2) $2F_{tu2}\,Dt_2/n_u$ *(Eq. 5.4.3-2)*

3) $4.2(t_2^3D)^{1/2}\,F_{tu2}/n_s$, *for* $t_2 \le t_1$ *(Eq. 5.4.3-3)*

4) $P_{ns}/(1.25\,n_s)$ *(Eq. 5.4.3-4)*

5.4.4 Minimum Spacing of Screws

The minimum distance between screw centers shall be 2.5 times the nominal screw diameter.

5.5 Building Sheathing Connections

5.5.1 Endlaps

Minimum endlaps shall be those expressed in Table 5.5.1-1.

5.5.2 Sidelaps

For a sinusoidal corrugated sheet, the minimum sidelap for roofing shall have a width equal to the pitch of the corrugations, and the minimum sidelap for siding shall have a width equal to half the pitch.

For a trapezoidal sheet of a depth greater than 1 in. (25 mm) the minimum sidelap for both roofing and siding shall have a developed width equal to the width of the narrowest flat plus 2 in. (50 mm). A trapezoidal sheet with a depth of 1 in. (25 mm) or less shall have an overlap of proven design including an anti-siphoning feature.

5.5.3 Fasteners in Laps

The minimum size of fasteners used in end laps and side laps shall be #12 (5.5 mm) for screws and $^3/_{16}$ in. (5 mm) diameter for rivets. The maximum spacing for sidelap fasteners shall be 12 in. (300 mm). Endlap fasteners shall be located no more than 2 in. (50 mm) from the end of the overlapping sheet.

5.5.4 Flashing

Flashing shall be formed from aluminum sheet.

Table 5.5.1-1
MINIMUM END LAPS

Depth of section	Minimum End Laps		
	Roofing, slope greater than 2 on 12, less than 3 on 12	Roofing, slope 3 on 12 or more	Siding
1 in. or less (25 mm or less)	–	6 in. (150 mm)	4 in. (100 mm)
Greater than 1 in., less than 2 in. (Greater than 25 mm, less than 50 mm)	9 in. (230 mm)	6 in. (150 mm)	4 in. (100 mm)
2 in. or more (50 mm or more)	9 in. (230 mm)	6 in. (150 mm)	6 in. (150 mm)

$P_{not} = K_s D t_c F_{ty2}$ *(Eq. 5.4.2.1-1)*

where $K_s = 1.01$ for 0.060 in. $\le t_c <$ 0.080 in.

(1.5 mm $\le t_c <$ 2 mm)

$K_s = 1.20$ for 0.080 in. $\le t_c \le$ 0.125 in.

(2 mm $\le t_c \le$ 3 mm)

b. for 0.125 in. $< t_c <$ 0.25 in. (3 mm $< t_c <$ 6.3 mm)

$P_{not} = 1.2DF_{ty2}(0.25 - t_c) + 1.16A_{sn}F_{tu2}(t_c - 0.125)$

(Eq. 5.4.2.1-2)

c. for 0.25 in. $\le t_c \le$ 0.375 in. (6.3 mm $\le t_c \le$ 10 mm)

$P_{not} = 0.58\ A_{sn}\ t_c\ F_{tu2}$ *(Eq. 5.4.2.1-3)*

2) For spaced threads (screw thread types AB, B, BP, BF, and BT)

a. for 0.038 in. $\le t_c \le 2/n$ (1 mm $< t_c < 2/n$)

$P_{not} = K_s D\ t_c F_{ty2}$ *(Eq. 5.4.2.1-4)*

where $K_s = 1.01$ for 0.038 in. $\le t_c <$ 0.080 in.

(1 mm $\le t_c <$ 2 mm)

$K_s = 1.20$ for 0.080 in. $\le t_c <$ 2/n (2 mm $\le t_c < 2/n$)

b. for $2/n < t_c < 4/n$

$P_{not} = 1.2D\ F_{ty2}\,(4/n - t_c) + 3.26D\ F_{tu2}\,(t_c - 2/n)$

(Eq. 5.4.2.1-5)

c. for $4/n \le t_c \le$ 0.375 in. ($4/n \le t_c \le$ 8 mm)

$P_{not} = 1.63D\ t_c\ F_{tu2}$ *(Eq. 5.4.2.1-6)*

5.4.2.2 Pull-Over

The nominal pull-over strength, P_{nov}, for pulling connected material over the head of a screw or washer, if present, is:

$P_{nov} = C\ t_1\ F_{tu1}\ (D_{ws} - D_h)$ *(Eq. 5.4.2.2-1)*

where C is a coefficient that depends on screw location (1.0 for valley fastening and 0.7 for crown fastening), and D_{ws} is the larger of the screw head diameter or the washer diameter, but no greater than 5/8 in. (16 mm). (See Section 5.4.2 for the washer thickness requirement.) The nominal pull-over strength need not be less than the pull-over strength computed from equation 5.4.2.2-2 for countersunk screws.

For countersunk screws with an 82° nominal angle head, the nominal pull-over strength is:

$P_{nov} = (0.27 + 1.45t_1/D)\ D\ t_1F_{ty1}$ *(Eq. 5.4.2.2-2)*

for 0.06 in. $\le t_1 <$ 0.19 in. (1.5 mm $\le t_1 <$ 5 mm) and $t_1/D \le$ 1.1. If $t_1/D > 1.1$, use $t_1/D = 1.1$

5.4.3 Screw Shear and Bearing

The shear force on a screw shall not exceed the least of:

1) $2\phi_u\ F_{tu1}\ D\ t_1$. If the screw is countersunk, one-half the depth of the countersink shall be deducted from t_1.
2) $2\phi_u\ F_{tu2}\ D\ t_2$
3) $4.2\ (t_2^3D)^{1/2}\ \phi_{sc}\ F_{tu2}$, for $t_2 \le t_1$
4) $\phi_{sc}\ P_{ns}/1.25$

5.4.4 Minimum Spacing of Screws

The minimum distance between screw centers shall be 2.5 times the nominal screw diameter.

5.5 Building Sheathing Connections

5.5.1 Endlaps

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5.5.4 Flashing

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