

DECIMAL DEGREE OF CURVE	DEGREE OF CURVE IN DEGREE/ MINS/SECS	SPEED IN MILES PER HOUR																
		10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
0.5°	0°-30'																	
1.0°	1°-00'													3/4"	1"	1 1/2"	2 1/4"	2 3/4"
1.5°	1°-30'										3/4"	1"	1 1/2"	2 1/4"	3"	3 3/4"	4 3/4"	
2.0°	2°-00'									3/4"	1 1/4"	2 1/4"	3"	4"	5"			
2.5°	2°-30'									1 1/2"	2 1/2"	3 1/2"	4 1/2"					
3.0°	3°-00'							3/4"	1 1/4"	2 1/4"	3 1/2"	4 3/4"						
3.5°	3°-30'							1"	2"	3 1/4"	4 1/2"							
4.0°	4°-00'						3/4"	1 1/2"	2 3/4"	4"								
4.5°	4°-30'						1"	2 1/4"	3 1/2"	5"								
5.0°	5°-00'					3/4"	1 1/2"	2 3/4"	4 1/4"									
5.5°	5°-30'					3/4"	1 3/4"	3 1/4"	5"									
6.0°	6°-00'					1"	2 1/4"	3 3/4"										
6.5°	6°-30'					1 1/4"	2 3/4"	4 1/2"										
7.0°	7°-00'					1 1/2"	3 1/4"	5"										
7.5°	7°-30'				3/4"	1 3/4"	3 1/2"											
8.0°	8°-00'				3/4"	2 1/4"	4"											
9.0°	9°-00'				1"	2 3/4"	4 3/4"											
10.0°	10°-00'				1 1/2"	3 1/2"												
11.0°	11°-00'			3/4"	2"	4"												
12.0°	12°-00'			3/4"	2 1/4"	4 3/4"												

E = ELEVATION OF THE OUTSIDE RAIL IN INCHES
D = DEGREE OF CURVE IN DECIMAL DEGREE FORMAT
S = SPEED IN MILES PER HOUR

CONVERSIONS ARE AS FOLLOWS:

$$E = S(0.0007SD) - 3"$$

R = RADIUS OF CURVE IN FEET

$$D = \frac{5729.578}{R}$$

$$S(\text{max.}) = \sqrt{\frac{E + 3}{(0.0007)D}}$$

NOTES:
THESE REQUIREMENTS DO NOT REPRESENT
MAINTENANCE STANDARDS; THEREFORE, DO NOT USE
THEM TO DETERMINE APPROVED ELEVATION WHEN
SURFACING AND LINING EXISTING CURVES. FOR
EXISTING CURVES, USE CURVE DATA INFORMATION IN
THE CURVE DATA HANDBOOK OR IN THE ON-LINE
INTRANET ENGINEERING PLANNING AND BUDGETING
SITE.

(<http://home.uprr.com/depts/engineering/apps/efms/curves/curvesreporting.cfm>)

NO SUPERELEVATION (E) GREATER THAN 5" SHALL BE
INSTALLED.

REFERENCE STD DWG 0019.

UNION PACIFIC RAILROAD
ENGINEERING STANDARDS

**SUPERELEVATION OF
CURVES 3" UNBALANCE
FRA MAX ALLOWABLE**



ADOPTED: DEC. 31, 1996
REVISED: FEB. 3, 2014
FILE NO.: 0023E

STD DWG
0023E