



March 2020

Errata

to the 2015/2018 Edition of the Structural Wood Design Examples

E3.3 – Replace Page 118 with the following page:

$$A_o := 4(4.5 \cdot 3) + (6 \cdot 7.5) \quad \text{Area of openings (ft}^2\text{)}$$

$$A_o = 99$$

$$r := \frac{1}{1 + \frac{A_o}{h \cdot L_i}} \quad r = 0.621 \quad (\text{SDPWS Eqn. 4.3-6})$$

$$C_o := \left(\frac{r}{3 - 2r} \right) \cdot \frac{L_{tot}}{L_i} \quad C_o = 0.78 \quad (\text{SDPWS Eqn. 4.3-5})$$

$$V_{PSW} := v_{WCASD} \cdot L_i \cdot C_o$$

$$V_{PSW} = 9282 \quad \text{Perforated Shearwall (PSW) Capacity (lbs)}$$

Since capacity of 9282 lbs exceeds demand of 5520 lbs, design is OK.

$$T := \frac{(V_w \cdot h)}{C_o \cdot L_i} \quad T = 3519 \quad \text{Required Hold-down capacity (lbs) (SDPWS Eqn. 4.3-8)}$$

Design without Interior Gypsum

$$V_w := 5520 \quad \text{Wind reaction on shear wall (lbs)}$$

$$h := 9 \quad \text{Wall height (ft)}$$

Assume 15/32 in. thick Wood Structural Panel (WSP) Sheathing, 8d nails @ 4 in. o.c. edge spacing. SDPWS Table 4.3A nominal capacity = 1065 lbs/ft (Wind)

$$v_{wASDWSP} := \frac{1065}{2} \quad v_{wASDWSP} = 532.5 \quad \text{ASD Shear wall Capacity (lbs/ft) (SDPWS 4.3.3)}$$

$$C_o = 0.78 \quad \text{Calculated PSW Shear Capacity Adjustment Factor (same as above)}$$

$$V_{PSW} := v_{wASDWSP} \cdot L_i \cdot C_o$$

$$V_{PSW} = 7518 \quad \text{Perforated Shearwall (PSW) Capacity (lbs)}$$

Since capacity of 7518 lbs exceeds demand of 5520 lbs, design is OK.

$$T := \frac{(V_w \cdot h)}{C_o \cdot L_i} \quad T = 3519 \quad \text{Required Hold-down capacity (lbs) (SDPWS Eqn. 4.3-8)}$$

Hold-down would need to be combined with 2nd floor hold-down requirements. Dead load offset has been neglected in this example (SDPWS 4.3.6.4.2)

E3.4 – Replace Pages 120-121 with the following pages:

Check maximum segment length based on Aspect Ratio Limits

Maximum aspect ratio for Wood Structural Panel Shear Walls = 3.5:1 (SDPWS 4.3.4)

Minimum segment length = Wall Height/Aspect Ratio

$$L_{\min} := \frac{9}{3.5} \quad L_{\min} = 2.6 \quad \text{Minimum full height wall segment length (ft)}$$

All full height segments satisfy aspect ratio requirements. Maximum aspect ratio for WSP shear walls to avoid capacity adjustments = 2:1, so 3 foot wide segments will require capacity adjustments.

$$V_s := 4733 \quad \text{Applied shear load on each shear wall due to seismic force (lbs)}$$

$$h := 9 \quad \text{Wall height (ft)}$$

(Note: Seismic force calculated using WFCM Table 2.6 and WFCM Commentary.)

Assume 7/16 in. thick Wood Structural Panel (WSP) Sheathing, 8d nails @ 4 in. o.c. edge spacing. Studs @ 16 in. o.c. triggers Footnote 2 allows for use of 15/32 in. panel shear values. SDPWS Table 4.3A nominal capacity = 760 lbs/ft (Seismic). Unlike wind design, gypsum capacity is not included for seismic shear wall design.

$$v_{sASDWSP} := \frac{760}{2} \quad v_{sASDWSP} = 380 \quad \text{ASD Shearwall Capacity (lbs/ft) (SDPWS 4.3.3)}$$

Calculate PSW Shear Capacity Adjustment Factor (C_o)

$$L_i := 2(5) + 4 \left[\left(\frac{2 \cdot 3}{9} \right) \cdot 3 \right] \quad \text{Effective length of Full Height Segments (ft) using adjustment from SDPWS 4.3.4.3}$$
$$L_i = 18$$

$$L_{\text{tot}} := 40 \quad \text{Total wall length (ft)}$$

$$A_o := 4(4.5 \cdot 3) + (6 \cdot 7.5) \quad \text{Area of openings (ft}^2\text{)}$$

$$A_o = 99$$

$$r := \frac{1}{1 + \frac{A_o}{h \cdot L_i}} \quad \text{(SDPWS Eqn. 4.3-6)}$$

$$C_o := \left(\frac{r}{3 - 2r} \right) \cdot \frac{L_{\text{tot}}}{L_i} \quad \text{(SDPWS Eqn. 4.3-5)}$$

$$C_o = 0.78$$

$$V_{\text{PSW}} := v_{sASDWSP} \cdot L_i \cdot C_o \quad V_{\text{PSW}} = 5365 \quad \text{Perforated Shearwall (PSW) Capacity (lbs)}$$

Since capacity of 5365 lbs greater than demand of 4733 lbs, design is OK

Hold down capacity for Perforated Shearwalls specified in SDPWS Eqn. 4.3-8

$$T := \frac{(V_s \cdot h)}{C_o \cdot L_i} \quad T = 3017 \quad \text{Required Hold down capacity (lbs)}$$

Hold down would need to be combined with 2nd floor hold down requirements. Dead load offset has been neglected in this example. (SDPWS 4.3.6.4.2)