Building Envelope Tolerance Series 4 of 5 - Steel

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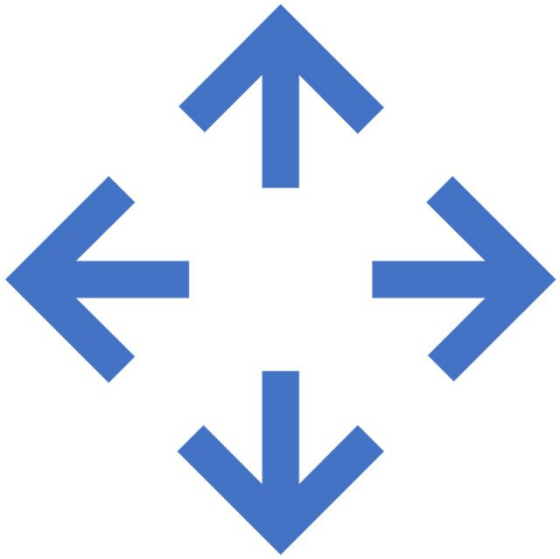


List of References:

Handbook of Construction Tolerances 2ed

by David Kent Ballast, AIA, CSI

ASTM A6, Standard Specification for General Requirements for Rolled Structural Steel, Bars, Plates, Shapes, & Sheet Pilings

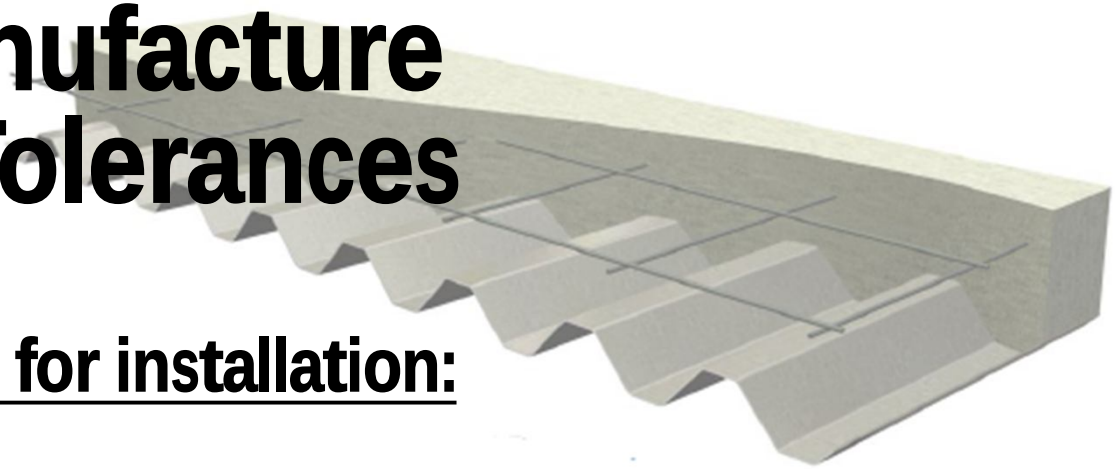
AISC 303, Code of Standard Practice for Steel Buildings & Bridges

Building Envelope Tolerance

Steel

STEEL

Steel Deck Manufacture & Installation Tolerances



Minimum Edge Distance for installation:

Steel deck could be butted/end ° lapped at supports.

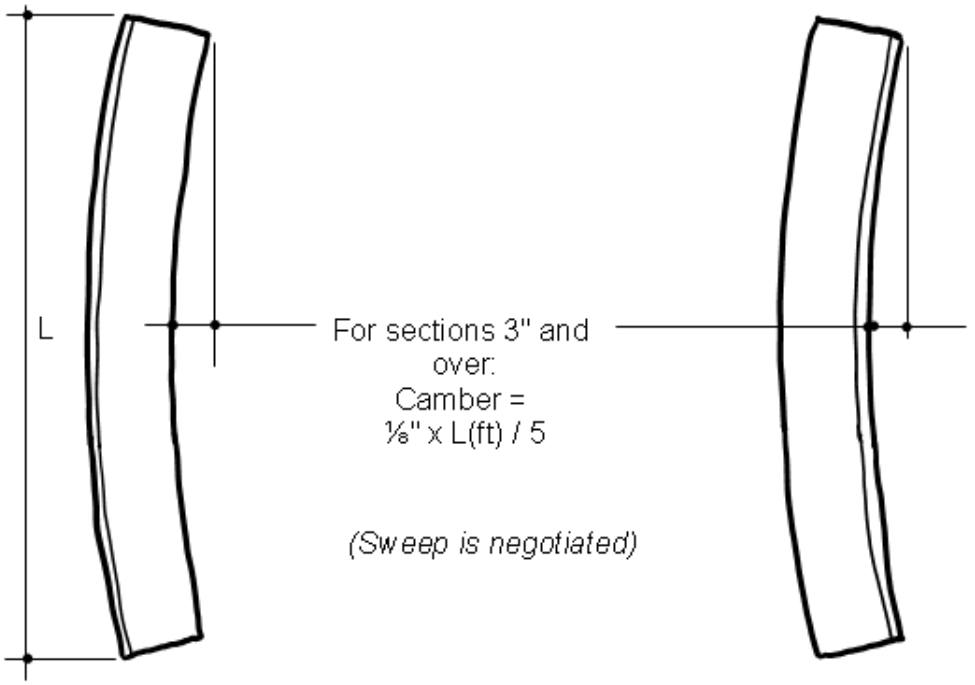
Steel deck overlap shall be 2” with a ±½” tolerance (minimum overlap is 1½” to 2½”...However, overlaps greater than 2½” are acceptable.

Minimum edge distance of a fastener for the deck is ½”.

ASC Steel Deck Fabrication Tolerances	
Length of Panel:	±½”
Coverage Width:	-⅜”, +¾”
Sweep of Panel:	¼” in 10’
Square of Panel:	⅛” per foot width
Height of Panel:	±1/16”

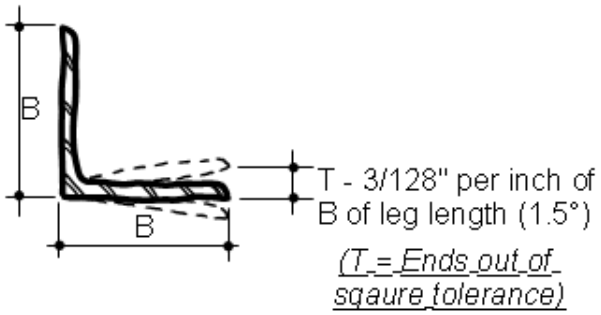
Steel Angle Manufacture Tolerances

Variation in sizes (length) for Angle		
	Over, B	Under, B
2” < 3”	1/16”	1/16”
3” < 4”	1/8”	3/32”
4” < 6”	1/8”	1/8”
> 6”	3/16”	1/8”



SWEEP AND CAMBER TOLERANCES

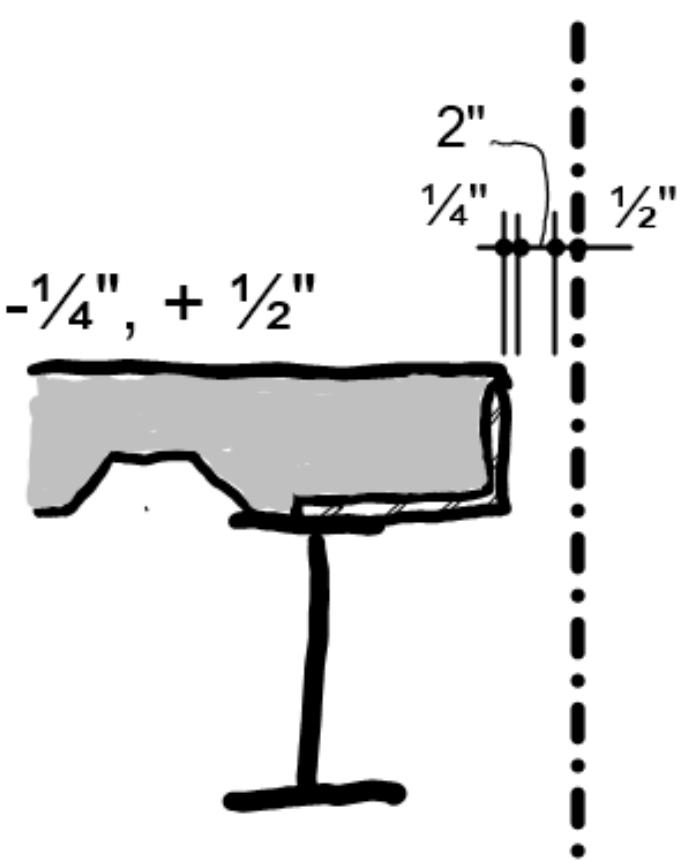
Unequal Legs, longer leg determines classification



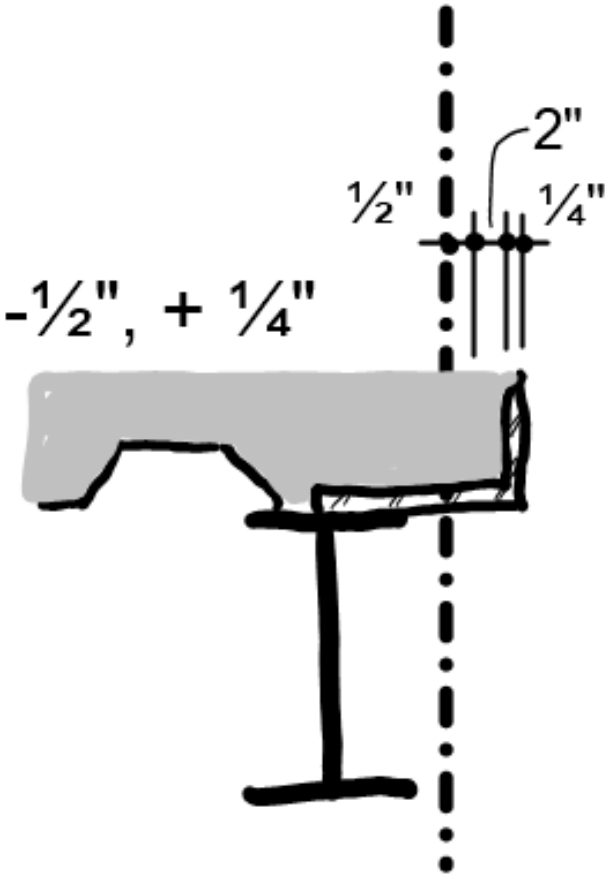
CROSS SECTIONAL TOLERANCE

Variation in Length of Angle								
	5’ to 10’		10’ to 20’		20’ to 30’		30’ to 40’	
	Over	*Under*	*Over*	*Under*	*Over*	*Under*	*Over*	*Under*
Under 3”	⅝”	0	1”	0	1½”	0	2”	0
3” & Over	1”	0	1½”	0	1¾”	0	2¼	0

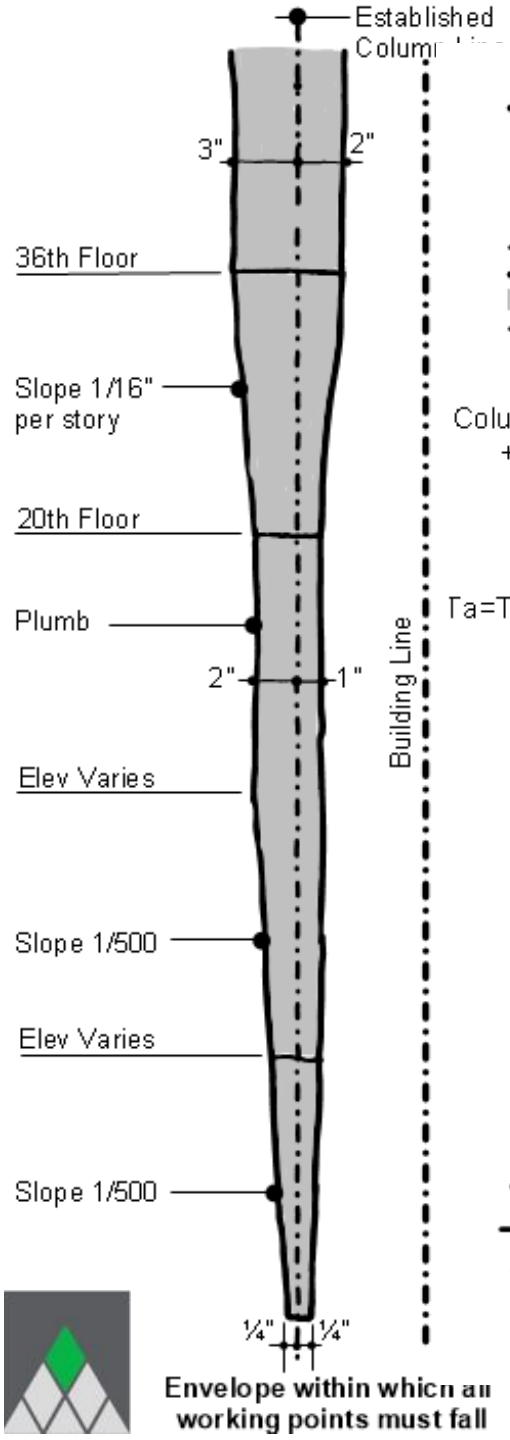
Steel Angle Installation @ Slab Edge Tolerance

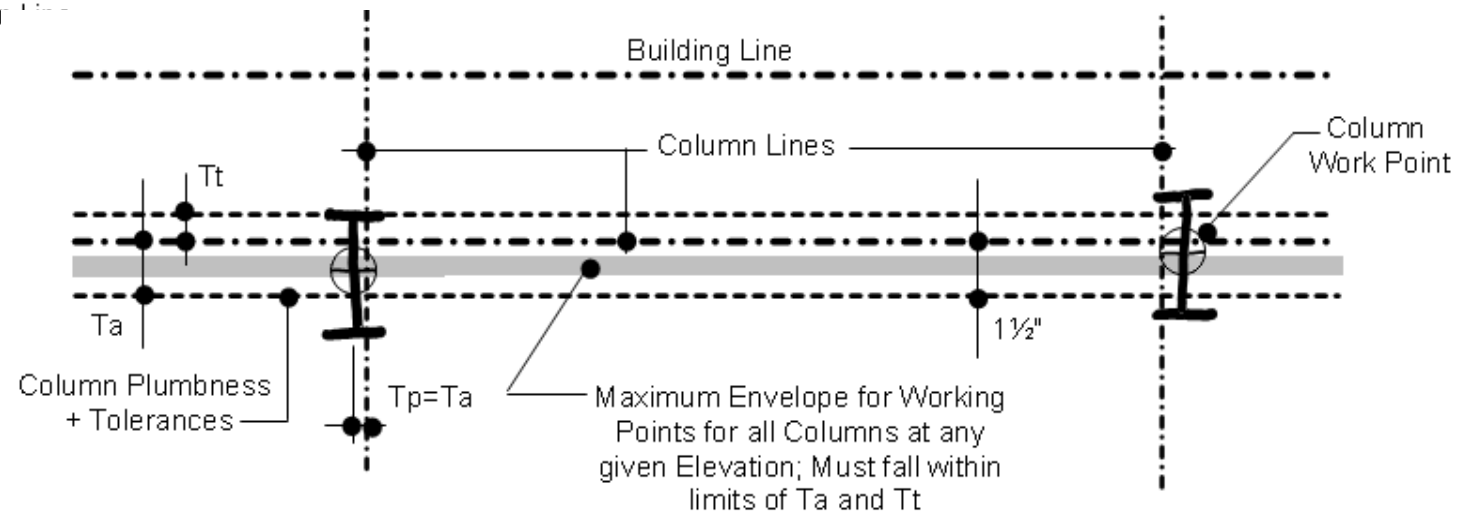


(IN) CONDITION



OUT CONDITION

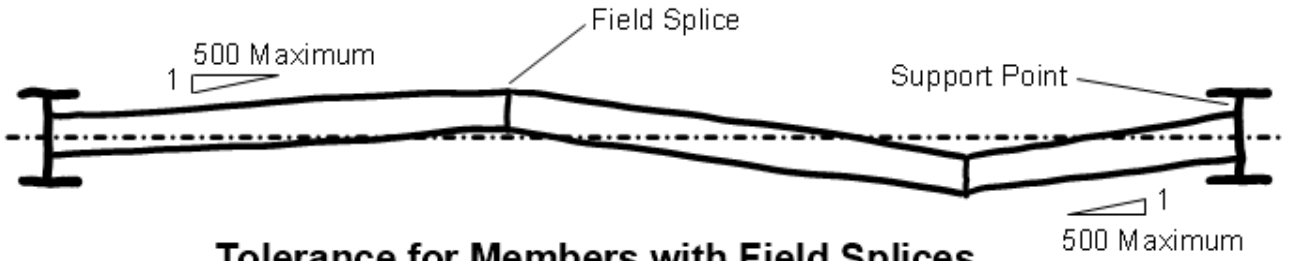




Ta=Tolerance away from Bldg Line Tt=Tolerance towards Bldg Line Tp=Tolerance Parallel to Bldg Line

Tolerance for Columns with Continous Intermediate Beams

Exterior Steel Column Installation Tolerances



Tolerance for Members with Field Splices