

Bar Size	Area	Top Bars <sup>(1)</sup>	Others <sup>(2)</sup>	Top Bars <sup>(3)</sup>	Others <sup>(4)</sup>
#10	71	355	300	300	300
#13	129	460	330	370	300
#16	199	565	405	455	325
#19	284	730	525	585	420
#22	387	995	710	795	570
#25	510	1310	935	1050	750
#29	645	1655	1185	1325	950
#32	819	2105	1505	1685	1205
#36	1006	2585	1845	2065	1475
#43	1452	3210	2295	2570	1835
#57	2581	4365	3120	3490	2495

Notes:

(1)  $1.4 \times l_d$

(2)  $l_d$

(3)  $1.4 \times 0.8 \times l_d$

(4)  $0.8 \times l_d$

5. All lengths are in millimeters, and are modified for  $\geq 150$  mm spacing and minimum 75 mm clear spacing between bars.

6.  $d_b < \text{Cover}$ ;  $2d_b < \text{Clear Spacing}$

7. Values are for normal weight concrete.

8. Top bars are horizontal bars with more than 300 mm of fresh concrete below the reinforcement.

## DEVELOPMENT LENGTHS FOR UNCOATED BARS IN TENSION

$$f'_c = 21 \text{ MPa}$$

**Figure 62-2E**