



TECHNICAL BULLETIN

PERMIT AND RESOURCE MANAGEMENT DEPARTMENT

B-17X

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Over-Driven Fasteners on Shear Walls and Diaphragms

INTRODUCTION

Occasionally builders installing plywood onto the frame of shear walls and *diaphragms* using pneumatic powered devices will overdrive the fasteners. This is typically caused by excessive air pressure, or poor adjustment of the driving mechanism. Excessively overdriven fasteners may reduce the overall shear capacity of the shear wall or diaphragm. The following American Plywood Association recommendations are this department's policy for determining if overdriven fasteners affect the shear capacity or shear wall construction.

TECHNICAL DETAILS

If all fasteners around the perimeter of panels appear to be overdriven by the same amount - say 1/16" and it appears that panels have been wetted during construction, it can be assumed that the fastener embedment is due to panel thickness swelling. This can be verified by measuring the thickness of panels where fasteners appear to be overdriven, and comparing to measurements where panels have been protected from the weather or to the original nominal panel thickness which is part of the trademark. In this case, no reductions in shear capacity need to be taken.

If no more than 20% of the fasteners around the perimeter of panels are overdriven by up to 1/8", no reductions in shear capacity need to be taken.

If more than 20% of the fasteners around the perimeter of panels are overdriven, or if any are overdriven by more than 1/8", additional fasteners shall be driven to maintain the required shear capacity. For every two fasteners overdriven, one additional fastener shall be driven.

Another consideration that should not be overlooked when judging overdriven fasteners is the minimum nominal panel thickness required for the design shear. If design shear for the construction requires a 15/32" minimum nominal panel thickness and the actual sheathing is 19/32" with all fasteners overdriven 1/8", the net result is a 15/32" panel which meets the design shear requirements.

If due to extraordinary conditions of close nailing patterns additional fasteners cannot be added without concern for splitting the framing member, consult the engineer of record for specific recommendations, remedial action, and direction. Additional plan check review may be required.

REFERENCES

1998 California Building Code Section 2315
American Plywood Association
Sonoma County Residential Construction Handbook Section 8
