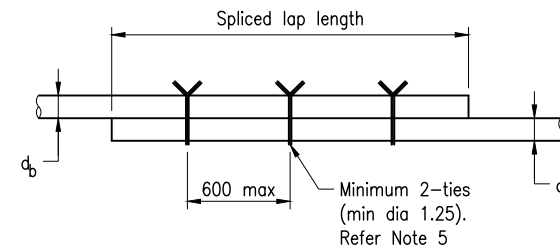


Minimum Lapped Splice Lengths for Reinforcing Bars ★

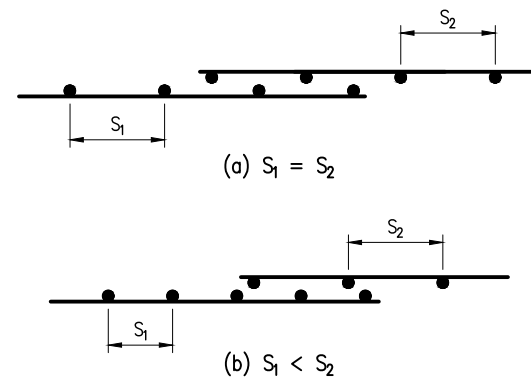
Exposure Classification	f'c	Deformed Bar Diameter d <sub>b</sub>								
		10	12	16	20	24	28	32	36	40
B1	32 MPa	450	550	800	1000	1250	1500	1800	2100	2400
B2	40 MPa	400	500	700	900	1100	1350	1600	1850	2150
	50 MPa	400	500	650	800	1000	1200	1450	1700	1950
C, C1 and C2	50 MPa	400	500	650	800	1000	1200	1450	1700	1950

★ For top/horizontal bars with more than 300 of concrete below the above bars, the lap lengths in this table shall be multiplied by 1.3.  
Where laps are required but not shown on the drawings, they should be staggered and positioned away from points of maximum stress.  
Where more than 50% of reinforcement is spliced at points of maximum stress, lap lengths shown in the table above are to be multiplied by 1.3.

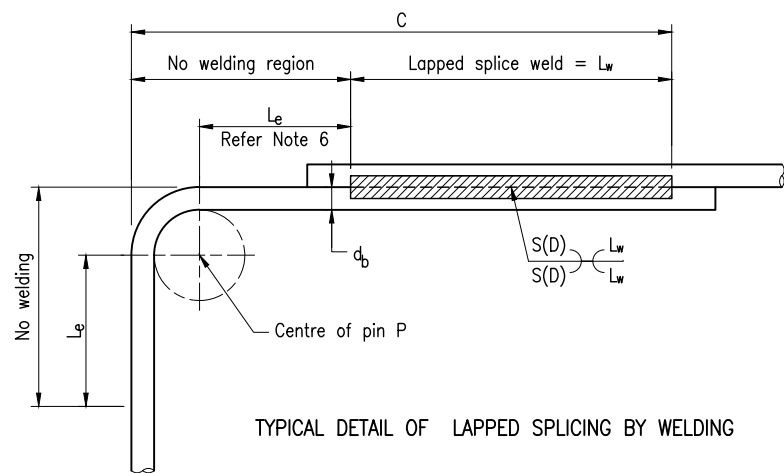


TYPICAL DETAIL OF LAPPED SPLICE

LAPPED SPLICE FOR REINFORCING BARS



LAPPED SPLICES FOR WELDED MESH



TYPICAL DETAIL OF LAPPED SPLICING BY WELDING

DETAILS OF NO WELDING REGION AND WELD LENGTHS FOR WELDED LAPPED SPLICE

WELD TABLE

d <sub>b</sub>	8	8	10	10	12	16	20	24	28	32	36	40	
Grade	250	500	250	500						500			
P	For fitments, P is 3d or 4d, and for main bars P is 5d						§ For main bars only, P is 5d						
C	100	110	100	120	165	210	255	315	375	435	515	600	
L <sub>e</sub>	30	30	30	30	40	50	60	75	85	100	110	120	
S	5	5	5	5	6	8	10	12	14	16	18	20	
D	3	3	3	3	3	4	5	6	7	8	8	8	
L <sub>w</sub>	40	50	40	60	85	110	135	165	190	220	275	340	

§ Minimum P = 4d required for bar shape SD stirrups and ligatures on Standard Drawing 1043.  
C = d<sub>b</sub> + 0.5P + L<sub>e</sub> + L<sub>w</sub>

NOTES:

- SCOPE: The purpose of this standard drawing is to provide typical standard details that shall be used within the limitations specified in the drawing. This drawing is to detail lapped splices for reinforcing bars and welded mesh, and general reinforcing steel information and was developed in accordance with AS 5100.5. Lapped splice details shown do not apply to the following:
  - Structural elements built with slip form construction
  - Epoxy coated or galvanised bars, either before or after bending
  - Bends that are subsequently straightened or rebent
  - Bundled bars
  - Stainless steel reinforcement
  - Reinforcing bar with a strength grade greater than 500MPa.
 Lapped splices for any of the above shall be project specific design in accordance with AS 5100.5. Refer Standard Drawing 1043 for standard bar shapes and bending details.
- REINFORCING STEEL shall be in accordance with MRTS71 and AS/NZS 4671. Deformed bars Grade D500N. Round bars Grade R250N. Deformed wire Grade D500L for welded mesh only. Round wire Grade R500L for helical reinforcement only. All reinforcing steel shall be ACRS certified.
- Where lapped splices are required but not shown on the drawings, they shall be positioned away from points of maximum stress.
- Helix shall be spliced within its length by lapping the helix by 1.5 turns and anchoring each end with a 135° hook around a main longitudinal bar, or with a welded splice as shown on the P shaped bar detail on Standard Drawing 1043.
- If bars of different diameters are lapped, the lap length shall be determined using the smaller diameter.
- All lapped bars shall be tied with 1.25 minimum diameter annealed wire at 600 maximum centres.
- WELDING of reinforcement shall only be used where prior approval of the Project Administrator has been obtained and shall be carried out in accordance with MRTS71. Welding symbols to AS 1101.3. Welding of bar splices to AS/NZS 1554.3. All welds, except location tack welds, shall be SP category. Tack welding for location purposes to AS/NZS 1554.3. Welding shall not be carried out within L<sub>e</sub> from any bent portion of the bar. Welding consumables shall be controlled hydrogen type: G49X to AS/NZS 14341-B or T49X to AS/NZS ISO 17632-B.
- DIMENSIONS are in millimetres.

ASSOCIATED DEPARTMENTAL DOCUMENT:  
Design Criteria for Bridges and Other Structures

REFERENCED DOCUMENTS:  
Departmental Standard Drawings:  
1043 Reinforcing Steel – Standard Bar Shapes  
Departmental Specifications:  
MRTS71 Reinforcing Steel

Department of Transport and Main Roads			
REINFORCING STEEL			
LAP LENGTHS	A3	Standard Drawing No	
	Not to Scale	1044	
		Date 3/2023	