Minimum Lapped Splice Lengths for Reinforcing Bars

<table>
<thead>
<tr>
<th>Exposure Classification</th>
<th>L</th>
<th>10</th>
<th>12</th>
<th>16</th>
<th>20</th>
<th>24</th>
<th>28</th>
<th>32</th>
<th>36</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1 30 MPA</td>
<td>40</td>
<td>50</td>
<td>80</td>
<td>100</td>
<td>125</td>
<td>150</td>
<td>180</td>
<td>210</td>
<td>240</td>
<td>280</td>
</tr>
<tr>
<td>B2 40 MPA</td>
<td>40</td>
<td>50</td>
<td>80</td>
<td>100</td>
<td>125</td>
<td>150</td>
<td>180</td>
<td>210</td>
<td>240</td>
<td>280</td>
</tr>
<tr>
<td>C1, C2, and C3 50 MPA</td>
<td>40</td>
<td>50</td>
<td>80</td>
<td>100</td>
<td>125</td>
<td>150</td>
<td>180</td>
<td>210</td>
<td>240</td>
<td>280</td>
</tr>
</tbody>
</table>

For lap/reinforced bars with more than 300 of concrete below the splice bars, the lap lengths in the table shall be multiplied by 1.3.

Where laps are required but not shown on the drawings, they shall be stippled and positioned near the 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 Lapped Splice Details for Helical Reinforcement in Columns

Helical reinforcement shall be placed within its length by lapping the holes by one bar and bending the hole ends into the column core for an extension of.

LAPPED SPICE FOR REINFORCING BARS

LAPPED SPICE FOR WELDED MESH

NOTES:
1. SCOPE: This drawing is to detail lapped splices for reinforcing bars and welded mesh, and general reinforcing steel installation.

   This Standard Drawing was developed in accordance with ACI 506.5-95.

   Lapped splice details shown do not apply to the following:
   a. Structural elements built with dry concrete
   b. Open-end or ungalvanized bars, either before or after bending
   c. Beams that are subsequently strengthened or reinforced
   d. Strand bars
   e. Stainless steel splicing

   Lapped splices for any of the above shall be project specific design in accordance with ACI 506.5-95.

   Refer Standard Drawing 1043 for standard bar shapes and bending details.

   2. REINFORCING STEEL shall be in accordance with AWS/D1.1 and ACI 318M-95.

   Reinforced bars Grades 2000, 3000.

   Deformed wire Grade 60
c. for welded mesh only.

   All reinforcing steel shall be A315 certified.

   3. Where lapped splices are required but not shown on the drawings, they shall be positioned away from points of maximum stress.

   4. If bars of different diameters are lapped, the lap length shall be determined using the smaller diameter.

   5. All lapped bars to be used with 1.25 minimum diameter extended wire at 800 maximum force.

   6. 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 AWS/D1.1.

   Welding symbols to ACI 1101.3.

   Welding of bar splices to ACI 318M 154.3.

   All welds, except bending and welds shall be SP category.

   All welding for locations according to ACI 318M 154.3.

   Welding shall not be carried out within 120 from any bond portion of the bar.

   Welding consumables shall be controlled carbon types 041E to ACI 318M 154.3, B or 042E to ACI 350 154.3.

   7. DIMENSIONS are in millimeters.

REFERENCES:
Deborah Standard Drawings:
1043 Reinforcing Steel - Standard Bar Shapes

Deborah Specifications:
AWS/D1.1 Reinforcing Steel

REINFORCING STEEL

LAP LENGTHS

NO WELDING REGION FOR LAPPED SPICE

Department of Transport and Main Roads

1044

Departmental Standard Drawings

Departmental Specifications

AWS/D1.1 Reinforcing Steel