

	θ							
	5°	10°	15°	20°	25°	30°	35°	40°
cos θ	0.99619	0.98481	0.96593	0.93969	0.90631	0.86603	0.81915	0.76604
sin θ	0.08716	0.17365	0.25882	0.34202	0.42262	0.50000	0.57358	0.64279
tan θ	0.08749	0.17633	0.26795	0.36397	0.46631	0.57735	0.70021	0.83910

TWO COLUMNS

A = 0.2L
B = 0.6L

THREE COLUMNS

A = 0.15L
B = 0.35L
D = 0.35L

FOUR COLUMNS

A = 0.125L
B = 0.25L
D = 0.25L
E = 0.25L

L =

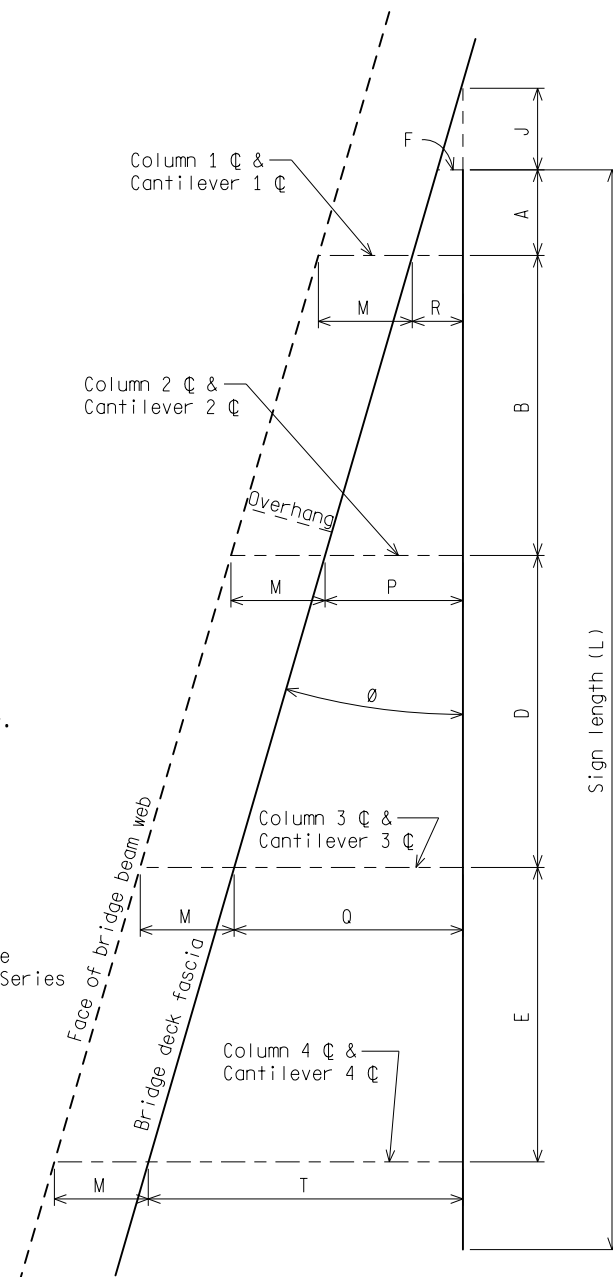
H =

Sign Area = Sq.ft.

$J = \frac{F}{\tan\theta}$

J =

F = Fascia clearance refer to Sign-830-Series for appropriate dimensions.



$M = \frac{\text{Overhang}}{\cos\theta}$

M =

R = (J+A)tan θ

R =

P = (J+A+B)tan θ

P =

Q = (J+A+B+D)tan θ

Q =

T = (J+A+B+D+E)tan θ

T =

TWO COLUMNS

Cantilever 1 length = M+R
Cantilever 2 length = M+P = C

THREE COLUMNS

Cantilever 1 length = M+R
Cantilever 2 length = M+P
Cantilever 3 length = M+Q = C

FOUR COLUMNS

Cantilever 1 length = M+R
Cantilever 2 length = M+P
Cantilever 3 length = M+Q
Cantilever 4 length = M+T = C

C = Value to verify diaphragm need.

NOTE:
THIS TYPICAL DOES NOT APPLY TO CURVED BRIDGES.



DEPARTMENT DIRECTOR
Bradley C. Wiefelich, P.E.

MICHIGAN DEPARTMENT OF TRANSPORTATION

**BRIDGE SIGN CONNECTION
ANGLE CALCULATIONS**

PREPARED BY
ANCILLARY
STRUCTURES

APPROVED BY: _____
DIRECTOR, BUREAU OF FIELD SERVICES

DRAWN BY: HNTB

APPROVED BY: _____
DIRECTOR, BUREAU OF DEVELOPMENT

CHECKED BY: MLD

(SPECIAL DETAIL)
F.H.W.A. APPROVAL

08/11/23
PLAN DATE

SIGN-840-A

SHEET
1 OF 1