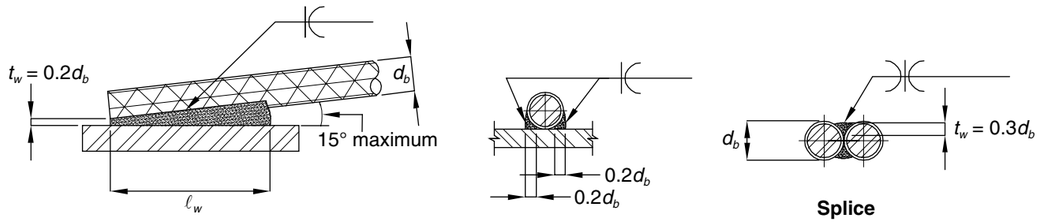
PCI

6

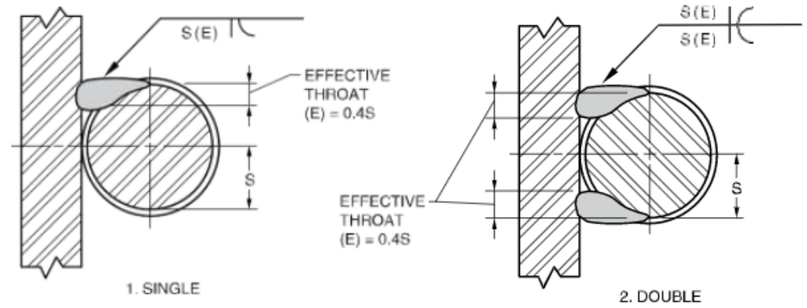
Design Aid 6.15.3 Minimum Length of Weld to Develop Full Strength of Bar. Weld Parallel to Bar Length[a,b,c]



Electrode	Bar size, # \ Plate thickness in.	Minimum length of weld, in.[a] 1/4	5/16	3/8	7/16	1/2	Min. splice length, in.
E80[d]	3	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1
	4	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4	1 1/4
	5	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	1 1/2
	6	2 3/4	2 1/2	2 1/2	2 1/2	2 1/2	1 3/4
	7	3 3/4	3	3	3	3	2
	8	5	4	3 1/2	3 1/2	3 1/2	2 1/4
	9	6 1/4	5	4 1/4	3 3/4	3 3/4	2 1/2
	10	8	6 1/4	5 1/4	4 1/4	4 1/4	3
	11	9 3/4	7 3/4	6 1/2	5 1/2	4 3/4	3 1/4
E90[d]	3	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1
	4	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1
	5	2	2	2	2	2	1 1/4
	6	2 3/4	2 1/4	2 1/4	2 1/4	2 1/4	1 1/2
	7	3 3/4	3	2 3/4	2 3/4	2 3/4	1 3/4
	8	5	4	3 1/4	3	3	2
	9	6 1/4	5	4 1/4	3 3/4	3 1/2	2 1/4
	10	8	6 1/4	5 1/4	4 1/2	4	2 1/2
	11	9 3/4	7 3/4	6 1/2	5 1/2	5	2 3/4

a. Lengths above the heavy line are governed by weld strength. Lengths below the heavy line are governed by plate shear. Basis: bar f_y = 60 ksi; plate F_y = 36 ksi; shear on plate limited to 0.9(0.6)(36) = 19.44 ksi.
b. Weld length listed is the required effective length of weld. Engineer should consider whether weld at start and stop is fully effective.
c. Refer to Design Aid 15.4.2 for specifications of flare bevel groove welds.
d. Refer to AWS D1.1 Table 3.1 – Prequalified Base Metal – Filler Material Combinations for Matching Strength and AWS D1.4 Table 5.1 Matching Filler Metal Requirements. Use E80 Electrodes for ASTM A706 rebar; use E90 electrodes for ASTM A615 rebar.

AWS



(A) FLARE-BEVEL-GROOVE WELD

AISC

TABLE J2.3
Minimum Effective Throat of Partial-Joint-Penetration Groove Welds

Material Thickness of Thinner Part Joined, in. (mm)	Minimum Effective Throat,[a] in. (mm)
To 1/4 (6) inclusive	1/8 (3)
Over 1/4 (6) to 1/2 (13)	3/16 (5)
Over 1/2 (13) to 3/4 (19)	1/4 (6)
Over 3/4 (19) to 1 1/2 (38)	5/16 (8)
Over 1 1/2 (38) to 2 1/4 (57)	3/8 (10)
Over 2 1/4 (57) to 6 (150)	1/2 (13)
Over 6 (150)	5/8 (16)

[a] See Table J2.1.