



INFORMATION BULLETIN

IB-004

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Design Limitation for Wood Shear Walls

The purpose of this Information Bulletin (IB) is to alert designers of the specific modifications that the City of Long Beach, in cooperation with major jurisdictions within the Los Angeles region, has made to the 2022 Edition of the California Building Code (CBC) relating to the design of light-framed walls with wood shear panels. The lessons learned from the 1994 Northridge Earthquake were refined with studies and tests in subsequent code adoption cycles. The results of these studies and tests necessitate the adoption of further amendments to the structural requirement of the building code. Therefore, Sections 18.40.540 through 18.40.550 of the Long Beach Municipal Code (LBMC) place certain design and construction limits on wood-frame shear walls sheathed with wood structural panels and other materials. These design limitations are intended to improve the quality of construction and performance of structures to assure that new buildings and structures and additions or alterations to existing buildings and structures are designed and constructed to resist the hazards of future earthquakes.

LBMC Sections 18.40.540 through 18.40.550 amend the maximum nominal unit shear capacity as regulated in CBC Section 2306.3. Pertinent sections of the LBMC are repeated herein as follows:

18.40.540 Amend CBC section 2306.3 – Wood-frame shear walls.

Section 2306.3 of the California Building Code is amended to read as follows:

2306.3 Wood-frame shear walls. Wood-frame shear walls shall be designed and constructed in accordance with ANSI/AWC SDPWS. For structures assigned to Seismic Design Category D, E, or F, application of Table 4.3A of ANSI/AWC SDPWS shall include the following:

1. Wood structural panel thickness for shear walls shall not be less than $\frac{3}{8}$ -inch thick and studs shall not be spaced at more than 16 inches on center.
2. The maximum nominal unit shear capacities for $\frac{3}{8}$ -inch wood structural panels resisting seismic forces in structures assigned to Seismic Design Category D, E or F is 400 pounds per linear foot (plf).

Exception: Other nominal unit shear capacities may be permitted if such values are substantiated by cyclic testing and approved by the building official.

3. Nails shall be placed not less than $\frac{1}{2}$ inch in from the panel edges and not less than $\frac{3}{8}$ -inch from the edge of the connecting members for shear greater than 350 plf using ASD or 500 plf using LRFD. Nails shall be placed not less than $\frac{3}{8}$ -inch from panel edges and not less than $\frac{1}{4}$ -inch from the edge of the connecting members for shears of 350 plf or less using ASD or 500 plf or less using LRFD.

For structures assigned to Seismic Design Category D, E, or F, application of Table 4.3B of ANSI/AWC SDPWS shall not be allowed.

For structures assigned to Seismic Design Category D, E, or F, application of Table 4.3C of AWC SDPWS shall not be used below the top level in a multi-level building for structures.

Where panels are fastened to framing members with staples, requirements, and limitations of AWC SDPWS shall be met and the allowable shear values set forth in Tables 2306.3(1), 2306.3(2) or 2306.3(3) shall only be permitted for structures assigned to Seismic Design Category A, B, or C.

Exception: Allowable shear values where panels are fastened to framing members with staples may be used if such values are substantiated by cyclic testing and approved by the building official.

The allowable shear values in Tables 2306.3(1) and 2306.3(2) are permitted to be increased 40 percent for wind design. Panels complying with ANSI/APA PRP-210 shall be permitted to use design values for Plywood Siding in the ANSI/AWC SDPWS.

18.40.550 Add CBC Section 2307.2 – Wood-frame shear walls.

Section 2307.2 is added to the California Building Code to read as follows:

2307.2 Wood-frame shear walls. Wood-frame shear walls shall be designed and constructed in accordance with Section 2306.3 as applicable.