

2021 Virginia Construction Code

CHAPTER 21 MASONRY

SECTION 2107 ALLOWABLE STRESS DESIGN

2107.1 General.

The design of masonry structures using *allowable stress design* shall comply with [Section 2106](#) and the requirements of Chapters 1 through 8 of [TMS 402](#) except as modified by [Sections 2107.2](#) through [2107.3](#).

2107.2 TMS 402, Section 6.1.6.1.1, lap splices.

As an alternative to Section 6.1.6.1.1, it shall be permitted to design lap splices in accordance with [Section 2107.2.1](#).

2107.2.1 Lap splices.

The minimum length of lap splices for reinforcing bars in tension or compression/ d , shall be:

$$l_d = 0.002d_b f_s$$

(Equation 21-1)

For SI: $l_d = 0.29d_b f_s$

but not less than 12 inches (305 mm). The length of the lapped splice shall be not less than 40 bar diameters.

where:

d_b = Diameter of reinforcement, inches (mm)

f_s = Computed stress in reinforcement due to design loads, psi (MPa).

In regions of moment where the design tensile stresses in the reinforcement are greater than 80 percent of the allowable steel tension stress, F_s , the lap length of splices shall be increased not less than 50 percent of the minimum required length, but need not be greater than 72 d_b . Other equivalent means of stress transfer to accomplish the same 50 percent increase shall be permitted. Where epoxy coated bars are used, lap length shall be increased by 50 percent.

2107.3 TMS 402, Section 6.1.6.1, splices of reinforcement.

Modify Section 6.1.6.1 as follows:

6.1.6.1 – Splices of reinforcement. Lap splices, welded splices or mechanical splices are permitted in accordance with the provisions of this section. Welding shall conform to [AWS D1.4](#). Welded splices shall be of [ASTM A706](#) steel reinforcement. Reinforcement larger than No. 9 (M #29) shall be spliced using mechanical connections in accordance with Section 6.1.6.1.3.