

TABLE 1 – TENSION DEVELOPMENT AND LAP SPLICE LENGTHS FOR UNCOATED BARS IN BEAMS AND COLUMNS¹¹

BAR SIZE	LAP CLASS	LENGTHS (in.) PER CONCRETE STRENGTH (psi)																	
		4000 psi						5000 psi						6000 psi					
		TOP BARS			OTHER BARS			TOP BARS			OTHER BARS			TOP BARS			OTHER BARS		
		CASE 1	CASE 2	CASE 3	CASE 1	CASE 2	CASE 3	CASE 1	CASE 2	CASE 3	CASE 1	CASE 2	CASE 3	CASE 1	CASE 2	CASE 3	CASE 1	CASE 2	CASE 3
#3	A	12	19	28	12	15	22	12	17	25	12	13	19	12	15	23	12	18	12
(#10)	B	16	24	36	16	19	28	16	22	33	16	17	25	16	20	30	16	16	23
#4	A	15	25	37	12	19	29	14	22	33	12	17	26	12	20	31	12	16	24
(#13)	B	20	32	48	16	25	37	18	29	43	16	22	33	16	26	40	16	20	31
#5	A	19	31	47	15	24	36	17	28	42	13	22	32	15	25	38	12	20	29
(#16)	B	24	40	60	19	31	47	22	36	54	17	28	42	20	33	49	16	25	38
#6	A	23	37	56	17	29	43	20	33	50	16	26	38	18	31	46	14	24	35
(#19)	B	29	48	72	23	37	56	26	43	65	20	33	50	24	40	59	18	31	46
#7	A	33	54	81	25	42	63	29	49	73	23	37	56	27	44	66	21	34	51
(#22)	B	43	70	106	33	54	81	38	63	94	29	49	73	35	58	86	27	44	66
#8	A	37	62	93	29	48	71	33	55	83	26	43	64	30	51	76	24	39	58
(#25)	B	49	80	121	37	62	93	43	72	108	33	55	83	40	66	98	31	51	76
#9	A	42	70	105	33	54	81	38	63	94	29	48	72	34	57	86	27	44	66
(#29)	B	55	91	136	42	70	105	49	81	122	38	63	94	45	74	111	34	57	86
#10	A	47	79	118	37	61	91	42	70	105	33	54	81	39	64	96	30	49	74
(#32)	B	62	102	153	47	79	118	55	91	137	42	70	105	50	83	125	39	64	96
#11	A	53	87	131	41	67	101	47	78	117	36	60	90	43	71	107	33	55	82
(#36)	B	68	113	170	53	87	131	61	101	152	47	78	117	56	93	139	43	71	107
#14 ⁵ (#43)	N/A	63	105	157	49	81	121	56	94	140	43	72	108	51	86	128	40	66	99
#18 ⁵ (#57)	N/A	84	139	209	65	107	161	75	125	187	58	96	144	68	114	171	53	88	131

BASED ON ACI 318-05, SECTION 12.2 & 12.15

TABLE 2 – TENSION DEVELOPMENT AND LAP SPLICE LENGTHS FOR BARS IN WALLS AND SLABS

BAR SIZE	LAP CLASS	f'c = 4000 psi															
		CONCRETE COVER = 0.75"				CONCRETE COVER = 1.00"				CONCRETE COVER = 1.50"				CONCRETE COVER = 2.00"			
		UNCOATED		EPOXY-COATED ¹⁰		UNCOATED		EPOXY-COATED ¹⁰		UNCOATED		EPOXY-COATED ¹⁰		UNCOATED		EPOXY-COATED ¹⁰	
		TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER
#3	A	12	12	15	13	12	12	15	13	12	12	14	12	12	12	14	12
(#10)	B	16	16	19	17	16	16	19	17	16	16	18	16	16	16	18	16
#4	A	19	15	24	22	15	12	20	17	15	12	18	14	15	12	18	14
(#13)	B	24	19	32	28	20	16	25	22	20	16	23	18	20	16	23	18
#5	A	28	21	36	32	22	17	29	26	19	15	24	22	19	15	22	17
(#16)	B	36	28	47	41	29	22	38	33	24	19	32	28	24	19	29	22
#6	A	37	29	49	43	31	24	40	35	22	17	29	26	22	17	29	26
(#19)	B	48	37	63	56	40	31	52	46	29	22	38	34	29	22	38	34
#7	A	60	46	–	–	50	38	–	–	37	28	–	–	33	25	–	–
(#22)	B	78	60	–	–	64	50	–	–	48	37	–	–	42	33	–	–
#8	A	74	57	–	–	62	48	–	–	47	36	–	–	37	29	–	–
(#25)	B	96	74	–	–	80	62	–	–	60	47	–	–	48	37	–	–
#9	A	90	69	–	–	76	58	–	–	57	44	–	–	46	36	–	–
(#29)	B	117	90	–	–	98	76	–	–	74	57	–	–	60	46	–	–
#10	A	108	83	–	–	92	70	–	–	70	54	–	–	57	44	–	–
(#32)	B	140	108	–	–	119	92	–	–	91	70	–	–	74	57	–	–
#11	A	127	98	–	–	108	83	–	–	84	64	–	–	68	53	–	–
(#36)	B	165	127	–	–	141	108	–	–	109	84	–	–	89	68	–	–

BASED ON ACI 318-05, SECTION 12.2 & 12.15

TABLE 3 – TENSION DEVELOPMENT AND LAP SPLICE LENGTHS FOR BARS IN WALLS AND SLABS

BAR SIZE	LAP CLASS	f'c = 5000 psi															
		CONCRETE COVER = 0.75"				CONCRETE COVER = 1.00"				CONCRETE COVER = 1.50"				CONCRETE COVER = 2.00"			
		UNCOATED		EPOXY-COATED ¹⁰		UNCOATED		EPOXY-COATED ¹⁰		UNCOATED		EPOXY-COATED ¹⁰		UNCOATED		EPOXY-COATED ¹⁰	
		TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER
#3	A	12	12	13	12	12	12	12	13	12	12	12	12	12	12	12	12
(#10)	B	16	16	17	16	16	16	16	17	16	16	16	16	16	16	16	16
#4	A	17	13	22	20	14	12	18	16	14	12	16	13	14	12	16	13
(#13)	B	22	17	29	25	18	16	23	20	18	16	21	16	18	16	21	16
#5	A	25	19	32	28	20	16	26	23	17	13	22	19	17	13	20	16
(#16)	B	32	25	42	37	26	20	34	30	22	17	29	25	22	17	26	20
#6	A	33	26	44	39	27	21	36	32	20	16	26	23	20	16	26	23
(#19)	B	43	33	57	50	36	27	46	41	26	20	34	30	26	20	34	30
#7	A	54	41	–	–	44	34	–	–	33	26	–	–	29	23	–	–
(#22)	B	70	54	–	–	58	44	–	–	43	33	–	–	38	29	–	–
#8	A	67	51	–	–	56	43	–	–	42	32	–	–	33	26	–	–
(#25)	B	86	67	–	–	72	56	–	–	54	42	–	–	43	33	–	–
#9	A	81	62	–	–	68	52	–	–	51	40	–	–	41	32	–	–
(#29)	B	105	81	–	–	88	68	–	–	67	51	–	–	54	41	–	–
#10	A	97	75	–	–	82	63	–	–	63	48	–	–	51	39	–	–
(#32)	B	126	97	–	–	106	82	–	–	82	63	–	–	66	51	–	–
#11	A	113	87	–	–	97	75	–	–	75	58	–	–	61	47	–	–
(#36)	B	147	113	–	–	126	97	–	–	97	75	–	–	79	61	–	–

BASED ON ACI 318-05, SECTION 12.2 & 12.15

TABLE 4 – TENSION DEVELOPMENT AND LAP SPLICE LENGTHS FOR BARS IN WALLS AND SLABS

BAR SIZE	LAP CLASS	f'c = 6000 psi															
		CONCRETE COVER = 0.75"				CONCRETE COVER = 1.00"				CONCRETE COVER = 1.50"				CONCRETE COVER = 2.00"			
		UNCOATED		EPOXY-COATED ¹⁰		UNCOATED		EPOXY-COATED ¹⁰		UNCOATED		EPOXY-COATED ¹⁰		UNCOATED		EPOXY-COATED ¹⁰	
		TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER
#3 (#10)	A	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	B	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
#4 (#13)	A	16	12	20	18	12	12	16	14	12	12	15	12	12	12	15	12
	B	20	16	26	23	16	16	21	18	16	16	19	16	16	16	19	16
#5 (#16)	A	23	17	29	26	18	14	24	21	16	12	20	18	16	12	18	14
	B	29	23	38	34	24	18	31	27	20	16	26	23	20	16	24	18
#6 (#19)	A	31	24	40	35	25	19	33	29	18	14	24	21	18	14	24	21
	B	40	31	52	46	33	25	42	37	24	18	31	28	24	18	31	28
#7 (#22)	A	49	38	–	–	41	31	–	–	30	23	–	–	27	21	–	–
	B	64	49	–	–	53	41	–	–	39	30	–	–	35	27	–	–
#8 (#25)	A	61	47	–	–	51	39	–	–	38	29	–	–	31	24	–	–
	B	79	61	–	–	66	51	–	–	49	38	–	–	40	31	–	–
#9 (#29)	A	74	57	–	–	62	48	–	–	47	36	–	–	38	29	–	–
	B	95	74	–	–	80	62	–	–	61	47	–	–	49	38	–	–
#10 (#32)	A	88	68	–	–	75	58	–	–	57	44	–	–	47	36	–	–
	B	115	88	–	–	97	75	–	–	75	57	–	–	60	47	–	–
#11 (#36)	A	104	80	–	–	88	68	–	–	68	53	–	–	56	43	–	–
	B	135	104	–	–	115	88	–	–	89	68	–	–	73	56	–	–