

CODE

$$(b) \left(\frac{5d_b}{s} \right)$$

where s is the spacing between the wires to be developed.

25.4.6.4 For welded deformed wire reinforcement with no cross wires within ℓ_d or with a single cross wire less than 50 mm from the critical section, ψ_w shall be taken as 1.0.

25.4.6.5 Where any plain wires, or deformed wires larger than MD200, are present in the welded deformed wire reinforcement in the direction of the development length, the reinforcement shall be developed in accordance with 25.4.7.

25.4.6.6 Zinc-coated (galvanized) welded deformed wire reinforcement shall be developed in accordance with 25.4.7.

25.4.7 Development of welded plain wire reinforcement in tension

25.4.7.1 Development length ℓ_d for welded plain wire reinforcement in tension measured from the critical section to the outermost cross wire shall be the greater of (a) and (b) and shall require a minimum of two cross wires within ℓ_d .

- (a) Length calculated in accordance with 25.4.7.2
- (b) 150 mm

25.4.7.2 ℓ_d shall be the greater of (a) and (b):

- (a) spacing of cross wires + 50 mm

- (b) $3.3 \left(\frac{f_y}{\lambda \sqrt{f'_c}} \right) \left(\frac{A_b}{s} \right)$, where s is the spacing between the wires to be developed, and λ is given in Table 25.4.2.5.

COMMENTARY

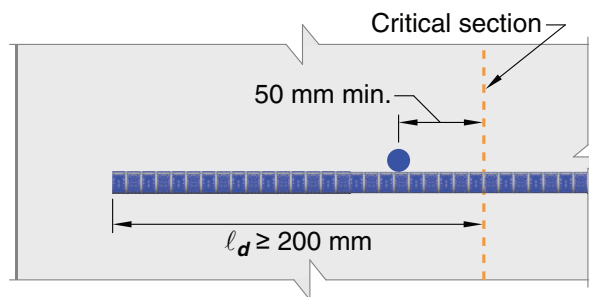


Fig. R25.4.6.3—Development of welded deformed wire reinforcement.

R25.4.6.5 Deformed wire larger than MD200 is treated as plain wire because tests show that MD290 wire will achieve only approximately 60 percent of the bond strength in tension given by Eq. (25.4.2.4a) (Rutledge and DeVries 2002).

R25.4.7 Development of welded plain wire reinforcement in tension

R25.4.7.1 **ASTM A1064** for welded plain wire reinforcement requires the same strength of the weld as required for welded deformed wire reinforcement. All of the development is assigned to the welded cross wires; consequently, welded plain wire reinforcement requires at least two cross wires.

R25.4.7.2 Figure R25.4.7.2 shows the development requirements for welded plain wire reinforcement with development primarily dependent on the location of cross wires.

For welded plain wire reinforcement made with small wires, an embedment of at least two cross wires 50 mm or more beyond the point of critical section is adequate to develop the full yield strength of the anchored wires. However, for welded plain wire reinforcement made with larger closely spaced wires, a longer embedment is required with the development length controlled by 25.4.7.2(b).