



City/County of [NAME OF CITY]
LARUCP INFORMATION BULLETIN ST-04



PRE-FABRICATED WOOD SHEAR PANELS

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BACKGROUND

The City/County of [Name of City] recognizes pre-fabricated wood shear panels based on cyclic-load tests in accordance with the International Code Council Evaluation Service Inc. (ICC-ES) Acceptance Criteria AC130, dated October 2007, and complies with the 2006 International Building Code subject to the following conditions:

INSTALLATION ACCEPTANCE CRITERIA

Pre-fabricated wood shear panels shall meet the following installation criteria:

1. The panel shall be installed on the first and/or second story of light-framed construction only.
2. For one-story configuration, the panels may be placed directly on the foundation, on a nut and washer with dry-pack, on a mudsill, on a raised foundation, or on a cripple wall.
 - A. Panels installed on a raised foundation shall be supported by full depth engineered lumber blocking or rim not less than nominal 4" in width that extends not less than 6" beyond the width of the wall. Bearing plates shall be installed where required by the wall manufacturer.
 - B. Panels installed on cripple walls shall use allowable values based on second floor installation.
3. For two-story configuration, the panels may be stacked or non-stack with the following requirements:
 - A. The panels shall not be less than 24".
 - B. For stacked configuration, the panel on the first level shall be placed directly on the foundation and *not* on a sill plate or raised floor. The blocking or rim between floors shall be full depth engineered lumber blocking or rim not less than nominal 4" in width that extends not less than 6" beyond the width of the wall. Overturning forces shall be calculated with cumulated lateral forces applied at the first floor and at the roof level. High-strength steel may be required for stacked conditions with high uplift forces per the ICC evaluation report.
 - C. Adequate details shall be provided to transfer the shear and overturning forces down to the foundation.
 - D. Panels may be installed on the second level *without* matching panels directly below. All supporting horizontal framing shall be engineered lumber and appropriately designed by the engineer of record. The additional top-of-panel drift contributed by beam deflection must be added to the overall top-of-panel drift.





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4. All installations shall use the respective manufacturer's approved anchor bolt template, and, except as modified herein, shall be installed per the approved manufacturer's installation instructions and specifications.
5. Provide structural observation as required per Section 1709.2 of the California Building Code
6. Provide special inspection as required per Section 1707.3 of the California Building Code.
7. Shims shall be provided to fill gaps between pre-fabricated wood shear panels and the top plates or header. Maximum shim height between panels and top plates or header shall be 1/2 inch. Thicker shims may be used provided shear transfer, overturning, and drift is considered by the designer.

CALCULATIONS ACCEPTANCE CRITERIA

Pre-fabricated wood shear panels shall meet the following calculation criteria:

1. Plans and calculations shall require the stamp and signature of a licensed Civil Engineer or Architect.
2. Design of the system shall be based on $R = 6.5$, $\Omega_c = 3$, and $C_d = 4$.
3. Typical panels are factory-fabricated with OSB sheathing. Where panels are specially ordered with plywood sheathing of equal thickness, the allowable in-plane shear loads shall be multiply by a reduction factor as specified in the product evaluation report.
4. When panels are installed on masonry foundations, the allowable in-plane shear capacities of the panels shall be reduced as limited by the anchor bolt and hold-down anchorage capacities installed on masonry foundations.
5. The foundation must be designed to resist all loads transferred, including the overturning moment of the wall panels. Capacities of anchor bolts resisting earthquake forces shall be determined based on the requirements of ACI 318-05 Appendix D.
6. If manufactured narrow shear panels are used in line with other types of walls (such as conventional wood sheathed structural panels), applied loads must be proportioned based on relative stiffness. Combination with other lateral-resisting structural systems for which the stiffness is unknown is prohibited.
7. All pre-fabricated wood shear panels shall be designed to fall within allowable code drift limitations.





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8. Structural irregularities and elements supporting discontinuous systems shall be designed to meet the requirements of ASCE 7-05 Section 12.3.3.

This policy applies to all pre-fabricated wood shear panels with an approved ICC-ES report based on AC130 dated October 2007.

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