



DEVELOPMENT LENGTH AND SPLICE OF REINFORCEMENT

Based on ACI 318-19M, Part 8 Chapter 25

Client:		Designed By:	Ali Akbar Shaikhzadeh	Date:	30-Jul-21
Job Name:		Verified By:		Revision:	

INPUT DATA

NOMINAL BAR DIAMETER, d_b	16	mm	
YIELD STRENGTH OF NONPRESTRESSED BAR, F_y	420	MPa	
COMPRESSIVE STRENGTH OF CONCRETE, F'_c	25	MPa	
CASTING POSITION FACTOR, ψ_t	1.0		TABLE 25.4.2.5
COATING FACTOR, ψ_e	1.0		TABLE 25.4.2.5
LIGHTWEIGHT CONCRETE FACTOR, λ	1.00		TABLE 25.4.2.5
CONFINING REINFORCEMENT FACTOR, ψ_r	1.00		TABLE 25.4.9.3
SPLICE CLASS	B		TABLE 25.5.2.1

DEVELOPMENT OF DEFORMED BARS IN TENSION

SECTION 25.4.2

SIZE FACTOR, ψ_s	0.8		TABLE 25.4.2.5
REINFORCEMENT GRADE FACTOR, ψ_g	1.00		TABLE 25.4.2.5
DEVELOPMENT LENGTH IN TENSION, L_d	640	mm	40 x Diameter of Bar

DEVELOPMENT OF DEFORMED BARS IN COMPRESSION

SECTION 25.4.9

DEVELOPMENT LENGTH IN COMPRESSION, L_{dc}	323	mm	20 x Diameter of Bar
---	-----	----	----------------------

SPLICES OF DEFORMED BARS IN TENSION

SECTION 25.5.2

SPLICE LENGTH IN TENSION, L_{st}	832	mm	52 x Diameter of Bar
------------------------------------	-----	----	----------------------

SPLICES OF DEFORMED BARS IN COMPRESSION

SECTION 25.5.5

SPLICE LENGTH IN COMPRESSION, L_{sc}	477	mm	30 x Diameter of Bar	SEE NOTE 5
--	-----	----	----------------------	------------

NOTES:

- 1- Lap splices shall not be permitted for bars larger than No. 36. (SECTION 25.5.1.1)
- 2- When bars of different size are lap spliced in tension, splice length shall be the larger of l_d of larger bar and tension lap splice length of smaller bar. (SECTION 25.5.2.2)
- 3- If bars of different size are lap spliced in tension, l_{st} shall be the greater of l_d of the larger bar and l_{st} of the smaller bar. (SECTION 25.5.2.2)
- 4- Development lengths do not require a strength reduction factor ϕ . (SECTION 25.4.1.3)
- 5- For $f'_c < 21$ MPa, the length of lap splice in compression shall be increased by one-third. (SECTION 25.5.5.1)

