City of Santa Monica
Building and Safety Division

Wood Frame Shear Diaphragm Checklist

This is to be used as a general checklist; it is not inclusive of all code requirements and special inspection criteria.

Per California Building Code (CBC) Chapter 23
American Society of Testing Materials (ASTM) F1667
American Society of Civil Engineers (ASCE) 7
And National Design Standard (NDS) for wood construction
And the Santa Monica Municipal Code (S.M.M.C.)

- ☐ Verify from the structural framing plans the location and length of all shear walls.
- ☐ Review and collect structural observation
- ☐ Collect and review deputy report(s), verify deputy registration with City of Santa Monica.
- ☐ Verify the nail spacing at the boundaries, edges and field of the sheathing agrees with the shear wall schedule. (boundary=edge of diaphragm and collector lines)
- ☐ Identify nail type (common nails or galvanized common nails only). SMMC/ASTM F1667
- ☐ Hot dipped galvanized fasteners into pressure treated wood (or stainless steel, silicone bronze, or copper). CBC 2304.9.5
- ☐ Check nail shank diameter and head size (ASTM 1667 Table 5 says an 8d is 2 1/2" long, 0.131 dia. shank and 0.281 head. A 10d common is (always) 3" long, shank dia. 0.148 and 0.312 head size and ***must be labeled*** F1667NLCMS-09B to be a 10d common).
- ☐ Nail Placement:
  - o Driven flush but not overdriven CBC 2304.9.2
  - o Minimum 3/8" from sheath edge to center of nail (1/2" for walls >300lb uplift w/ 3X framing)
  - o View the stud side of wall to check for nails that missed framing (shiners).
  - o Staggered along edges where spacing is 3 inches o.c. or less.
  - o Boundary nails into hold-down posts, top plates, drag lines and perimeters of all shear diaphragms.
- ☐ Verify sheathing material agrees with the structural notes. WSP-wood structural panel Type (Plywood or OSB, other products must meet DOC PS-1 or PS-2); Grade Thickness(3/8,15/32,1/2) Span Rating (32/16); Number of Ply's=3 minimum
  3-ply good for 200lb uplift maximum per S.M.M.C.
  Chapter 23 Tables 2304.6, 2304.7 and S.M.M.C.
- ☐ Verify sawn lumber size and grade agrees with the structural notes. (typically #1 w/ 19% max. moisture to avoid derating of allowable capacity (30%) per NDS-05 (grade stamp reads 'DRY' instead of 'GREEN')
  - o Framing Grade of Studs & Posts (No. 2 or better)
  - o Lumber Species (Douglas Fir Larch only…S.M.M.C.)
  - o Framing Size (3x studs, sill at heavily nailed edges 4x or 6x at HD).
  - o Blocking on all edges of panels (S.M.M.C. 2305.3.3)
- ☐ Verify bottom of wall shear transfer (sill/sole plate connection) is based on the structural notes and details.
  - o Fastener size and spacing of shear wall sole plate to floor framing below (rim joist per plan)

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- o Foundation sill bolt diameter and spacing from shear wall schedule or notes.
- o Anchor bolts minimum 4 “from ends of sill plates (not more than 12 inches from ends); not less than 1 inch from edge of sill plate; not less than 1 3/4 inches to (outside) edge of concrete foundation.
- o Verify 3”X3” square plate washers on anchor bolts in shear walls and on hold down bolts
- o Verify bolt holes are not more than 1/16" larger than bolt diameter.

- Proper installation of shear hardware per manufacturer (no deflection of LTP4, proper placement and number of SDS screws, proper location on post etc…)
- Call rough building inspection prior to cover of boundary nailing by window and door flashings, also prior to slammer studs at intersecting shear walls.