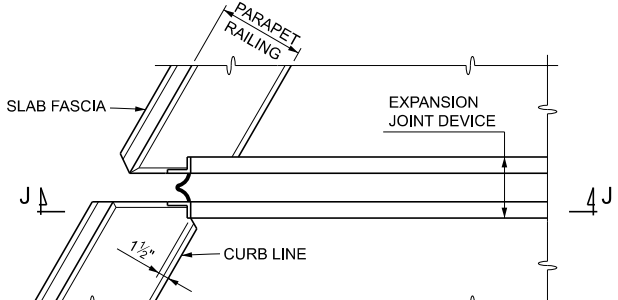
PLAN AT PARAPET RAILING WITH SIDEWALK



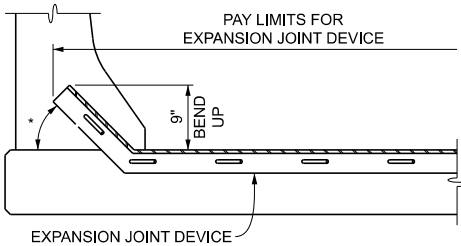
PLAN AT 3 TUBE WITH PICKETS (SIDEWALK) & 4 TUBE (PEDESTRIAN) STEEL RAILING



PLAN AT 2 TUBE, 3 TUBE WITH PICKETS (BRUSH BLOCK) & 4 TUBE (BICYCLE) STEEL RAILING

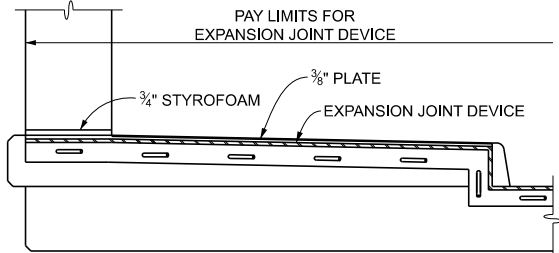


PLAN AT FLUSH MOUNT PARAPET RAILING

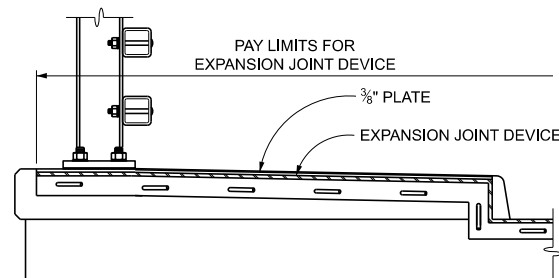


SECTION F - F

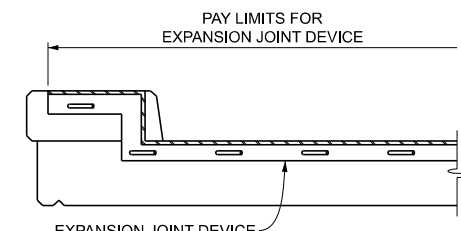
* FOR ANGLES OF CROSSING FROM 69° TO 45° INCLUSIVE, BEND ANCHORAGE UP 45° ALONG C/L OF EXPANSION JOINT. FOR ANGLES OF CROSSING LESS THAN 45°, A SPECIAL ENDING MAY BE REQUIRED.



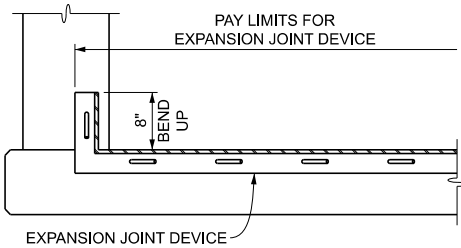
SECTION G - G



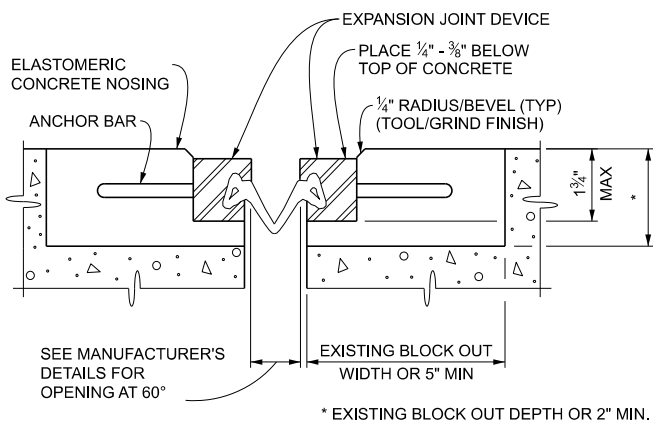
SECTION H - H



SECTION I - I

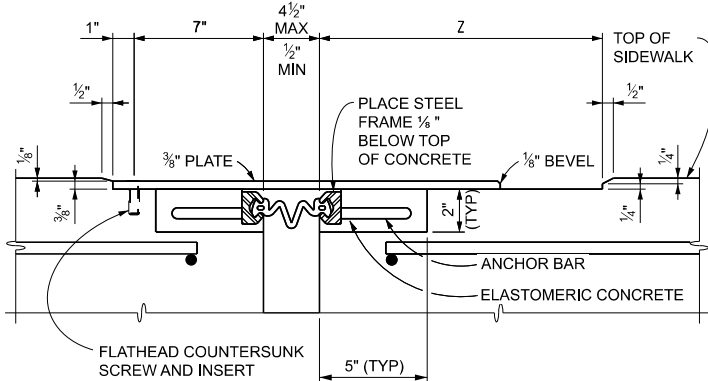


SECTION J - J



SECTION THROUGH EXPANSION JOINT

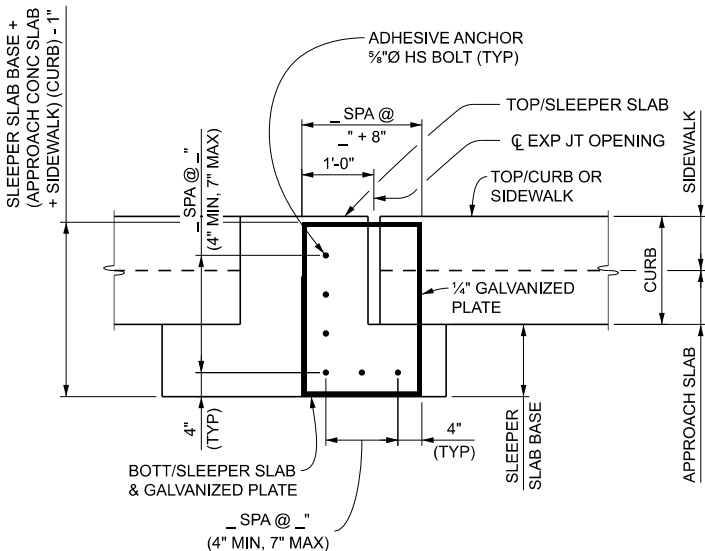
THE MINIMUM BLOCK OUT DIMENSIONS SHOWN ARE APPLICABLE FOR DEVICES WITH STRIP SEALS ONLY.



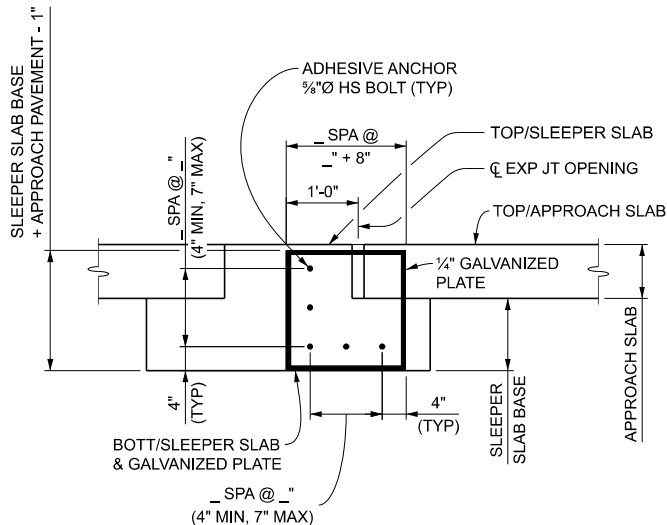
SECTION THROUGH EXPANSION JOINT AND COVER PLATE

TOTAL TRAVEL *	PLATE WIDTH	Z
≤ 1"	15"	7"
1" - 2"	16"	8"
2" - 3"	17"	9"
≥ 3"	18"	10"

* SEE TABLE FOR MINIMUM TOTAL TRAVEL ALONG CENTERLINE OF BRIDGE



END PLATE DETAIL (SLEEPER SLAB WITH APPROACH SLAB AND SIDEWALK OR CURB)



END PLATE DETAIL (SLEEPER SLAB WITH APPROACH SLAB/PAVEMENT)

NOTES:

JOINT TYPES

PROVIDE AN EXPANSION JOINT DEVICE THAT INCLUDES A CONTINUOUS NEOPRENE (OR EQUIVALENT) SEAL ACROSS THE DECK. UNLESS OTHERWISE NOTED, ANY OF THE DEVICES LISTED BELOW THAT ARE SUITABLE TO MEET THE TOTAL MOVEMENT NOTED ON THE PLANS ARE PERMITTED:

DEVICE	MANUFACTURER
STEELEX-SSE2	D.S. BROWN CO..
WABO STRIP SEAL - TYPE E	WATSON-BOWMAN & ACME, INC.

DETAILS AT CURBS OR BARRIERS

THE DETAILS ON THIS SHEET SHOW AN APPROVED MEANS OF TERMINATING THE EXPANSION JOINT DEVICE AT CURBS OR BARRIERS. VARIATIONS OR ALTERNATIVE SCHEMES WILL BE CONSIDERED AND MAY BE USED IF APPROVED BY THE ENGINEER.

COVER PLATE LENGTHS

COVER PLATES WITH A LENGTH GREATER THAN 11' MAY BE FABRICATED FROM TWO EQUAL LENGTH PIECES WITH A JOINT LOCATED AT THE CENTERLINE OF THE SIDEWALK OR PATH. PROVIDE A 1/4" WIDE GAP AT THE JOINT THAT IS PARALLEL TO THE CENTERLINE OF THE SIDEWALK OR PATH.

EXPANSION JOINT DEVICE WELD

WELDED SPLICES TO BE PLACED AT THE CROWN OF THE ROADWAY, AT LONGITUDINAL CONSTRUCTION JOINTS OR AT TRANSVERSE BREAKS IN THE DECK.

NO WELDING IS PERMITTED WHERE THE FRAME RAIL COMES IN CONTACT WITH THE NEOPRENE SEAL.

ALTERNATE WELD DETAILS WILL BE CONSIDERED AND MAY BE USED IF APPROVED BY THE ENGINEER.

STRUCTURE NUMBER	ANGLE OF CROSSING TO NEAREST 10°	LOCATION OF JOINT	MIN. TOT. TRAVEL ALONG CENTERLINE OF BRIDGE *	REQUIRED LENGTH OF EXPANSION JOINT DEVICE

QUANTITY		
ITEM	UNIT	AMOUNT
Expansion Joint Device	Ft	
Expansion Joint Device, Cover Plate	Ft	

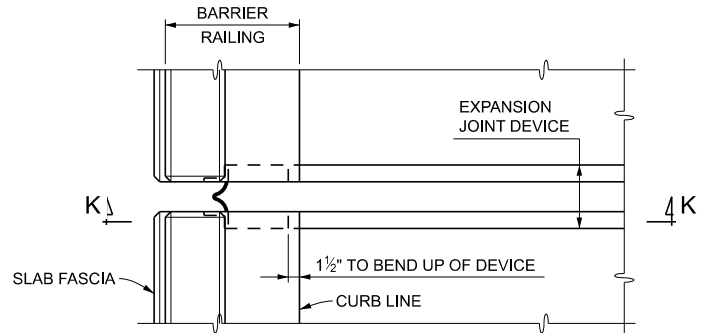
END PLATE TABLE	
STRUCTURE NUMBER	SIZE

FINAL ROW PLAN REVISIONS SUBMITTAL DATE:					
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE

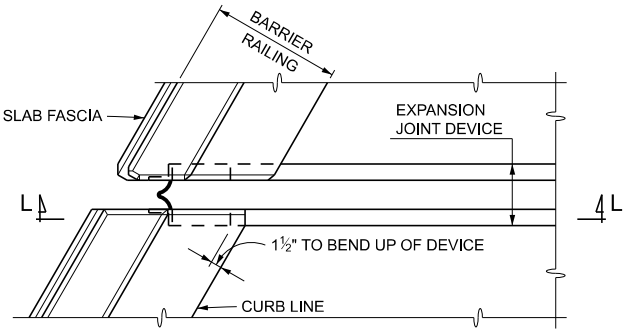


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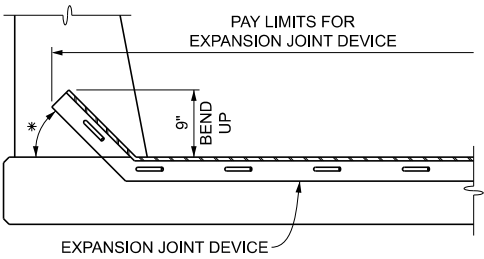
DATE:	CS:	EXPANSION JOINT DETAILS		DRAWING	SHEET
DESIGN UNIT:	JN:	DEVICE, BARRIER, AND END PLATE DETAILS			SECT
TSC:		EJ4T (04-28-2025)			



PLAN AT BARRIER RAILING TYPE 6 & TYPE 7

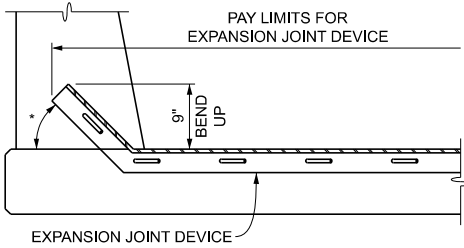


PLAN AT BARRIER RAILING TYPE 6 & TYPE 7



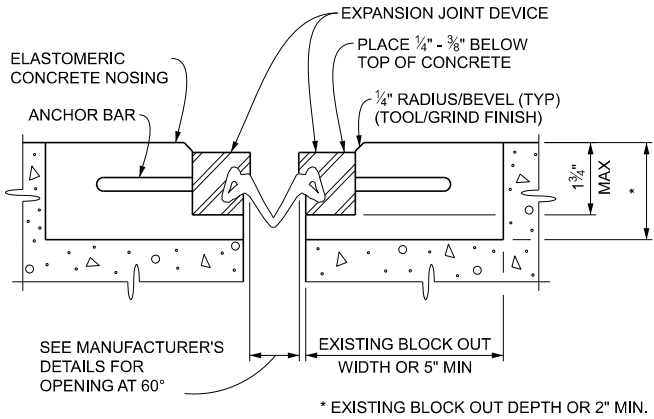
SECTION K - K

* BEND ANCHORAGE UP 45° ALONG C OF EXPANSION JOINT.



SECTION L - L

* FOR ANGLES OF CROSSING FROM 69° TO 45° INCLUSIVE, BEND ANCHORAGE UP 45° ALONG C OF EXPANSION JOINT. FOR ANGLES OF CROSSING LESS THAN 45°, A SPECIAL ENDING MAY BE REQUIRED.



SECTION THROUGH EXPANSION JOINT

THE MINIMUM BLOCK OUT DIMENSIONS SHOWN ARE APPLICABLE FOR DEVICES WITH STRIP SEALS ONLY.

NOTES:

JOINT TYPES

PROVIDE AN EXPANSION JOINT DEVICE THAT INCLUDES A CONTINUOUS NEOPRENE (OR EQUIVALENT) SEAL ACROSS THE DECK. UNLESS OTHERWISE NOTED, ANY OF THE DEVICES LISTED BELOW THAT ARE SUITABLE TO MEET THE TOTAL MOVEMENT NOTED ON THE PLANS ARE PERMITTED:

DEVICE	MANUFACTURER
STEELFLEX-SSE2	D.S. BROWN CO..
WABO STRIP SEAL - TYPE E	WATSON-BOWMAN & ACME, INC.

DETAILS AT CURBS OR BARRIERS

THE DETAILS ON THIS SHEET SHOW AN APPROVED MEANS OF TERMINATING THE EXPANSION JOINT DEVICE AT CURBS OR BARRIERS. VARIATIONS OR ALTERNATIVE SCHEMES WILL BE CONSIDERED AND MAY BE USED IF APPROVED BY THE ENGINEER.

COVER PLATE LENGTHS

COVER PLATES WITH A LENGTH GREATER THAN 11' MAY BE FABRICATED FROM TWO EQUAL LENGTH PIECES WITH A JOINT LOCATED AT THE CENTERLINE OF THE SIDEWALK OR PATH. PROVIDE A 1/2" WIDE GAP AT THE JOINT THAT IS PARALLEL TO THE CENTERLINE OF THE SIDEWALK OR PATH.

EXPANSION JOINT DEVICE WELD

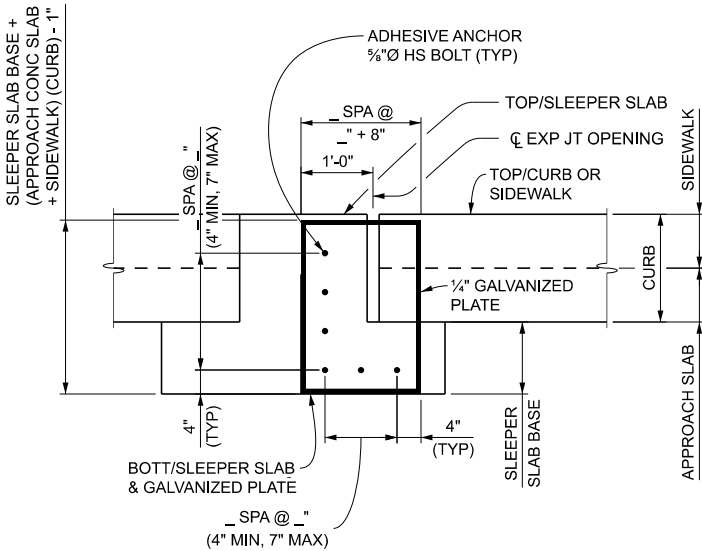
WELDED SPLICES TO BE PLACED AT THE CROWN OF THE ROADWAY, AT LONGITUDINAL CONSTRUCTION JOINTS OR AT TRANSVERSE BREAKS IN THE DECK.

NO WELDING IS PERMITTED WHERE THE FRAME RAIL COMES IN CONTACT WITH THE NEOPRENE SEAL.

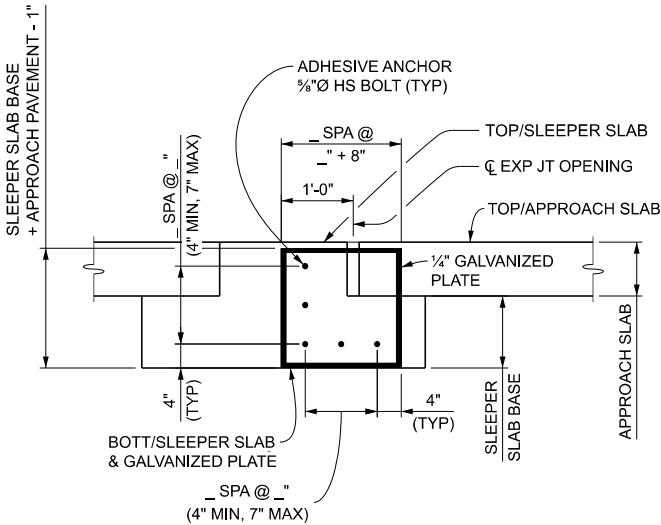
ALTERNATE WELD DETAILS WILL BE CONSIDERED AND MAY BE USED IF APPROVED BY THE ENGINEER.

STRUCTURE NUMBER	ANGLE OF CROSSING TO NEAREST 10°	LOCATION OF JOINT	MIN. TOT. TRAVEL ALONG CENTERLINE OF BRIDGE *	REQUIRED LENGTH OF EXPANSION JOINT DEVICE

QUANTITY		
ITEM	UNIT	AMOUNT
Expansion Joint Device	Ft	
Expansion Joint Device, Cover Plate	Ft	

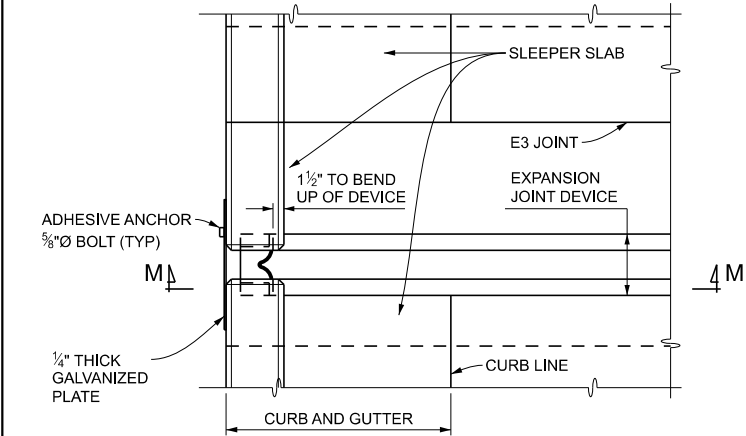


END PLATE DETAIL
(SLEEPER SLAB WITH APPROACH SLAB AND SIDEWALK OR CURB)

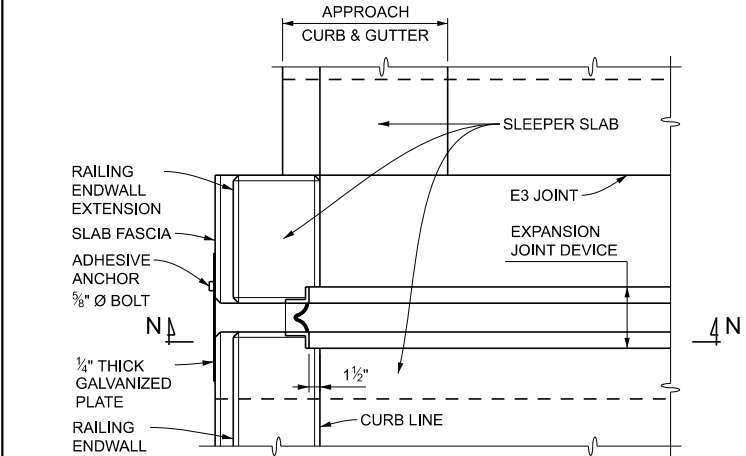


END PLATE DETAIL
(SLEEPER SLAB WITH APPROACH SLAB/PAVEMENT)

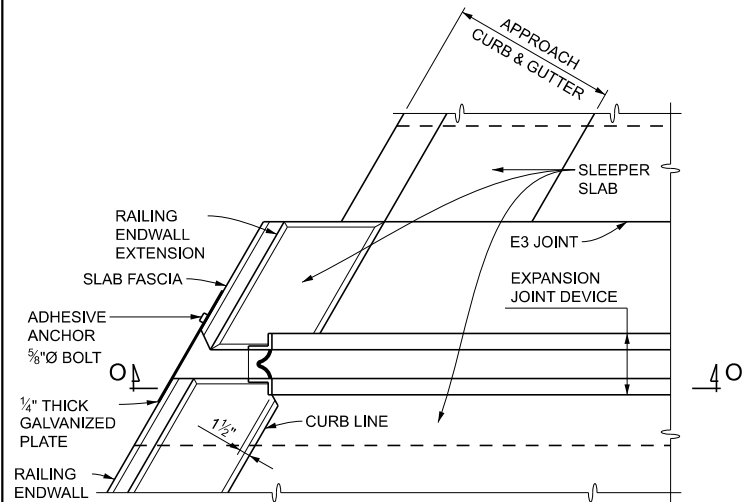
END PLATE TABLE	
STRUCTURE NUMBER	SIZE



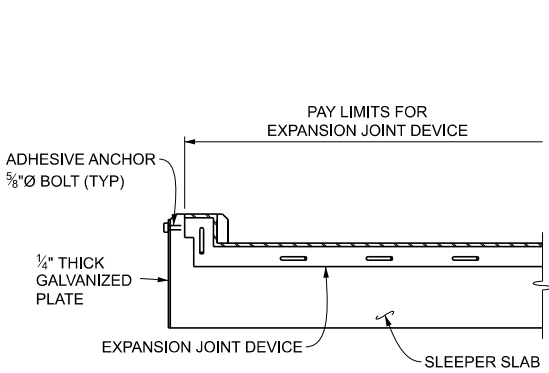
PLAN AT SLEEPER SLAB WITH CURB & GUTTER



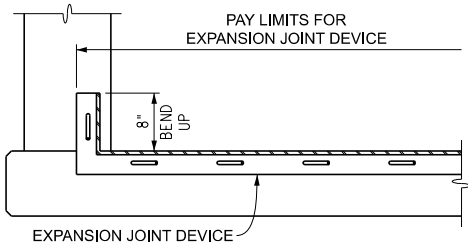
PLAN AT SLEEPER SLAB WITH RAILING ENDWALL
(RAILING ENDING AT SLEEPER SLAB)



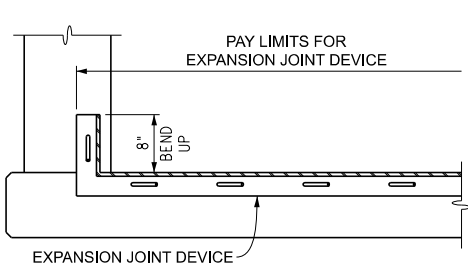
PLAN AT SLEEPER SLAB WITH RAILING ENDWALL
(RAILING ENDING AT SLEEPER SLAB)



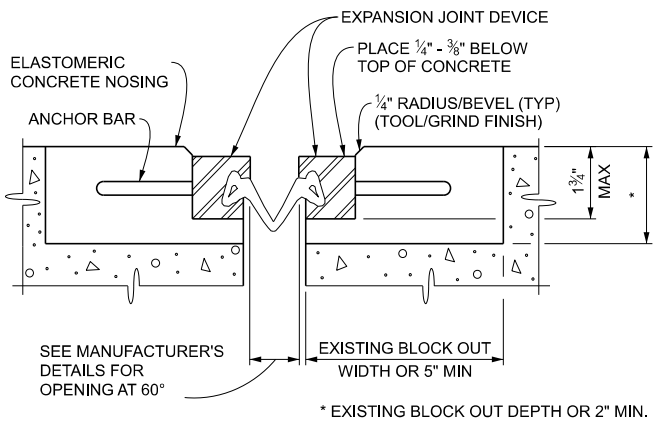
SECTION M - M
(MODIFY CURB HEIGHT/DETAIL AS NECESSARY)



SECTION N - N



SECTION O - O



SECTION THROUGH EXPANSION JOINT

THE MINIMUM BLOCK OUT DIMENSIONS SHOWN ARE APPLICABLE FOR DEVICES WITH STRIP SEALS ONLY.

NOTES:

JOINT TYPES

PROVIDE AN EXPANSION JOINT DEVICE THAT INCLUDES A CONTINUOUS NEOPRENE (OR EQUIVALENT) SEAL ACROSS THE DECK. UNLESS OTHERWISE NOTED, ANY OF THE DEVICES LISTED BELOW THAT ARE SUITABLE TO MEET THE TOTAL MOVEMENT NOTED ON THE PLANS ARE PERMITTED:

DEVICE	MANUFACTURER
STEELEX-SSE2	D.S. BROWN CO.
WABO STRIP SEAL - TYPE E	WATSON-BOWMAN & ACME, INC.

DETAILS AT CURBS OR BARRIERS

THE DETAILS ON THIS SHEET SHOW AN APPROVED MEANS OF TERMINATING THE EXPANSION JOINT DEVICE AT CURBS OR BARRIERS. VARIATIONS OR ALTERNATIVE SCHEMES WILL BE CONSIDERED AND MAY BE USED IF APPROVED BY THE ENGINEER.

COVER PLATE LENGTHS

COVER PLATES WITH A LENGTH GREATER THAN 11' MAY BE FABRICATED FROM TWO EQUAL LENGTH PIECES WITH A JOINT LOCATED AT THE CENTERLINE OF THE SIDEWALK OR PATH. PROVIDE A 1/2" WIDE GAP AT THE JOINT THAT IS PARALLEL TO THE CENTERLINE OF THE SIDEWALK OR PATH.

EXPANSION JOINT DEVICE WELD

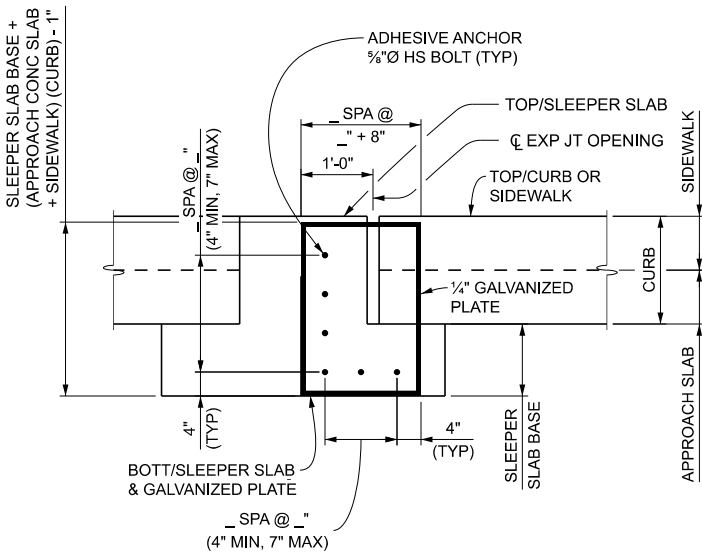
WELDED SPLICES TO BE PLACED AT THE CROWN OF THE ROADWAY, AT LONGITUDINAL CONSTRUCTION JOINTS OR AT TRANSVERSE BREAKS IN THE DECK.

NO WELDING IS PERMITTED WHERE THE FRAME RAIL COMES IN CONTACT WITH THE NEOPRENE SEAL.

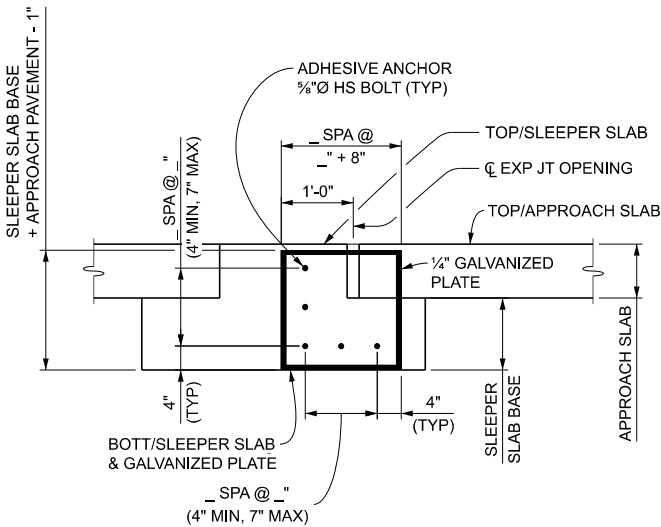
ALTERNATE WELD DETAILS WILL BE CONSIDERED AND MAY BE USED IF APPROVED BY THE ENGINEER.

STRUCTURE NUMBER	ANGLE OF CROSSING TO NEAREST 10°	LOCATION OF JOINT	MIN. TOT. TRAVEL ALONG CENTERLINE OF BRIDGE *	REQUIRED LENGTH OF EXPANSION JOINT DEVICE

QUANTITY		
ITEM	UNIT	AMOUNT
Expansion Joint Device	Ft	
Expansion Joint Device, Cover Plate	Ft	

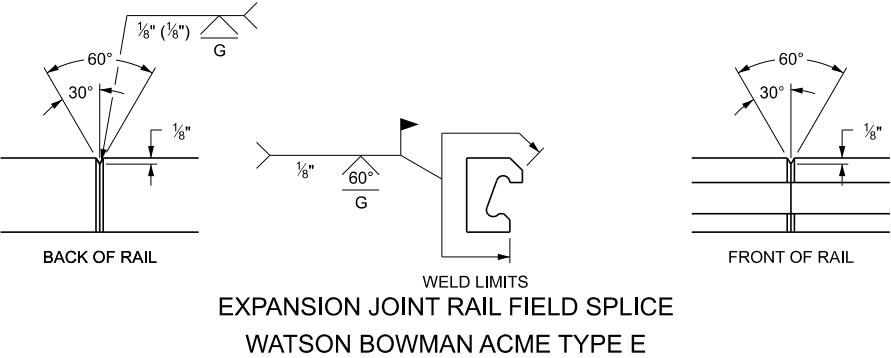
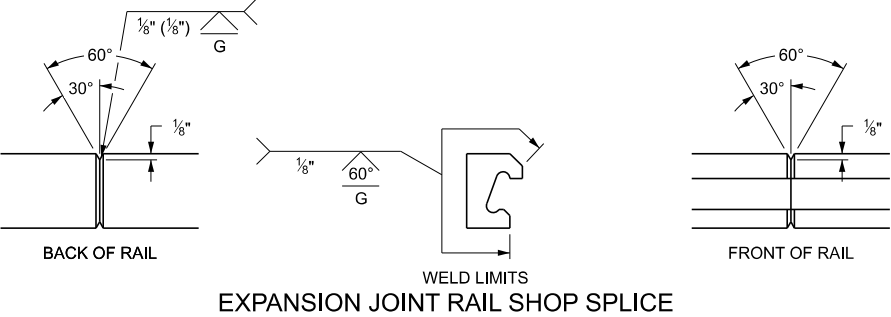
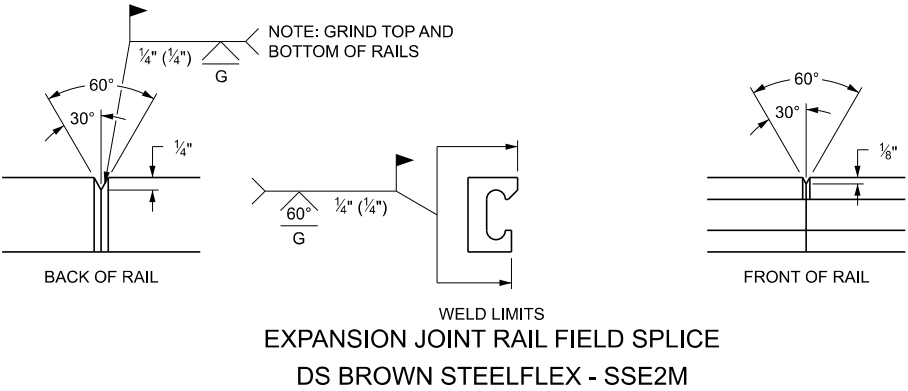
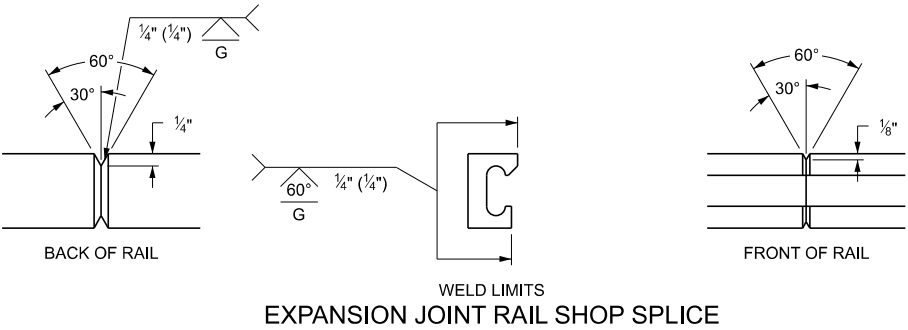



END PLATE DETAIL
(SLEEPER SLAB WITH APPROACH SLAB AND SIDEWALK OR CURB)



END PLATE DETAIL
(SLEEPER SLAB WITH APPROACH SLAB/PAVEMENT)

END PLATE TABLE	
STRUCTURE NUMBER	SIZE



FINAL ROW PLAN REVISIONS								SUBMITTAL DATE:		 Michigan Department of Transportation	NO SCALE			DATE:	CS:	EXPANSION JOINT DETAILS		DRAWING	SHEET						
NO.	DATE	AUTH	DESCRIPTION				NO.	DATE	AUTH			DESCRIPTION				DESIGN UNIT:		JN:	RAIL SPLICE DETAILS			SECT			
												FILE:		TSC:				EJ4T (04-28-2025)							