C = the adjustment factors in accordance with Section 6.5.2.3 as applicable
L = the length of the perforated shear wall, which is defined as the distance between the restrained ends of the wall line
$1/SF$ = the safety factor adjustment for use with ASD
ϕ = the resistance factor adjustment for use with LRFD

The PSW method (Equations 6.5-1a and b) has the following limits on its use:

- The value of F_s for the wall construction should not exceed 1,500 plf in accordance with Section 6.5.1.2. The wall must be fully sheathed with wood structural panels on at least one side. Unit shear values of sheathing materials may be combined in accordance with Section 6.5.2.1.
- Full-height wall segments within a perforated shear wall should not exceed an aspect ratio of 4 (height/width) unless that portion of the wall is treated as an opening. (Some codes limit the aspect ratio to 2 or 3.5, but recent testing mentioned earlier has demonstrated otherwise.) The first wall segment on either end of a perforated shear wall must not exceed the aspect ratio limitation.
- The ends of the perforated shear wall must be restrained with hold-down devices sized in accordance with Section 6.5.2.4. Hold-down forces that are transferred from the wall above are additive to the hold-down forces in the wall below. Alternatively, each wall stud may be restrained by using a strap sized to resist an uplift force equivalent to the design unit shear resistance F'_s of the wall, provided that the sheathing area ratio r for the wall is not less than 0.5 (see equations for C_{op} and r in Section 6.5.2.3).
- Top plates must be continuous with a minimum connection capacity at splices with lap joints of 1,000 lb, or as required by the design condition, whichever is greater.
- Bottom plate connections to transfer shear to the construction below (i.e., resist slip) should be designed in accordance with Section 6.5.2.5 and should result in a connection at least equivalent to one 1/2-inch anchor bolt at 6 feet on center or two 16d pneumatic nails 0.131-inch diameter at 24 inches on center for wall constructions with $F_sC_{sp}C_{ns}$ not exceeding 800 plf (ultimate capacity of interior and exterior sheathing). Such connections have been shown to provide an ultimate shear slip capacity of more than 800 plf in typical shear wall framing systems (NAHBRC, 1999); refer to Section 7.3.6 of Chapter 7. For wall constructions with ultimate shear capacities $F_sC_{sp}C_{ns}$ exceeding 800 plf, the base connection must be designed to resist the unit shear load and also provide a design uplift resistance equivalent to the design unit shear load.
- Net wind uplift forces from the roof and other tension forces as a result of structural actions above the wall are transferred through

the wall by using an independent load path. Wind uplift may be resisted with the strapping option above, provided that the straps are sized to transfer the additional load.

Segmented Shear Wall Design Approach

The following equations are used to determine the adjusted and factored shear capacity of a shear wall segment:

$$F'_s = F_s C_{sp} C_{ns} C_{ar} [\frac{1}{SF} \text{ or } \phi] \qquad \text{Eq. 6.5-2a}$$

$$F_{ssw} = F'_s \text{ x}[L_s] \qquad \text{Eq. 6.5-2b}$$

where,

F_{ssw} = the design shear capacity (lb) of a single shear wall segment
F_s = the unfactored (ultimate) and unadjusted unit shear resistance (plf) for the wall construction in accordance with Section 6.5.2.1 for each facing of the wall construction; the C_{sp} and C_{ns} adjustment factors apply only to wood structural panel sheathing F_s values
F'_s = the factored (design) and adjusted unit shear resistance (plf) for the total wall construction
C = the adjustment factors in accordance with Section 6.5.2.3
L_s = the length of a shear wall segment (total width of the sheathing panel(s) in the segment)
1/*SF* = the safety factor adjustment for use with ASD
ϕ = the resistance factor adjustment for use with LRFD

The segmented shear wall design method (Equations 6.5-2a and b) imposes the following limits:

- The aspect ratio of wall segments should not exceed 4 (height/width) as determined by the sheathing dimensions on the wall segment. (Absent an adjustment for the aspect ratio, current codes may restrict the segment aspect ratio to a maximum of 2 or 3.5.)
- The ends of the wall segment should be restrained in accordance with Section 6.5.2.4. Hold-down forces that are transferred from shear wall segments in the wall above are additive to the hold-down forces in the wall below.
- Shear transfer at the base of the wall should be determined in accordance with Section 6.5.2.5.
- Net wind uplift forces from the roof and other tension forces as a result of structural actions above are transferred through the wall by using an independent load path.

For walls with multiple shear wall segments, the design shear resistance for the individual segments may be added to determine the total design shear resistance for the segmented shear wall line. Alternatively, the combined shear